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The complex vision on the earnings management: the evidence from Eastern European countries

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UNIVERSIDAD DE ZARAGOZA

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FACULTY OF ECONOMY AND BUSINESS

THE COMPLEX VISION ON THE EARNINGS MANAGEMENT: THE EVIDENCE FROM EASTERN EUROPEAN COUNTRIES

PhD Thesis

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November 2015

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David Wroblewski

Zaragoza, November 2015

TABLE OF CONTENTS

TABLE OF CONTENTS

PART II – EMPIRICAL RESEARCH

LIST OF TABLES

CHAPTER 5

CHAPTER 6

CHAPTER 7

CHAPTER 8

LIST OF FIGURES

CHAPTER 5

CHAPTER 6

CHAPTER 7

INTRODUCTION

The manipulation of accounting information is a central problem for financial experts, as a lack of transparency may lead to misunderstandings when users take decisions. Therefore, the most important role of financial reports is to effectively communicate financial information to outsiders in a timely and credible manner (FASB, 1984).

One of the major components of the annual reports is the earnings figure which is used by outsiders to make decisions in regard to the company. Earnings are powerful indicators of firms' business activities and decisions made by management. Consequently, earnings reliability becomes questionable when managers have an incentive to manipulate reported earnings (e.g. Brown, 1999; Healy and Wahlen, 1999; Rosenfield, 2000; Dechow and Skinner, 2000).

Hence, among research topics in accounting and finance, none is perhaps more provocative than earnings management. Understanding what earnings management constitutes and why it takes place, is essential for users of financial statement information, as financial statements are a firms' primary way of communicating value and performance to shareholders and other relevant parties.

In effect, the practice of earnings management has attracted considerable academic research attention as can be seen in the significant number of studies related to this subject. It is a very complex and compound phenomenon observed under the light of many years of investigation. The subject of earnings management in accounting literature has grown in popularity, especially during the last decade of the 20th century. However, that it is still difficult to define it, which reflects the fact that researchers often have very different perceptions of earnings management.

The definition of earnings management has been inconsistent in the literature despite abundant papers, books and articles that have been written and conferences held on the concept of earnings management investigating theoretically and empirically, different hypotheses related to the subject. Major problems with the definition include ambiguity and immeasurability. Hence, there is no clear consensus in the literature on what earnings management is (Dechow *et al.*, 1996; Messod, 2001).

Some researchers aimed simply to provide evidence of earnings management; others assume that earnings management has been found in connection with many aspects of the company, such as its role in companies' problems, financial markets, information asymmetry and agency theory, among others. As a consequence, an ongoing debate on the concept of earnings management is still present in the accounting and finance literature.

Therefore, given the importance of the earnings management issue and its complexity, our research contributes to this debate. We investigate the phenomenon of earnings management based on a sample of emerging Eastern European countries, markets that are still unexplored. It is obvious that fundamental changes have taken place in economic and societal structures in these countries, involving a process of transformation and globalisation. Inter alia, it becomes makes it interesting to investigate earnings management in these developing countries.

Hence, our motivation to undertake this study is, as noted above, the research gap on earnings management in Eastern European countries; because there are some peculiarities in these countries that lead us to think that earnings management here may be different to earnings management in other countries. These include the change from communism to new democratic regimes, the rapid privatization, the institutional infrastructure, the culture, and the fact that they are developing countries.

Additionally, among different circumstances, we are interested in exploring the effect of the entry into the European Union and the world financial crisis on the earnings management in these countries, because this has not been investigated yet. We also compare earnings management behaviour between Eastern and Western European countries. In Europe we may find many differences, therefore such investigation could prove essential, especially in the topic of earnings management where such investigations are absent. Comparative study may help to understand and reveal characteristics of both markets (Western and Eastern), and it has not been done up until now.

Finally, we are interested to examine the motivations which lead managers in developing Eastern European countries to manage earnings. This is also a new line of investigation in earnings management literature.

This study focuses on four Eastern European countries: Poland, Hungary, Slovakia and the Czech Republic, during the period from 2003 to 2009. In the first four

chapters we focus on the existing debates on earnings management, perspectives and definition, while we also identify the incentives and possible interesting aspects of the environment of Eastern European countries. Considering the above questions, our objectives in this PhD dissertation are the following.

1. The first aim is to analyze ***whether firms from our emerging Eastern European countries manage earnings*** and if so, to measure the sign of such manipulation. This means determining the way in which developing Eastern European countries manage their earnings: to increase or to decrease. Our objective is also to know whether the manipulation changes over the years. We are interested in how our emerging Eastern European countries respond to the dynamic environment, considering two important events: their entry into the European Union and the world financial crisis and their effects on managers' decisions for managing earnings. Finally, we intend to investigate whether earnings manipulation is similar or different Eastern European countries. It seems that the common heritage of communism and, as well as cultural or social similarities may have an influence on the way of managing earnings.

2. Our second objective focuses on ***a comparative study of Eastern and Western European countries***. We verify whether emerging Eastern European and well-developed Western European countries manage differently or similarly in terms of the scope and sign of earnings management. We analyze whether earnings manipulation in both European markets changes over time in similar or different ways. Finally, we evaluate possible fluctuations over time, and detect possible trends in earnings management of Eastern and Western European countries.

3. Finally, we investigate why managers of Eastern European companies manage earnings. We are interested in determining which sort of ***motivations led them to earnings manipulation***. We focus as well on reasons which may have influenced managers to change the scope of earnings management over time. Finally, despite the fact that our four Eastern European countries give the impression of having the same conditions and circumstances: as post-communist countries, transitional into democratic and market-oriented economies, recently incorporated into European Union structures, we may still find differences between them in terms of earnings management. Consequently, our research question centres on the causes of such differences in earnings management among Eastern European countries.

In order to achieve these objectives, a wide body of research has been carried out for which we have structured our study in the following parts. Overall, the Thesis consists of two main parts: the first is **a theoretical framework** on earnings management. This part encloses four chapters: Review of literature on earnings management from different perspectives (Chapter 1); Measuring earnings management based on the aggregate accruals models (Chapter 2); Causes for the existence of earnings management (Chapter 3); and Eastern European markets: circumstances, conditions, economic, cultural, and political situation. Reasons for the selection of emerging Eastern European countries (Chapter 4).

The second part is **empirical research**. This part also includes four chapters: Alternative models for measuring earnings management. Robustness tests (Chapter 5); The measurement of earnings management in emerging Eastern European countries (Chapter 6); Comparative study: earnings management in Eastern vs. Western European countries (Chapter 7); and Investigation on incentives and factors for earnings management in Eastern European countries (Chapter 8).

The first, more descriptive part focuses on theoretical support and background for our posterior research. Therefore, in detail, we present our main objectives as follow.

CHAPTER 1 focuses on the character of manipulation describing its nature and the scope of possible ways of manipulating financial information. Secondly, taking the nature of manipulation into consideration, we define earnings management, as the literature has revealed an inconsistency in the definitions of the concept. We develop a constructive definition of earnings management and discuss the conceptual distinctions between the authors' points of view and their implications for the perception of earnings management. And finally, having defined the concept of earnings management, we focus on the investigations of earnings management that have been made to date. We organize the existing literature into three different perspectives: chronological, methodological and cross-country perspective (geographical perspective).

CHAPTER 2 presents a detailed revision of alternative models for measuring earnings management, as a major issue with respect to the power of the research is the ability to identify proxies or conditioning variables that reflect discretionary and non-discretionary components of accruals (Beaver, 2002). We show the developments in this matter and new ways of detecting and measuring earnings management. We present an

important review of the advantages and weaknesses of existing models looking for the most reliable model in detection of the discretionary part of accruals.

In **CHAPTER 3** we analyze possible managers' incentives and environmental factors that may stimulate or limit managers' earnings management activities. There are many causes that influence the management assessment and accounting treatments. As pointed out in the earnings management literature, incentives for earnings management are always present in managers' daily activities (Dechow and Sloan, 1991; Holthausen, Larcker and Sloan, 1995; Shackleford and Shevlin, 2003). However, in some circumstances the level of certain incentives may decrease or increase depending on some factors which originate in environment in which the company operates. Hence, this chapter provides a complex classification of the motivations for earnings management and supports a new sort of analysis of the incentives and factors.

CHAPTER 4 explains the economic, cultural, and political circumstances, accounting regulation, and other characteristics, of developing Eastern European markets, to give reasons why these markets may be interesting from the point of view of the investigation of earnings management. We observe that earnings management has received considerable attention in accounting and financial literature. Nevertheless, growing Eastern European markets like those of Poland, Hungary, the Czech Republic or Slovakian market are still unexplored. It is certain that the process of globalization and deep economic changes have taken place, not only in Western European countries, but also in less developed and developing countries, like Poland, Hungary, Slovakia or the Czech Republic. Additionally, there are some peculiarities in these countries, such as the change from communism to new democratic regimes, the rapid privatization, the institutional infrastructure, the culture, the fact that they are developing countries, etc. which lead us to think that earnings management there may be different to earnings management in other countries. Consequently, we present a background for the emerging Eastern European countries.

The ***second part*** of the dissertation consists of four core elements of the PhD Thesis with a significant importance for the progress of the investigations of earnings management. It is an empirical investigation of the emerging Eastern European countries and their comparison with Western European developed markets.

Specifically, in **CHAPTER 5** we evaluate empirically the power of the existing models on earnings management. The literature pointed out the wide range of use of alternative models to measure earnings management ranging from simple models in which discretionary accruals are measured as total accruals (see for example, Healy 1985, DeAngelo 1986), to more sophisticated models that attempt to separate total accruals into discretionary and nondiscretionary components (see for example, Jones 1991, Kasznik, 1999, Kothari et al. 2005, among others), as we explained in Chapter 2. However, there is no systematic evidence bearing on the relative performance of these alternative models at detecting earnings management. Usually, authors measure earnings management with the models most applicable and most popular in the literature on earnings management. Nevertheless, the success of any earnings management study critically depends on the precise methodology used to measure earnings management. The purpose of this chapter is to help and facilitate the selection the most appropriate model in detecting the discretionary part of accruals for developing Eastern European countries, markets until now not explored.

In **CHAPTER 6** we investigate earnings management in four emerging Eastern European countries: Poland, Hungary, Slovakia and the Czech Republic, focusing on the markets until now not explored (or barely explored). In particular we are interested in responding to several questions. First, whether companies from these developing countries manage their earnings and if they do so to increase or decrease the earnings figure. We also analyze whether or not the manipulation varies over the years affected by different events. Finally, we provide similarities and differences in earnings management among the different countries in the sample.

In **CHAPTER 7** we compare earnings management behaviour between Eastern and Western European countries. In Europe we may find many differences. Therefore, such investigation could be essential, especially in the topic of earnings management where such research does not yet exist. Comparative study may help to understand both markets (Western and Eastern). It can help to reveal characteristics of both parts of Europe. In the light of the results from the previous chapter, we are interested in responding to the following questions: can we find differences in earnings management between Western and Eastern European countries? May we find a similar or different scope and sign of earnings management between Eastern and Western European

countries? Does earnings management change over time in the same or the different ways in European countries? Do we observe similar fluctuations and trends over time?

Finally, in **CHAPTER 8** we analyze the incentives and environmental circumstances which lead managers from Eastern European countries to manage earnings. Based on the results obtained from chapter 6 we evaluate the causes of earnings management. Legal, economic, cultural and political situations in Eastern European countries are different than they are in Western European countries. This makes us think that the motivations for earnings management and factors which may influence on managers' decisions in these countries may be different than in Western European companies. Therefore, we are investigating which sort of incentives and factors drive managers to opt for managing earnings. We provide a comprehensive and empirical study of earnings management in order to answer the following questions: why do Eastern European firms manage earnings to decrease them? Why do we observe changes in earnings management over years in Eastern European countries? Why do we observe differences in earning management among Eastern European countries?

Finally, we present the **general conclusions**, where we recapitulate main contributions made along the PhD Thesis. Hence, we include the **bibliography** used for constructing our study.

We ***contribute to the literature of earnings management*** in at least five important ways. First, we present a broad literature review on the debates and definition of earnings management. We review and analyze existing papers on earnings management from three different perspectives. Such breadth three perspective papers' analyses to my knowledge, has not been done to date. Prior studies examined only some of the aspects of earnings management separately. The systematic revision may help importantly to clarify the notion and perception of earnings management, as there is still continued debate on this topic. Additionally, the country analysis is a new perspective presented in our study.

Second, we contribute to the earnings management literature by providing a comprehensive attempt to examine the remarkably wide range of existing models on earnings management. We review the advantages and weaknesses of existing models looking for the most reliable model in detection of the discretionary part of accruals. Then, we empirically evaluate the ability of the existing discretionary accruals models in detecting earnings management (ten models). Therefore, the purpose of this chapter is

to help and facilitate the selection of the most appropriate model in detecting the discretionary part of accruals for developing Eastern European countries, markets till now not explored.

Third, we contribute to the recent debate among practitioners, regulators and academics about the determinants of earnings management in Eastern European countries. We undertake this investigation to fulfil the research gap on earnings management in developing Eastern European countries, focusing on the markets until now not explored (or barely explored). Investors and analysts try to look for clues and new tendencies in earnings manipulation. The study of new emerging Eastern European economies may help us to understand how managers cope with the pressure in highly competitive European markets. Additionally, we observe peculiarities in these countries, such as the change from communism to new democratic regimes, the rapid privatization, the institutional infrastructure, membership in European Union structures, the culture, etc. which lead us to think that earnings management there may be different to the earnings management in other countries (countries well investigated, such as Western European countries).

Fourth, we provide a comparative study of developing Eastern European countries and well-established Western European countries. This study represents the first study that compares and evaluates both markets in terms of earnings manipulation. It is important for investors to obtain a true and fair view of this reality, as Europe is no longer only defined by its Western European countries.

Finally, we conduct investigation into the motivations for earnings management in Eastern European countries which has not been done to date. Research on earnings management in Western European countries has been done in detail, but some new emerging countries are still unexplored. This could be an issue of empirical interest for this particular moment. The research could provide new insights in terms of the motivations into the period towards the effect of European Union enlargement, and economic crisis and the role of developing Eastern European companies in Europe.

Outline of the Thesis

PART I: Theoretical framework

- Actual debates on earnings management
- Definition of earnings management
- Evolution of the investigation of earnings management: chronological, methodological, cross-country perspective

Chapter 1

- Identifying proxies of measuring earnings management
- Description and detailed analysis of accruals models of measuring earnings management

Chapter 2

- Classification of incentives that may have influence on earnings management practice
- Classification of the factors that come from the company's environment and may stimulate or limit managers' activity for earnings manipulation

Chapter 3

- The reasons of the selection of emerging Eastern European countries
- The circumstances and conditions of the markets of Eastern European countries: analysis of the economical, cultural, political situation, and accounting regulation

Chapter 4

PART II: Empirical research

- Empirical evaluation of the earnings management models
- Selection of the model which offers the most powerful results in detecting earnings management for emerging Eastern European countries

Chapter 5

- Measuring whether developing Eastern European countries manage their earnings
- Investigation how Eastern European countries manage their earnings: to increase/ decrease
- Investigation on the existent changes in earnings management over years
- Investigation on possible differences in earnings management among Eastern European countries

Chapter 6

- Comparative study of Eastern and Western European countries: comparing the scope of earnings manipulation
- Comparative study of Eastern and Western European countries: comparing the sign of earnings management (manipulation to increase/ decrease)
- Investigation on possible changes over years in both: Eastern and Western European countries in earnings management

Chapter 7

- Investigation on motivations for earnings management of Eastern European countries: analyzing which why (reasons) developing Eastern European countries manage earnings
- Determining which sort of incentives and factors influence on existence changes over years in earnings management in Eastern European countries
- Investigation on the reasons of the differences in the earnings manipulation among Eastern European countries

Chapter 8

Source: The author

PART I

THEORETICAL FRAMEWORK

CHAPTER 1

REVIEW OF LITERATURE ON EARNINGS MANAGEMENT FROM DIFFERENT PERSPECTIVES

Earnings management is a very complex and compound phenomenon in the light of many years of investigation. Since then numerous books and articles have been written and conferences held on the concept of earnings management. The subject of earnings management in accounting literature has grown in popularity, especially during the last decade of the 20th century. It has almost become a tradition, particularly in the popular and business press, to discuss the subject of accounting manipulation. Without a doubt, earnings management is presented day-to-day in many companies which commissioned the majority of studies. However, there is no consensus related to the concept of earnings management.

Numerous papers have investigated, both theoretically and empirically, different hypotheses and debate on the topic of earnings management. Some studies simply focused on the theoretical aspect of earnings management, studies such as: Healy and Wahlen (1999), Dechow and Skinner (2000), García Osma, Gill-de-Albornoz, Gisbert (2003), Yaping (2005), Rath and Sun (2008) who reviewed earnings management literature and focused on main advances within the studies. Other researchers provided an empirical view. For example, some authors aimed to supply evidence of earnings management; others assumed that earnings management has been found in connection with many aspects of company, such as its role in companies' problems, financial markets, information asymmetry, and agency theory among others.

Other papers addressed the question of whether managers of firms in different countries engage in earnings management, and if so, how to measure it, and why they do so, amongst other questions. As a consequence, an ongoing debate on the concept of earnings management is still present in the accounting and finance literature; and indeed the abundance of literature on this subject assures the importance of this topic. This Thesis contributes to this debate.

Due to the wide variety and the complexity of the issue of earnings management, our objective in the first chapter is to clarify and explain the question of earnings management and support new insights into the key aspects of this issue by conducting a systematic literature review.

The remainder of this chapter is structured as follows. Firstly, we focus on the character of manipulation. We describe the nature of manipulation and the scope of possible ways of manipulating financial information. We describe different perspectives of manipulation, such as manipulation by real activities or by accruals; manipulation

within the accounting norms or outside the accounting norms; or the opportunistic or informative perspective of manipulation with the correspondent techniques.

Secondly, taking the nature of manipulation into consideration, we define earnings management. We present key elements which enclose the description of earnings management. This section will discuss the prior definition considering earnings management suggesting differences between the authors' points of view and their implications of perception of earnings management.

Finally, having defined the concept of earnings management, we focus on the investigation of earnings management made to date. This section will present prior literature considering earnings management. Looking at the wide range of possible definitions of earnings management we become aware of the abundance of notions of earnings management. This part centres the attention on academic researches. We organize the existing literature into three different perspectives: chronological, methodological and cross-country perspective. In particular, we present the progression of earnings management research over more than two decades of investigation. We additionally discuss and analyse methodological attempts to develop different models that detect earnings management. Finally, we analyse the research papers from the point of view of countries included in the sample used in the study.

In this chapter we contribute to the literature at least in four important ways. First of all, we present a broad literature review on debates and a definition of earnings management. To date, there has been no consensus on how to define the concept of earnings management. The systematic revision may help importantly help to clarify the notion. Second of all, we review and analyse existing papers on earnings management from three different points of view. It is important literature revision as prior studies examined only some of the aspects of earnings management separately. We provide a systematic study identifying crucial moments and elements on the investigation of earnings management. It does not only mark advances on topic within more than 25 years of investigation, but it also indentifies an additional number of opportunities for future research on earnings management. This chapter will be of special interest to PhD students whose topic is earnings management or investigators who have just started their research on this topic.

The methodology used in this chapter is based on detailed review of literature from early 1985 to 2013 and developing a constructive classification of results obtained by the authors. Taking the existing literature on earnings management into

consideration, we created our database of papers on earnings management. We have included in this database most cited articles published on earnings management in the journals of accounting and finance literature. We have also incorporated PhD Theses, Master's Theses and working papers on this topic. In total, we identified 207 articles, which included: journals, conferences, congresses, and other publications, such as: PhD Theses, Master's theses and working papers. To my knowledge, such breadth, including three perspective papers' analyses, has never been done to date.

Finally, the country analysis is a new perspective presented in this chapter. The country of origin has an influence on the perceptions and the results of earnings management investigation. Up to now, several studies have pointed out that the sample's country origin determines the results see, for example, Leuz, Nanda and Wysocki (2003), Burgstahler, Hail and Leuz (2006), Geiger *et al.* (2006), Geiger, Quirvan and Hazera (2007); nevertheless detailed analysis on country sample selection has not been presented by the named authors.

1.1. PHENOMENON OF MANIPULATION OF FINANCIAL INFORMATION

Before the issue of accounting manipulation became one of central importance for financial experts, the phenomenon of earnings management had already drawn the attention of academic researchers and regulators, by the wide range of financial scandals, where the lack of transparency was often cited as the prime explanation for large corporate scandals, such as Enron, Tyco, WorldCom, Parmalat, among others in the early 2000s. Hunton, Libby, and Mazza (2006) considered and pointed out the importance of the role of financial reporting transparency on managers' earnings management decisions. Lack of transparency involves an information asymmetry that is pervasive (Oxelheim, 2010). Quick, Turley and Willekens (2008) talk about the term "trust crisis", where the value relevance of accounting numbers are affected. The price for this lack of transparency occurs and it can be translated quantitatively into unrealized growth. Rodrigues, Oliveira and Craig (2013) found that companies disclose risk-related information principally to reduce agency costs and to enhance corporate reputation. Consequently, increased transparency in policy-making results in reduced risk, a lower risk premium as part of cost of capital, higher investment and increased economic growth for a company as a whole (Oxelheim, 1996).

Moreover, in the business world, lack of transparency often transpires in communications between those who hold special insight into a company's dealings (insiders) and those who have interests at stake in a company but otherwise lack insight (outsiders). However, the theory on supply and demand for company-specific information is weak (Bushman, Piotroski, and Smith, 2004), and this criticism applies to an even greater degree when supply and demand are linked to economic growth (Oxelheim, 2006). Basically, access to information is considered as a central determinant in effective decisions on resource allocation and growth (Levine, 1997).

Some regulatory steps were undertaken. However, these actions ostensibly did not mitigate the 2008–09 global financial crisis from reaching incredible proportions. The turmoil has caused politicians and regulators worldwide to call for more transparency. For example, in February 2009, the new US administration under President Barack Obama unveiled a bank stress-testing program[1]. The results for 19 major US banks were reported in May 2009 as a means to regain trust in the banking system via increased transparency. What then is an adequate way to improve transparency in the corporate sector?

In this way, we observe that financial information, and exactly the manipulation of financial information influences business. The transparency and comparability arguments suggest that accounting quality should improve (García-Benau and Vico, 2003; Jeanjean and Stolowy, 2008). The authors take into consideration this lack of transparency. It comes from the deficient of reported earnings. Researchers have examined the impact of financial reporting factors on earnings management behaviour (we will see it later). Nevertheless, the literature points out debate on managing earnings by manipulation using different possible ways, methods and approaches. The abundance of literature on this subject, indeed, assures that the accounting measures and reports are imperfect and leave different possible ways to manipulate earnings. The earnings management literature attempts to understand why managers manipulate earnings, and how they do so. Our research also sheds light on the question that prior literature has tried to answer.

Based on discussions found in the literature we may find different debates on earnings management. Firstly, prior researchers classify earnings management into two broad categories: ***real earnings management*** (in other words, affecting cash flows) and

[1] According to the study of Oxelheim, 2010.

accruals management through changes in estimates and accounting policies. Ball and Shivakumar (2008) stated that managers are willing to engage in real earnings management that is costly to the firm because such actions are harder to detect; with the uncertainty inherent in business environments, there is no benchmark to determine what should have been done in any particular situation. In law, managers and boards of directors are protected by the ‘‘business judgment rule’’ that makes it difficult to find them liable for bad business decisions (Ball and Shivakumar, 2008). In the same line of investigation, Graham, Harvey and Rajgopal (2005) suggested a survey as evidence that confirmed that managers are much more willing to engage in real earnings management than accruals management, pointing out: 80% would decrease discretionary spending, 55% would delay a project, compared with only 28% who would draw down reserves and 8% who would change accounting assumptions (Graham, Harvey and Rajgopal, 2005).

In contrast, our study focuses on accrual-based earnings/ manipulation through discretionary accrual choices for four main reasons:

- Firstly, the extensive literature investigating earnings management stands on accrual based earnings. It indicates the importance of manipulation by the managers through this method. As indicated by Dechow, Richardson and Tuna (2003) and Larcker and Richardson (2004), earnings management through accruals manipulation has been generally agreed to be a more prevalent form of earning management.
- The second reason comes from the previous one. If there is such extension literature related to accruals-based manipulation, it means, that there is a need of intensification and development of existing investigations, making them more specific, precise and detailed in their results.
- Third, accrual manipulation is subjected to examination by auditors and potentially by forensic accountants and the courts, which have accounting standards as the benchmark (Ball and Shivakumar, 2008).
- Finally, the difficulty of reaching real companies’ information related to real activities manipulations. The possibility to obtain an actual database is limited in case of manipulations through the real activities.

Focusing on earnings management by accounting practice, we find a second debate: ***manipulation without violating accounting rules***, or ***crossing the boundaries***

of rules, which may even be fraud. Here we have the question: do managers manipulate earnings within the accounting norms, or crossing the existing standards and principles?

A large number of studies found that managers can exercise discretion through the choice of accounting methods or polices, see, for example Watts and Zimmerman (1978), Hagerman and Zmijewski (1979), Holthausen (1981), Bowen, Noreen, and Lacey (1981), Skinner (1993), Christie and Zimmerman (1994), Teoh, Welch and Wong (1998), Nelson, Elliott and Tarpley (2002), among others.

Accounting standards did play an important part in the behaviour of managers (García Osma and Gill-de-Albornoz, 2005), and managers use the flexibility and possibilities of selecting different alternatives to opt for the particular one which may secure some benefits. Managers may use different accounting standards in their own interest in the absence of effective control mechanisms. These accounting practices are carried out by management with the purposeful intent of manipulating the resulting figures to their advantage (Callao and Jarne, 2010). So the decrease of scope for alternative choices of accounting methods can reduce the possibility of earnings management.

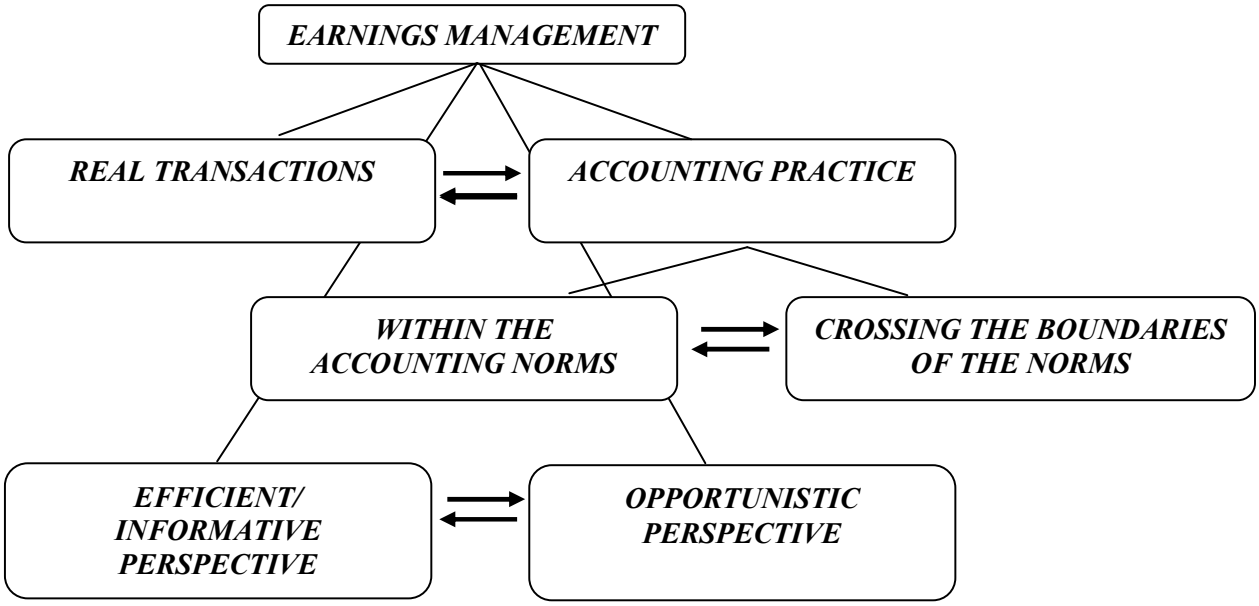
On the other hand, abuse of judgment and crossing the boundaries of accounting norms can also be found in the possibility of managing earnings, and this can transform into fraudulent behaviour. When fraudulent reporting occurs, it is frequently perpetrated at levels of management above those for which internal control systems are designed to be effective. It often involves using the financial statements to create an illusion that the entity is healthier and more prosperous than it actually is.

This illusion is sometimes accomplished by masking economic realities through intentional misapplication of accounting principles (see, for example Conner 1986 and Fischer and Rosenzweig, 1995). Taking the above mentioned details into consideration, we may define fraud as accounting practices which are clearly meant to deceive, mislead or hide some financial information, and always taking into account crossing and not respecting the established accounting norms (see, for example, García-Benau and Humphrey, 1995; Rocco, 1998; Dechow and Skinner, 2000; Mulford and Comiskey, 2002). As we can see, the main difference between fraud and non-fraudulent activity comes from following or breaking the accounting rules.

And finally, we centre on the third debate found in the literature. An ongoing debate in the area of financial accounting and reporting relates to the question of whether managers manipulate information of earnings only to prepare more effective

financial reports to inform about the results of companies, or whether managers manipulate information/ earnings to obtain some benefits and objectives, meaning serving the needs and expectations of managers. The literature called these two types of earnings management ***efficient earnings management*** (in other words, to improve earnings informativeness in communicating private information) and ***opportunistic earnings management*** (in other words, management reports earnings opportunistically to maximize their utility) (Scott, 2000)[2]. Figure 1.1 shows the possible debates existing in the literature on earnings management. The next sections discuss these existing debates.

Figure 1.1: Ongoing debates on earnings management



Source: Callao, Jarne and Wroblewski (2014a).

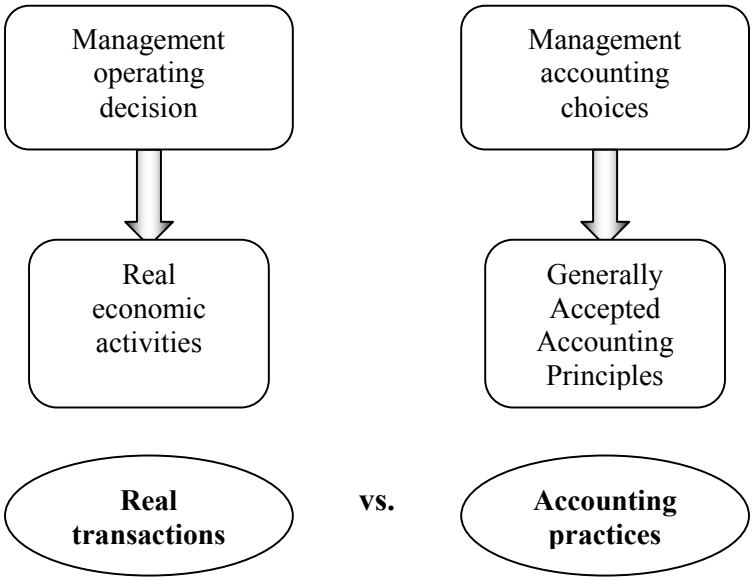
1.1.1. REAL EARNINGS MANAGEMENT vs. ACCRUALS MANAGEMENT

As the literature points out, earnings management can be classified into two categories: accruals management and real transactions (see Figure 1.2). Real earnings management occurs when managers undertake actions that deviate from the first best practice to increase/ decrease reported earnings (see, for example McNichols, 2000). An

[2] We need to point out that the possibility between informative perspective and opportunistic perspective can be in real earnings management, as well as in accruals management. We focus on the possible informative or opportunistic manipulation within the accrual-based earnings management.

example of a proper management operating decision would be whether or not to implement a special discount or incentive program to increase sales near the end of a quarter when revenue targets are not being met. Other examples of operating decisions would be whether to invest in new equipment or hire additional employees. Companies have to make these types of decisions constantly.

Figure 1.2: Real earnings management vs. Accruals management



Source: The author.

Accruals management operates within the accounting norms choices that try to "obscure" or "mask" true economic performance (Dechow and Skinner, 2000). An example of an accounting choice would be whether a company should be a voluntary early adopter of a new accounting standard or wait until the adoption of new accounting standard is required of all companies. Amat, Blake and Dowds (2003) point out, that accounting regulation allows that the same transaction may be accounted for in different ways, for example, the criteria for asset valuing, the accounting for revenues and expenses, depreciation and provisions, research and development, foreign currency operations, among others. This allows the use of a more conservative or less conservative accounting approach according to specific interests. Largay (2002) resumed that the gaps and flexibility of accounting norms allow a great variety of

accounting results. We detail accruals management and real earnings management in the next sections.

1.1.1.1. REAL EARNINGS MANAGEMENT ACTIVITIES

Real earnings management is the activity where managers try to influence reported earnings through actions that substantially change the underlying cash flows thereby influencing reported earnings (Gunny, 2005). Roychowdhury (2006) defined real activities manipulation as departures from normal operational practices, motivated by managers' desire to mislead at least some stakeholders into believing certain financial reporting goals have been met in the normal course of operations. These departures do not necessarily contribute to firm value even though they enable managers to meet reporting goals. Moreover, Zang (2005) identified real activities management as a purposeful action to alter reported earnings in a particular direction, which is achieved by changing the timing or structuring of an operation, investment or financing transaction, and which has sub-optimal business consequences.

It means that managers intentionally make real manipulations in the companies. Managers have incentives to manipulate real activities during the year to meet certain earnings targets. Real activities manipulation affects cash flows and in some cases, accruals (Roychowdhury, 2006).

Graham, Harvey and Rajgopal (2005) found that financial executives attach a high importance to meet earnings targets such as zero earnings, previous period's earnings, and analyst forecasts. They are willing to manipulate real activities to meet these targets, even though the manipulation potentially reduces firm value. In this sense, real activities manipulation can reduce firm value because actions taken in the current period to increase earnings can have a negative effect on cash flows in future periods, for example, aggressive price may discount to increase sales volumes and meet some short-term earnings; or overproduction generates excess inventories that have to be sold in subsequent periods and imposes greater inventory holding costs on company (Roychowdhury, 2006).

Most studies which directly examine earnings management through real activities have been concentrated mostly on investment activities, such as reductions in expenditures on research and development (see, for example Baber, Fairfield, and

Haggard, 1991; Dechow and Sloan, 1991; Bartov, 1993; Bens, Nagar and Wong, 2002; Graham, Harvey, and Rajgopal, 2005). According to the literature on real manipulation, such as papers of Gunny (2005), Graham, Harvey and Rajgopal (2005), Roychowdhury (2006), we find the following transactions as real earnings activities:

- *cutting R&D expenditures,*
- *cutting selling,*
- *general and administrative expenditures,*
- *overproducing inventory to reduce the cost of goods sold,*
- *selling fixed assets with a market value greater than book value to report a gain,*
- *price discounts.*

From all the above possible activities, the literature underlined that most of the evidence on real activities management centred on opportunistic reduction of R&D expenditures to reduce reported expenses. Bens *et al.* (2003), for example, reported that managers repurchase stock to avoid actual earnings per share dilution arising from employee stock option exercises, and employee stock option grants. Bens, Nagar and Wong (2002) found evidence that managers partially finance these repurchases by reducing R&D. Dechow and Sloan (1991) found that executives reduce spending on R&D toward the end of their tenure to increase short-term earnings. Baber, Fairfield, and Haggard (1991) and Bushee (1998) confirmed additionally evidence consistent with reduction of R&D expenditures to meet earnings benchmarks.

On the other hand, we may observe other studies on management of real activities which show manipulation different from the R&D reduction. For example, studies by Roychowdhury (2006), and Bartov (1993) documented that firms with negative earnings changes report higher profits from asset sales. Thomas and Zhang' study (2002) reported evidence consistent with overproduction but they are unable to rule out adverse economic conditions as an alternative explanation for their results.

Within the possible techniques of earnings management by real transactions we may differentiate diverse ways to manipulate[3]. Following Dechow and Skinner (2000)

[3] Following the authors we may distinguish accrual-based earnings management techniques from "real" earnings management techniques (see, for example Roychowdhury, 2006; Cohen, Dey, and Lys, 2008; Vander Bauwhede and Willkekns, 2003). The accrual-based earnings management techniques are presented in the following section.

and McKie (2005) we distinguish the following range of techniques of real earnings management (see Figure 1.3):

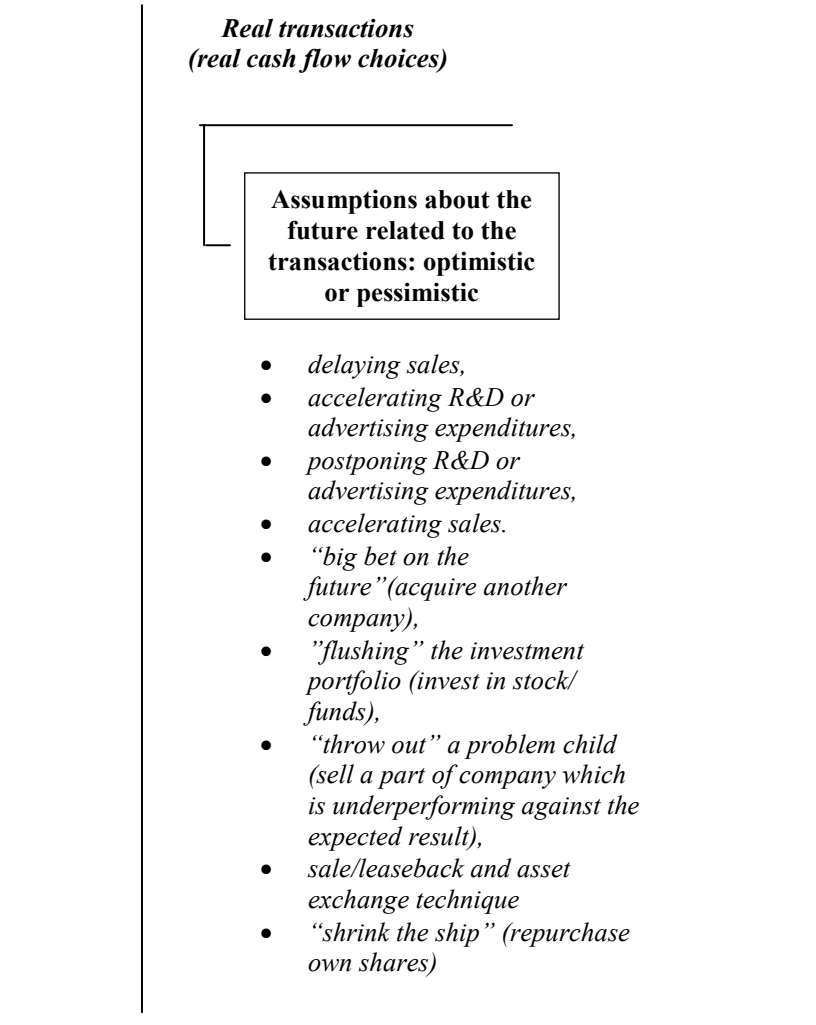
- *delaying sales,*

A company delays a part of sales of the present period into the following period.

- *accelerating R&D or advertising expenditures,*

A company accelerates a part or whole of R&D or advertising expenditure correspondent of the next period into the present period.

Figure 1.3: Real earnings management techniques



Source: The author

- *postponing R&D or advertising expenditures,*

A company delays and postpones a part or the total of R&D or advertising expenditure into the next accounting period.

- *accelerating sales,*

A company accelerates the part or whole of R&D or advertising expenditure which is correspondent of the next period into the present period.

- *"big bet on the future"(acquire another company),*

A company that acquires another company may be said to have made a "big bet on the future." This bet may even be a sure thing in terms of increasing reported earnings of the acquiring company if the acquisition is properly planned. The acquisitions may be recorded under the "purchase" method of accounting. Big bet techniques include:

- writing off in process research and development costs for the company acquired. This technique allows a substantial portion of purchase price to be written off against current earnings in the acquisition year, protecting future earnings from these charges. It means that future earnings will be higher than they would have been otherwise.

- integrating the earnings of acquired company into corporate consolidated earnings. Current earnings of the acquired company may be consolidated with parent company earnings and provide an automatic earnings boost. It may occur if the subsidiary was purchased on favourable terms. In sum, the big bet technique permits a company to buy a guaranteed boost in current or future earnings by acquired another company.

- *"flushing" the investment portfolio (invest in stock/ funds)*

Companies often buy stock in other companies either to invest excess funds or to achieve some type of strategic alliance. If the investment is less than 20 percent of stock of another company it means that it is a passive investment and therefore the investing company need not include a share of the investor's net income in its financial statements. It may do for a higher ownership percentage. This kind of investment offers an opportunity for earnings management by timing sales of securities, and change of holding intent. Management can decide to change its intent with respect to a security and reclassify it from the trading security portfolio to the available-for-sale portfolio, or vice versa. This would have an effect on moving any unrealized gain or loss on security to or from the income statement. Write-down of "impaired" securities means that securities that have an apparent long-term decline in fair market value can be written down to the reduced value regardless of their portfolio classification.

- *"throw out" a problem child (sell a part of the company which is underperforming against expected result),*

When earnings are dragged down by an underperforming subsidiary, and the drag is projected to increase in future periods, the "problem child" subsidiary may be "thrown out" to get rid of drag.

- *sale/leaseback and asset exchange technique*

Timely disposition of long-term productive assets carried at historical cost in the balance sheet can result in the recording of gains or losses. Two methods can be mentioned:

1. Outright sale. A company can sell a long-term asset that has unrealized gains or losses in a year when the sale will best enhance the financial statement.

2. Sale/Leaseback. It is not unusual for one company to sell an asset to another and immediately lease it back. Losses that occurred in sale/leaseback transactions are recognized immediately on the seller's books. Gains, however, are amortized into income, over the life of asset if it is a capital lease or in proportion to the rental payments if it is an operating lease. A sale/leaseback transaction offers an opportunity for managing earnings.

- *"shrink the ship" (repurchase own shares)*

Companies that repurchase their own shares do not have to report any gain or loss on their income statement because no income is recognized on transaction. If no gain or loss is reported on stock buybacks, how can they be used for earnings management? The answer is that although a stock buyback does not affect earnings, it does affect earnings per share, a widely used earnings surrogate.

1.1.1.2. ACCRUALS BASED EARNINGS

Another means of managing earnings is manipulation of accruals with no direct cash flow consequences, hereafter referred to as accrual manipulation. Examples include under-provisioning for bad debt expenses, or delaying asset write-offs (Roychowdhury, 2006).

Varying the accruals is found in almost any major corporation. Managers may increase or decrease the levels of accounting accruals (such as receivables accounts, inventory, payable accounts, deferred revenue, accrued liabilities, and prepaid expenses) in order to reach a desired profit (Dharan, 2003). Managers are trying to meet a quarterly earnings target for the division, or the capitalization of marketing expenditure

is just the boost in earnings needed to tip the reported earnings from a deficit to a surplus relative to the division's target (Dharan, 2003). We can find two possible ways:

- as we mentioned, within the accounting norms, using the flexibility in the accounting standards to manage earnings; and
- accounting actions which involve the violation of accounting norms (GAAP, IFRS, specific country norms) through accounting discretion.

In our study we focus on accruals-based earnings. The detailed research and information is placed in the following sections.

According to studies by Dechow and Skinner (2000), Amat, Blake and Dowds (2003), Vander Bauwhede and Willkekns (2003), and McKee (2005) we may signalize the following accruals-based accounting techniques, see Figure 1.4. We divided them into two main groups: accounting practices within the accounting norms and techniques which cross the boundaries of accounting norms. In the first group we observe different types of managerial choices, such as:

- *overly aggressive recognition of provisions or reserves,*

It recognizes future costs as reserves in the present period.

- *overvaluation of acquired-in-process R&D (Research and Development) in purchase acquisitions,*

It is an overvaluation of part or whole costs of process of research and development to increase the total of costs of company.

- *overstatement of restructuring charges and assets write-offs,*

It is an overvaluation of part or whole costs of process of restructuring of assets, or write-offs of assets.

- *understatement of provisions for bad debts,*

It underestimates the part or whole costs of provisions to reduce the amount of costs.

- *drawing down provisions or reserves in an overly aggressive manner.*

It undervalues the part or whole costs of provisions and reserves to reduce the amount of costs of company.

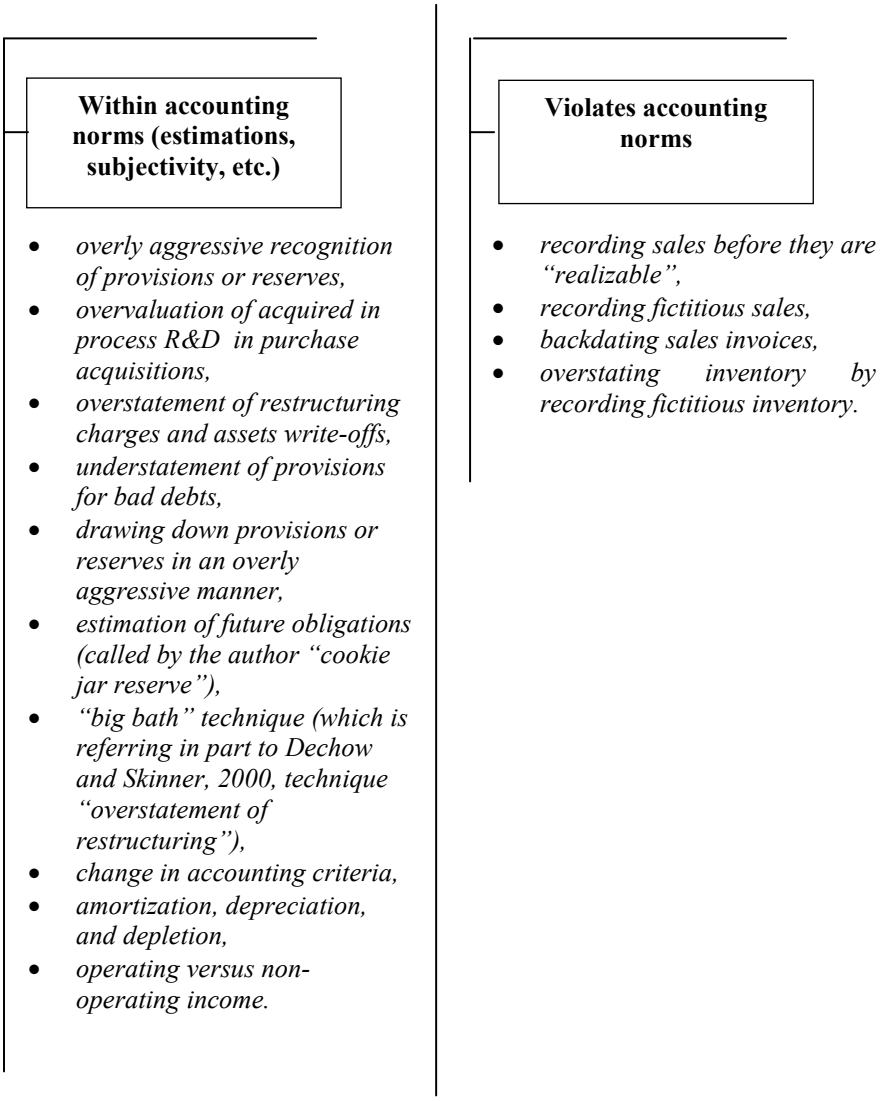
- *estimation of future obligations (called the "cookie jar reserve"*[4]*).*

This technique is based on estimation of future obligations as a result of events or transactions in the current fiscal year. It is obvious that future events cannot be known with certainty at the time of estimation. In other words, management selects

[4] Following a study of McKee (2005).

single estimation methods, and this selection process provides an opportunity for earnings management. When management selects estimation from the high end of the range of reasonably possible expenses, the effect is to record more expense in the current fiscal period than would be recorded if a lower estimate had been selected. Recording more expense in the current fiscal period may make it possible to record less in a future fiscal period.

Figure 1.4: Accruals-based techniques to manipulate earnings



Source: The author

Thus management creates a "cookie jar reserve" (also called "financial slack") that they can tap into later to get an earnings boost. Common areas where cookie jar reserves are created are in:

- estimating sales returns and allowances,
- estimating bad debt write-offs,
- estimating inventory write-downs,
- estimating warranty costs,
- estimating pension expenses,
- terminating pension plans,
- estimating percentage of completion for long-term contracts.

- *"big bath" technique (which is referring in part to Dechow and Skinner, 2000, technique "overstatement of restructuring").*

This technique treats the restructures, operations or subsidiaries. Management needs to record an estimated charge against earnings for the cost of implementing the change. The estimated loss is usually reported as a nonrecurring charge against income, which means that it is not reported in regular operating earnings. "Big bath" techniques are used in the belief that if you must report bad news, e.g. a loss from substantial restructuring, it is better to report it all at once and get it out of way. Common circumstances where the big bath approach may be applied include: operations restructuring, troubled debt restructuring, asset impairment and write-down, or operations disposal.

These two types of managerial choices are in reference to estimate and to report higher expenses, or loss, to show low value of result, and in this case to manage earnings. Figure 1.5 illustrates the behaviour of managers around targets and highlights these two ways of managing earnings: "cookie jar" and "big bath", discussed above.

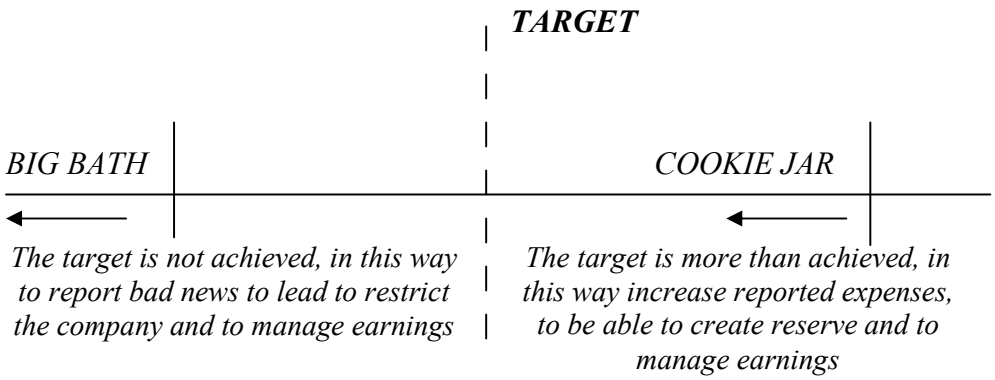
- *change in accounting criteria*

Once a company chooses the accounting principles, they are rarely changed. Companies which change principle must take into consideration the stock market. Lowering the quality of earnings, may undermine the stock price. However, under the following circumstances accounting principles can be changed without affecting the stock price negatively:

– They can be changed volunteering for a new accounting standard. Voluntary early adoption can provide an opportunity to manage earnings.

– They can be improved with the expense recognition rule. For companies that record certain expenses on a cash basis, a timely change to an accrual-based rule can provide an opportunity to manage earnings. Such change may coincide with a change in corporate policies concerning the item. For example, if a company primarily compensated its executives with cash, recording these expenses when paid, a change to a deferred compensation plan could provide an opportunity to record the expense on an accrual basis and lower earnings in the year of adoption.

Figure 1.5: Earnings management techniques: "cookie jar" and "big bath"



Source: The author.

- *amortization, depreciation, and depletion*

The cost of long-term operating assets used or consumed is normally written off as an expense over the periods expected to be benefited. It can be expensed in three ways:

1. Amortization expense, for intangible assets such as goodwill, patents, copyrights, and trademarks.

2. Depreciation expense, for tangible assets such as buildings, machinery, and equipment.

3. Depletion expense, for natural resources that are being harvested or extracted, such as timber, coal, oil, natural gas.

Writing off long-term assets requires a variety of judgments, many of which offer an opportunity to manage earnings:

– Selecting the write-off method. Management has to decide what method to use to write-off newly acquired long-term operating assets. Some methods result in greater expense in the current period than others.

– Selecting the write-off period. Management must estimate the "useful" life of a long-term asset, which can be substantially shorter than its actual physical life.

– Estimating salvage value. Some long-term assets retain substantial value at the end of their estimated useful lives. This value must be estimated in order to record the correct annual expense amount. The value may be realized 10, 15, or even 30 years in the future, so there can be a range of reasonable estimates.

– Change to non-operating use. If a long-term asset is changed from operating to non-operating use, it will no longer be necessary to record depreciation or amortization expense. This is permissible when a company ceases to use an asset for operating purposes.

- *operating versus non-operating income*

There are two basic categories of earnings: (1) operating and (2) non-operating. Operating or "core" earnings are those that are expected to continue into the future. Non-recurring events or earnings are not expected to affect future earnings, so they are recorded as non-operating. Financial analysts typically project growth rates for core earnings, and then discount these earnings back to the present to estimate the value of a stock. Possible income statement categories for reporting unusual items include: special or unusual charges, discontinued operations, extraordinary gains and losses, cumulative effect of change in accounting principles.

- *early retirement of debt*

Long-term corporate debts, such as bonds, are typically recorded at amortized book value. When they are retired early, the cash payment required may be substantially different from book value, generating an accounting gain or loss. Executives can manage earnings by selecting the fiscal period in which they retire debt early.

The second group of accruals techniques of manipulation we call "technique which violates accounting norms". We may highlight four different types of managerial choices:

- *recording sales before they are "realizable",*

Records a part or whole amount of sales of future sales into the present period.

- *recording fictitious sales,*

Records a part or whole amount of sales which will not occur. They are fictitious and untrue, used to improve the amount of total of sales of company.

- *backdating sales invoices,*

Changes the dates of registered invoices of sales, normally to record sales of future sales into the present period.

- *overstating inventory by recording fictitious inventory.*

Records a part of inventories, which the company does not have on the stock. They are fictitious and untrue.

1.1.2. EARNINGS MANAGEMENT WITHIN ACCOUNTING NORMS vs. CROSSING ACCOUNTING NORMS

We analyze manipulation based on accruals earnings management, mentioned previously. The next question needs to be made: do managers manipulate earnings within accounting norms, or do they cross the existing standards and principles?

A large number of studies found that managers can exercise discretion through the choice of accounting methods or polices. For example, Watts and Zimmerman (1978) documented that managers will lobby for and choose accounting policies which can decrease tax payments, help secure favourable regulations, reduce political costs, additionally reduce information production costs, and finally to increase accounting earnings. They developed a positive accounting theory which suggests that managers will always chose accounting policies that lead to the maximization of their personal wealth.

In the same line of investigation, Hagerman and Zmijewski (1979) found that the existence of incentive compensation plans affects managers' decisions in accounting choices, such as: inventory method, depreciation method, the treatment of investment tax credit, or pension costs amortization. Holthausen (1981) examined the case of depreciation switch-back and found that the existence of bonus plans explains managers' income-increasing behaviour as related to depreciation switch-back policy. Bowen, Noreen and Lacey (1981) examined additionally whether the existence of management compensation packages affects specific accounting choice. However, Bowen, Noreen and Lacey (1981) did not find the existence of management compensation agreements is a significant factor in determining capitalizing interest.

Zmijewski and Hagerman (1981) suggested that management will adopt a multi-dimensional income strategy with each accounting policy choice being one dimension of that optimal strategy. Skinner (1993) examined the relationship between accounting procedure choices and the investment opportunity per se. He found that firms with bonus plans are more likely to select income-increasing depreciation and goodwill procedures. Robbins (1993) developed an income strategy score for U.S hospitals which score indicates whether the combination of accounting method choices increased or decreased reported earnings. Christie and Zimmerman (1994) evaluated all possible accounting choices. They divided each accounting choice into an income-increasing strategy and an income-decreasing strategy and than tested these on a sample of firms separately. Teoh, Welch and Wong (1998) compared initial public offering (IPO) firms to non-IPO firm matched pairs, and found that IPO firms are more likely to choose an income-increasing depreciation method than the matched pair of non-IPO firm.

Accounting standards do play an important part in the behaviour of managers (García Osma and Gill-de-Albornoz, 2005), and managers use flexibility, and possibilities of selecting different alternatives to opt for the particular one which may secure some benefits. So, do rigid rules provide limited accounting options and restrict the scope for subjectivity judgments, and do they constrain the ability of managers to manage earnings? More flexible rules may provide greater scope for choice and involve a higher degree of implicit subjectivity in the application of criteria, and they may allow managers a wide field in which to exercise their discretion (Jeanjean and Stolowy, 2008). They may use different accounting standards in their own interest in the absence of effective control mechanisms. So, the more flexible the rules are, the higher the likelihood of earnings management practices is. These accounting practices are carried out by management with the purposeful intent of manipulating the resulting figures to their advantage (Callao and Jarne, 2010). So the decrease of the scope for alternative choices of accounting methods can reduce the possibility of earnings management. Moreover, the existence of gaps in the accounting standards favours the possibility of managing earnings. In the presence of these gaps managers' opportunistic incentives shows generate the possibility for earnings management (Gao, 2012).

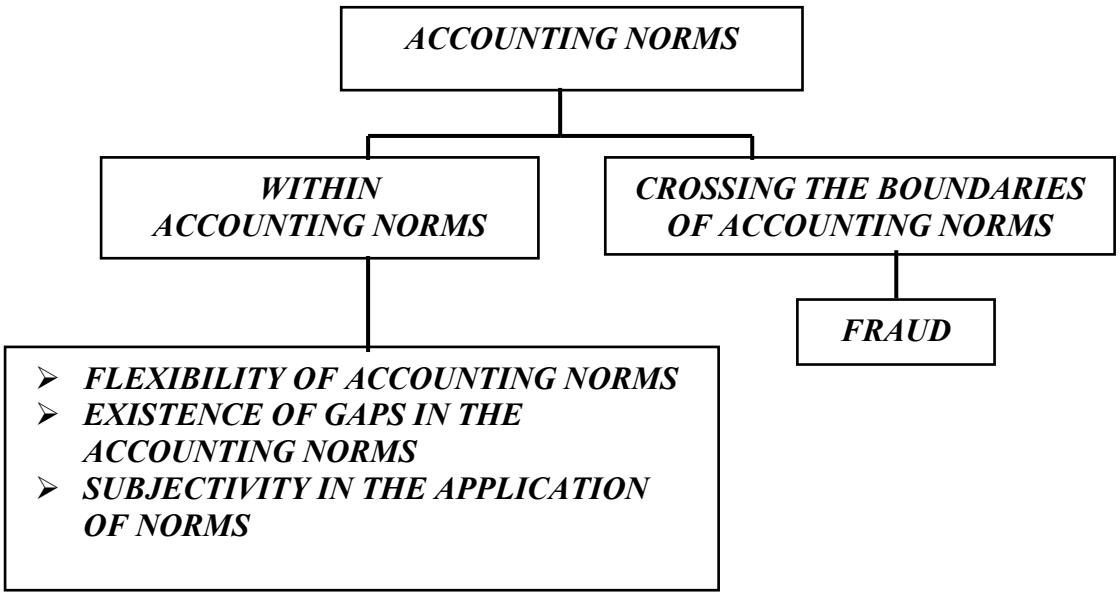
Cimini (2015b) presents interesting study dividing the manipulation within the accounting norms into two possible groups of techniques: first one based on the accounting discretion, as explained above, flexibility of the accounting norms, accounting gaps, etc. The second, he defines as an impression management. He explains

impression management as the mind-set of insiders to select the manner in which to disclose financial information in company reports to mislead outsiders' interpretation of the entity's achievements, for example, using brilliant coloured pictures, glosses, novelty formats, etc (see also studies of Squiecs, 1989; Tweedie and Whittington, 1990; Graves, Flesher and Jordan, 1996; García, Garrido and Vico, 2009).

On the other hand, abuse of judgement and crossing the boundaries of accounting norms can additionally be found in the possibility of managing earnings, and this can transform into the fraudulent behaviour. When fraudulent reporting occurs, it is frequently perpetrated at levels of management above those for which internal control systems are designed to be effective. It involves often using financial statements to create an illusion that the entity is healthier and more prosperous than it actually is. This illusion is sometimes accomplished by masking economic realities through intentional misapplication of accounting principles (see, for example Conner 1986 and Fischer and Rosenzweig, 1995).

Our investigation focuses on manipulation within the use of accounting choices as the measure of earnings management. In other words, accounting standards may leave the door open for managers to manipulate earnings via accounting accruals. Figure 1.6 shows the opportunity for managing earnings taking accounting norms into consideration.

Figure 1.6: Opportunity for earnings management



Source: Callao, Jarne and Wroblewski (2014a).

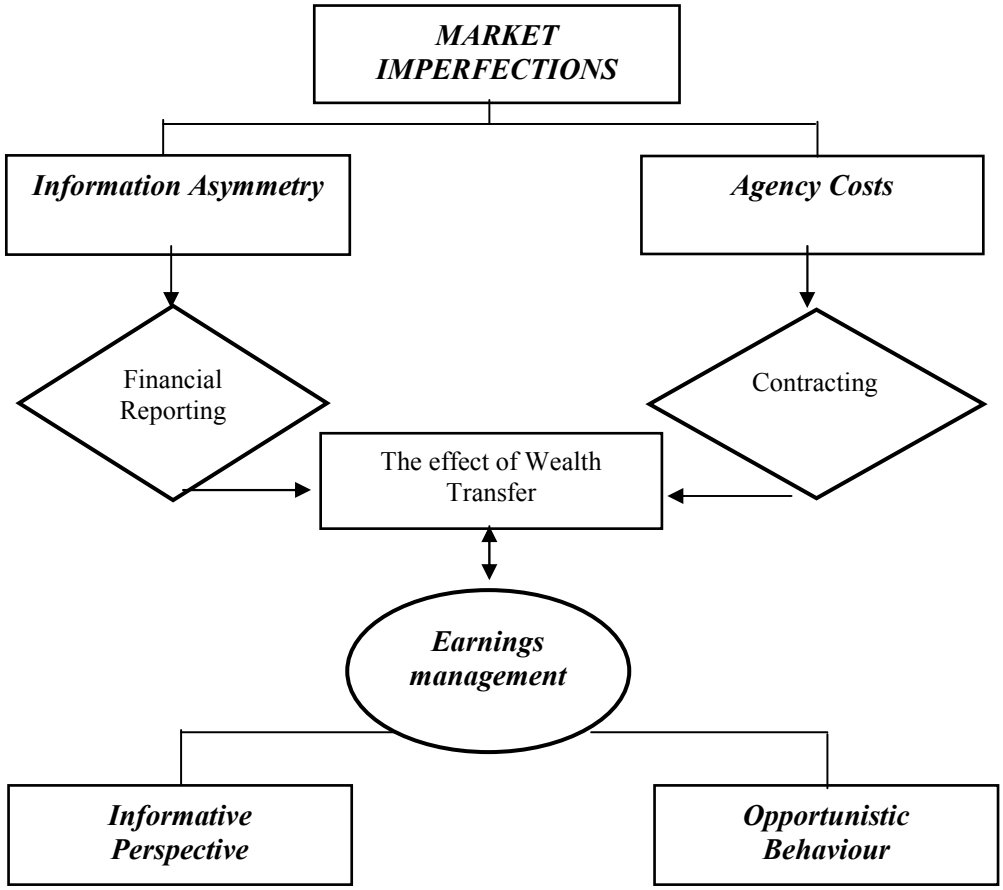
1.1.3. OPPORTUNISTIC vs. INFORMATIVE PERSPECTIVE

The primary role of financial statements is to report a company's financial information to internal and external financial statement users in a timely and reliable manner. A major component of these annual reports is accounting earnings, which are used to develop corporate policies. Ideally, the reported earnings should reflect a firm's underlying operating economics and facilitate efficient resource allocation within the firm. However, managers due to control advantages have more specific firm information than external information users. It gives to managers the opportunity to present earnings in a manner that is most suitable for the firm or managers (Sun and Rath, 2008).

In a perfect market, there is no role for financial disclosures and thus no demand for accounting discretion (Holthausen and Leftwich, 1983). However, with market imperfections such as information asymmetry and agency conflicts, financial reporting is necessary for efficient contracting. Due to the inherent advantage of asymmetric information and flexibility afforded to in reporting, wealth can be transferred from shareholders to managers (Sun and Rath, 2008), see Figure 1.7.

Financial disclosure and judgements initially were always aimed to reduce the information asymmetry between managers and outsiders. It has been increasingly argued that a manager's ability in exercising discretion is likely to impose costs on users of accounting information (Sun and Rath, 2008). Dye (1998) pointed out that the existence of information asymmetry between managers and shareholders is a necessary condition for earnings management. Schipper (1989) highlighted additionally the condition for earnings management being the persistence of asymmetric information, but she relaxed the condition by arguing that the blocked communication can be eliminated through the enforcement of contractual arrangement. Imhoff and Thomas (1994) provided empirical evidence to support the perspective of a positive association between the conservatism of accounting estimates and corporate disclosure. They concluded that firms who disclose more information are more likely to have conservative accounting estimates (engaging in less earnings management). Richardson (1998) also measured information asymmetry and found a positive association between earnings management and the level of information asymmetry.

Figure 1.7: Conceptual framework of earnings management



Source: Elaboration by the author based on study of Sun and Rath (2008).

The second condition for the existence of earnings management is agency costs. Jensen and Meckling (1976) developed agency theory to explain the relationship between principals (owners/shareholders) and agents (managers). Principals use contracting to motivate agents who would otherwise have conflicts of interest with principals. Although the primary function of contracting is designed to align the incentives between principals and agents (Deegan, 1996). The agency concerns may lead to manipulate of reporting process. Watts and Zimmerman (1986) suggested that the ex-post managerial discretions are made to increase compensation or to avoid debt covenant violations. They used Positive Accounting Theory to illustrate how managers choose accounting methods to achieve desired accounting numbers and thus influence one or more of a firm's contractual arrangements. In fact, evidences of earnings management practice may generate higher management compensation. It suggested that

the design of contracts can align incentives. The incentives of principal agents might not be the optimal solution in mitigating agency costs (Hart and Holmstrom, 1987).

Watts and Zimmerman (1978) took the view that managers' choice of accounting methods is to maximize their own utility. Their utility is a function of management compensation and the firm's stock price. Therefore, contracting, which is designed to solve agency conflicts, not only may make room for managerial self-interested behaviour, but may impose also additional costs on shareholders if it is used in promoting managers' self interests rather than that of shareholders (Watts and Zimmerman, 1978).

As we discussed above, earnings management may arise from information asymmetry problem and agency conflicts. It may occur when managers have a comparative information advantage over shareholders. On the other hand, this information advantage over shareholders may additionally create an opportunity for managers to use accounting discretion to communicate their companies' performance related information in an appropriate manner to investors (Trueman and Titman, 1988). In this way, a third debate emerged. We may distinguish two competing perspectives of earnings management: opportunistic perspective and informative perspective (also called efficient perspective).

1.1.3.1. OPPORTUNISTIC PERSPECTIVE

The opportunistic behaviour perspective holds that managers take the opportunity to manage earnings in order to maximize their own utilities at the expense of contracting parties and stakeholders (Watts and Zimmerman, 1986). They use their discretion to maximize their utility, thereby managing earnings (Subramanyam, 1996). As stated by Healy and Wahlen (1999) the purpose of opportunistic earnings management is that managers use judgment in financial reporting and in non-routine transactions. They can modify financial reports and attempt to mislead some shareholders about the viewpoint of the company. They may additionally affect the results of accounting-based contracts that depend on reported accounting numbers.

The perspective of opportunistic behaviour takes the view that managers use information asymmetry between outsiders and insiders to improve their benefits in dealing with compensation contracts. Thereby, the investors are misled by unreliable

information reported (Sun and Rath, 2008). Furthermore, the opportunistic perspective illustrates managers' desire to affect wealth transfer between related contracting parties and themselves. It is related to the Positive Accounting Theory, which states that owners expect managers to exercise discretion toward their personal gain and they take this into consideration when they offer managers compensation plans. When the value of management compensation includes the expected managerial discretions, the compensation contracts drive up managerial expectation and thus increase the level of discretions themselves (Sun and Rath, 2008).

A number of studies found evidence consistent with the opportunistic perspective. Watts and Zimmerman (1978) were the first authors, who used the opportunism approach in explaining managers' discretionary behaviour over reported earnings to influence contractual outcomes and thus affect wealth transfers. Healy (1985) found evidence consistent with the hypothesis that executives manage earnings downwards when their bonuses are at their maximum. DeAngelo (1988) reported that during a proxy contest, incumbent managers may exercise their accounting discretion to paint a favourable picture of their own performance to voting stockholders. Holthausen, Larker, and Sloan (1995) also documented similar evidence.

Dechow and Sloan (1991) found that CEOs tend to reduce spending on research and development in their final employment years, possibly to increase reported earnings. Scott (1997) referred to this as "unexpected" managerial discretion which results in a net loss in the aggregate shareholder wealth. However, in a contracting relationship, managers are more risk averse compared with other contracting parties. Subject to the constraints of these contracts, they will attempt to maximise their personal wealth. According to Beneish (2001) earnings management is a way in which managers disclose their private expectations about the firm's future cash flows to investors.

Marquardt and Wiedman (2004) reported that firms are trying to avoid earnings decreases in order to utilize the category "special items" to manage earnings. McVay (2006) showed that managers opportunistically shift expenses from core expenses to special items in order to meet analysts' forecasts. Comprix and Muller (2006) provided evidence that executives who have incentives to increase earnings will use a relatively higher than expected rate of return estimates when reporting pension income. Siregar and Utama (2008) stated that if discretionary accruals are opportunistic they will have a significant negative relationship or insignificant relationship with future profitability.

Managers may have an incentive to make decisions in their own interest when preparing financial information (Callao and Jarne, 2010).

These studies suggested that managers will have the motivation to manipulate earnings. Recently mentioned scandals have generated a public perception that earnings management is utilized opportunistically by firm managers for their own private benefits rather than for the benefits of stockholders. Enron and WorldCom represent two of the most egregious cases of opportunistic earnings management that led to the largest bankruptcies in U.S. history. Reinforcing this negative public perception of earnings management is the fact that regulators have lately devised a number of measures for the purpose of combating earnings management (Williams, 2004).

1.1.3.2. INFORMATIVE PERSPECTIVE

By contrast, the informative perspective proposes that managers exercise discretion in order to communicate inside information to outside investors to help investors predict and form expectations considering the firm's future performance (Holthausen and Leftwich, 1983). Managers use their discretion to communicate private information about the firm's profitability, which is yet to be reflected in the historical cost-based earnings (Subramanyam, 1996). The purpose of efficient earnings management is that managers want to communicate private information to investors, to improve the informational content to earnings and promote communication between managers, shareholders and the public (Jiraporn *et al.*, 2008).

A wide number of academic studies have argued that earnings management may be beneficial because it potentially enhances the information value of earnings. For example, studies of Holtahusen (1990) and Healy and Palepu (1993) argued that managers exercise discretion over earnings to enhance earnings' information by allowing communication of private information. Subramanyam (1996) hypothesized that this managerial discretion improves the ability of earnings to reflect economic value. Subramanyam (1996) tested additionally if current-period discretionary accruals help predict future cash flows, earnings, and dividends. It is expected that accruals should help predict cash flow if discretionary accruals increase the information content for current earnings-related future performance. He found evidence consistent with this

hypothesis, suggesting that discretionary accruals do add informational content to earnings.

Two recent studies additionally support the theory that earnings management adds information value. Arya, Glover, and Sunder (2003) argue that to conclude that earnings management reduces transparency is a simplistic idea. For decentralized organizations, information is dispersed across people. Different people know different things and nobody knows everything. In such an environment, a managed earnings stream can convey more information than an unmanaged earnings stream. Louis (2003) examined the beneficial function of discretionary accruals by investigating earnings management around stock splits. He pointed out that firms tend to perform stock splits when managers are optimistic about the firm's performance, and discretionary accruals are likely to be used around stock splits to convey positive private information. He found strong evidence indicating that managers use accruals in conjunction with stock splits to signal favourable performance. The results based on abnormal announcements returned around stock splits implied additionally that the signal embedded in the discretionary accruals is deemed credible by the market (Louis, 2003).

We may additionally find many other studies that state evidence of earnings management to facilitate efficient communication between managers and information users to improve the value relevance of financial reporting and to enhance investors' ability in predicting firm's performance. We signalize studies such as: Ronen and Sadan (1980); Demski, Patell and Wolfson (1984); Lambert (1984); Trueman and Titman (1988); Suh (1990); Wang and Williams (1994); Chaney and Lewis (1995); Hunt, Moyer, and Shevlin (1997); Bartov, Givoly, and Hayn (2002); Lev (2003), among others.

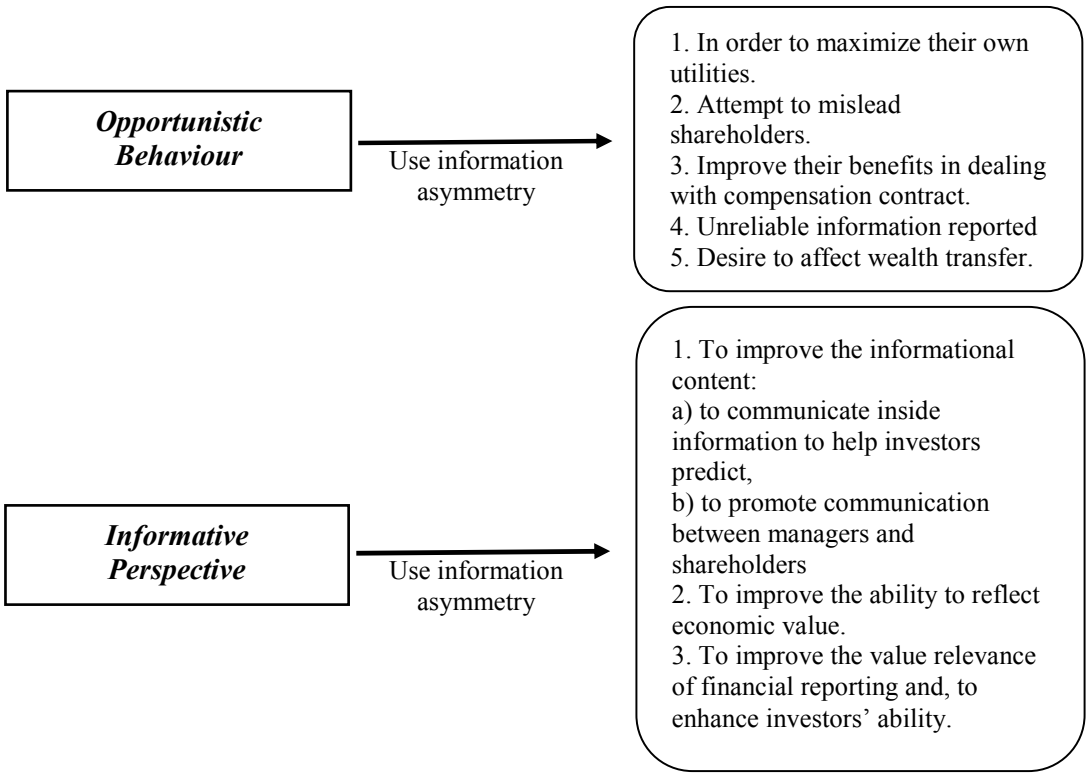
1.1.3.3. OPPORTUNISTIC vs. INFORMATIVE PERSPECTIVE: NO CONSENSUS

Earnings management research has been ongoing for more than two decades. Much has been learned, but many interesting questions remain unanswered, such as the question between the opportunistic or informative role of earnings management. The authors of the informative perspective argued that managers manage earnings to convey their inside information about firms' prospects and thus it serves as a beneficial mechanism (Sun and Rath, 2008). If this is the case, then, earnings management may

not be harmful to the stockholders and the public (Subramanyam, 1996). On the other hand, usage of earnings management can give a benefit to one side by causing loss to another person, and in this case, is known as opportunistic earnings management (Jiraporn and Gleason, 2006). Figure 1.8 shows the fundamental elements of both perspectives.

The existence of two competing perspectives (that earnings management can be viewed as either opportunistic or beneficial) forms an important dichotomy in examining the debates surrounding this research field. The extant empirical evidence in the literature is somewhat ambiguous. Beneish (2001) suggested that despite a dynamic body of earnings management research that is well founded in economic theory, there have not been any attempts to take an integrated perspective (Beneish, 2001).

Figure 1.8: Elements of informative and opportunistic perspective on earnings management



Source: The author.

1.2. DEFINITION OF EARNINGS MANAGEMENT

Having shown the notion and perception of manipulation, we define the concept of earnings management. In the literature we can find many different definitions of earnings management. Authors have used a wide range of expressions to describe the same phenomenon. They contrasted different aspects and characteristics of earnings management. Providing a complete list of definitions encountered in the literature is beyond the scope of our work. However, we would like to discuss some definitions, which, in our opinion, contribute to our Thesis and can clarify the main elements of this phenomenon. A large body of work has been developed in the earnings management stream of research, and the interest in this subject remains high. Hence, the key issue is the definition of the concept of earnings management; it is crucial to make it clear and understandable. In this section, we discuss the extent to which earnings management can be defined. First of all, we start with the definition of earnings using the economics-based definition developed by Hicks in his 1939 book Value and Capital.

> *"Hicksian' income corresponds to the amount that can be consumed (that is paid out in dividends) during a period, while leaving the firm equally well off at the beginning and end of period"*

In this way, earnings were defined as the extent to which reported earnings faithfully represent Hicksian income.

Earnings are the single most important item in financial statements. They indicate the extent to which a company has engaged in value-added activities. They help to allocate resources in capital markets. In fact, the theoretical value of a company's stock was the present value of its future earnings. Increased earnings represented an increase in company value, while decreased earnings signal a decrease in that value (Lev, 1989). Given the importance of earnings, it was no surprise that company management has a vital interest in how they are reported. Executives of the companies need to understand the effect of their accounting choices so they can make the best possible decisions for the company.

Earnings management deals with other different aspects, which we can observe in the definitions below. Under Generally Accepted Accounting Principles (GAAP), firms use accrual accounting because:

> *"It attempts to record the financial effects on an entity of transactions and other events and circumstances that have cash consequences for the entity in the periods in which those transactions, events, and consequences occur rather than only in the period in which cash is received or paid by the entity" (following Gordon, Jorgensen and Linthicum, 2009).*

This nature of accrual accounting gives managers a great deal of discretion in determining the actual earnings a firm reports in any given period. Management has considerable control over the timing of actual expense items (e.g., advertising expenses or outlays for research and development). They can additionally alter the recognition of revenues, for example, advancing recognition of sales revenue through credit sales (Teoh, Welch and Wong, 1998), which means that management has the possibility to vary the result of the firm (result is revenues minus expenses). In other words, the exercise of accounting discretion allows managers to manage earnings. It means shifting revenue or expense items from one accounting period to another accounting period. It leads us to the definition of earnings management. Schipper (1989) defined initially:

> *"Earnings management is a behaviour that occurs when managers intervene in the external reporting process with the intent of attaining some additional benefits (e.g., maximize compensation). It is opposed to merely facilitating a neutral outcome for the financial reporting process."*

Later, Schipper (1989) clarified his definition, added the purposeful element of managing earnings:

> *"Earnings management is a purposeful intervention in the external financial reporting, with the intent of obtaining some private gain (as opposed to say, merely facilitating the neutral operation of process)."*

Healy and Wahlen (1998) developed a little more their definition. They confirmed that not only is it a purposeful action, but can it be an action which may mislead the presented information. See definition.

> *"Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholder about the underlying economic performance of company, or to influence contractual outcomes that depend on reported accounting numbers."*

Moreover, earnings management has often been considered as the alteration of a firm's reported economic performance by insiders to either mislead some stakeholders or to influence contractual outcomes (Healy and Wahlen, 1999). Roychowdhury (2006) defined earnings management as a real activities manipulation:

> *"Departures from normal operational practices, motivated by managers' desire to mislead at least some stakeholders into believing certain financial reporting goals have been met in the normal course of operations. These departures do not necessarily contribute to firm value even though they enable managers to meet reporting goals."*

Roychowdhury (2006) pointed out that managers engage in these activities either because they perceive private benefits to meeting the reporting goals or because they are acting as agents in value-transfers amongst stakeholders. An example of the latter would be earnings management to avoid debt covenant violation or to avoid governmental intervention. It is necessary to mention that certain real activities manipulation methods, such as price discounts and reduction of discretionary expenditures, are possibly optimal actions in certain economic circumstances. However, if managers engage in these activities more extensively than is normal given their economic circumstances, with the objective of meeting/beating an earnings target, they are engaging in real activities manipulation, according to Roychowdhury (2006).

The study of Park and Shin (2004) documented additionally the evidence of accrual management to reach earnings targets.

"Earnings are managed upward or downward to hit the targets."

They found evidence that the officers of financial intermediaries on board restrain abnormal accruals when the unmanaged earnings are below the target. Mulford and Comiskey (1996) pointed out the influence on performance aspect by the earnings management.

"Earnings Management is the active manipulation of accounting results for the purpose of creating an altered impression of business performance."

As we have seen, there is no single description (though many different definitions) of earnings management. Over many years of investigation there has been no clear consensus on what is earnings management in the literature. Practitioners and regulators defined it in a variety of forms. And in effect, the definition of earnings management has been inconsistent in the literature. It contrasts different aspects and characteristics of earnings management. Major problems with the definition include ambiguity and immeasurability. Some elements coincide and we may find them in the majority of definitions; nevertheless, some of them are different. Therefore, to be able to support the systematic review of earnings management literature, we offer our definition of the concept.

Earnings management is a purposeful intervention in financial reporting, designed to reach earnings targets by varying accounting practices. However, it is an action which takes place without necessarily violating accounting regulations, and which takes advantage of possibilities of choice in accounting policy. The action may mislead stakeholders, causing them to make decisions on the basis of financial reports that they would not have made otherwise (Callao, Jarne, and Wroblewski, 2014a, 2014b).

Our definition underlines the common elements found in many of definitions. Elements such as:

- it is a purposeful action of managers, indicating the deliberate and conscious activity of managers (following the definition of Schipper, 1989);

- it deals with the external aspects of data, always considering reporting data of firms (Healy and Wahlen, 1999);
- it is a manipulation of the financial data of a company (GAAP definition);
- it reaches targets to obtain objectives and particular goals of managers (Park and Shin, 2004);
- it may use the flexibility of choosing accounting treatments, and the subjectivity of managers by selecting those norms which are helpful to achieve planned results (Fields, Lys and Vicent, 2001);
- it can lead to misleading information, the presented information can pretend to hide or even fake some information (Roychowdhury, 2006).

1.3. INVESTIGATION OF EARNINGS MANAGEMENT: DIFFERENT PERSPECTIVES

Earnings management receives a lot of attention in academic research. The abundance of literature on the subject investigates its different aspects. Even in the look at the definitions of earnings management (previous section), there is no unique definition of earnings management in the literature. We pointed out the complexity of the notion of earnings management. Our research identified 207 articles, which included: journals, conferences, congresses, and other publications, such as: PhD Theses, Master's theses and working papers. The review period is from the beginning of 1985 to March of 2013[5]. Table 1.1 describes the details on selection of articles.

The breadth of the notion of earnings management leads us to the consideration of different perspectives on research on earnings management:

- ***Chronological perspective,*** which presents the most important studies in chronological order, making in this way, the itinerary of the evolution of earnings management pointed out and determining the most important moments, and keystones in the phenomenon of earnings management.
- ***Methodological perspective***, which is a perspective that concentrates on procedural and technical aspect of earnings management through many years of investigations. It is focused on the problem of measuring earnings

[5] Nevertheless, later we have incorporated description of some of the posterior studies to update our Thesis, which are not included in the statistics.

management, the advances and progresses in this matter, and the development of new ways of detecting and measuring earnings management.

- ***Cross-country perspective***, centres attention on evolution of interests on the issue of earnings management from the point of view of the origin of the sample (country origin of sample).

Table 1.1: Database of journals and other reviewed literature

Article	*Number of articles*	*% of total*
Academy of Management Journal	1	0.48%
Accounting and Business Research	3	1.45%
Accounting Horizons	2	0.48%
Accounting in Europe	1	0.48%
Advanced in Accounting	1	0.48%
Advances in International Accounting	5	2.42%
Advanced in Scientific and Applied Accounting	1	0.48%
American International Journal of Contemporary Research	1	0.48%
Annales Universitatis Apulensis Series Oeconomica	1	0.48%
Annual Conference on Financial Economics and Accounting	1	0.48%
Annual EAA Congress	1	0.48%
Blackwell Publishing	1	0.48%
Canadian Social Science	1	0.48%
Contaduría y Administración	1	0.48%
Contemporary Accounting Research	1	0.48%
Critical Perspectives on Accounting	1	0.48%
Economics and Society	1	0.48%
Energy Economics	1	0.48%
Erasmus School of Economics	1	0.48%
European Accounting Review	1	0.48%
European Scientific Journal	1	0.48%
Expert Systems with Applications	1	0.48%
Finance Research Letters	1	0.48%
FUCAPE Científica	1	0.48%
Global Finance Journal	2	0.97%
Global Review of Accounting and Finance	1	0.48%
Instituto Valenciano de Investigaciones Económicas	1	0.48%
International Business Forum	1	0.48%
International Business Research	1	0.48%
International Journal of Economics and Management	1	0.48%
International Journal of Human and Social Sciences	1	0.48%
International Review of Business Research Papers	1	0.48%
International Review of Economics and Finance	1	0.48%
International Review of Financial Analysis	3	1.45%
Investigaciones Económicas	2	0.97%
John Wiley & Sons	1	0.48%
Journal of Accounting and Economics	31	14.97%
Journal of Accounting and Public Policy	10	4.83%
Journal of Accounting Research	7	3.38%
Journal of Accounting, Auditing & Finance	1	0.48%

Journal of Banking & Finance	4	1.93%
Journal of Business & Economics Research	1	0.48%
Journal of Business Research	2	0.97%
Journal of Corporate Finance	5	2.42%
Journal of Economics and Management	1	0.48%
Journal of Financial Economics	9	4.35%
Journal of International Accounting, Auditing and Taxation	4	1.93%
Journal of Multinational Financial Management	1	0.48%
Jurnal Pengurusan	1	0.48%
LTA Academy	1	0.48%
Managerial Finance	1	0.48%
Master Thesis	2	0.97%
Middle Eastern Finance and Economics	1	0.48%
ONDERZOEKSRAPPORT	1	0.48%
PhD Thesis	1	0.48%
Prentice Hall	1	0.48%
Research in Accounting Regulation	3	1.45%
Review of Accounting Studies	2	0.97%
Revista de Contabilidad	1	0.48%
Scandinavian Journal of Management	1	0.48%
The Accounting Review	6	2.90%
The British Accounting Review	2	0.97%
The Cost and Management	1	0.48%
The International Journal of Accounting	14	6.76%
Tijdschrift voor Economie en Management	1	0.48%
working papers*	43	20.77%
Total	**207**	100,00%

* We include some working papers for reasons of importance (in our opinion) of these articles in the investigation of earnings management.

Source: Callao, Jarne and Wroblewski (2014b).

1.3.1. CHRONOLOGICAL PERSPECTIVE

In the last twenty-five years, the investigations on the phenomenon of earnings management have made significant progresses. The studies took into consideration many different aspects of earnings management: the reasons for earnings management, methods of measuring it, and many others aspects. This section reviews the relevant earnings management literature. We make an itinerary of investigations on earnings management. We would like to stress the evolution of the earnings management phenomenon over many years of investigations. We insist on being conscious that this phenomenon has made an evolution during the last twenty-five years, and not simply appeared in one day. Table 1.2 shows the chronological schedule of all papers included in our study. A total of 207 papers were analyzed. However, to describe all papers is beyond the scope of our work. Within the over two hundred papers we select some of

them, which in our perception marked in an important way the evolution of earnings management studies. In the Figure 1.9 (part I and part II) we present the resume of selected papers.

Healy (1985) is the first study to be mentioned. For the first time, he introduced the discretionary accruals concept to detect earnings management. He incorporated the definition and parameters used in bonus agreements. His study examined managerial accounting decisions which postulate that executives rewarded by earnings-based bonuses select accounting procedures that increase their compensation. Healy's test results suggested that accrual policies of managers are related to income-reporting incentives of their bonus contracts, and changes in accounting procedures by managers are associated with adoption or modification of their bonus plan. In detail, he observed that bonus plans allow funds to be set aside for awards only when earnings exceed a specified threshold. Managers observe the sum of cash flows from operations and nondiscretionary accruals at year-end, and than select the level of discretionary accruals that maximizes the expected value of their bonus award. In years when earnings before discretionary accruals either fall sufficiently far below the lower bound or above the upper bound specified by the bonus plan, managers are expected to select negative discretionary accruals. Positive discretionary accruals are expected in all other years. In reality, it was the first study to initiate this line of investigation in the area of earnings management.

Table 1.2: Evolution of investigation on earnings management

PANEL A: PAPERS BETWEEN 1985-1990	
Healy, P. (1985)	***DeAngelo, L. (1988)***
DeAngelo, L. (1986)	***McNichols, M., and Wilson, P. (1988)***
Watts, R. and Zimmerman, J. (1986)	***Schipper, K. (1989)***
PANEL B: PAPERS BETWEEN 1991-1995	
Jones,J. (1991)	Perry, S., and Williams, T. (1994)
Bartov, E. (1993)	Kang, S., and Sivaramakrishnan, K. (1995)
DeAngelo, H., DeAngelo, L., and Skinner, D., (1994)	Paul, K., Chaney, C., and Lewis, M. (1995)
	Dechow,P., Sloan,R., and Sweeney,A. (1995)
DeFond, M., and Jiambalvo,J. (1994)	***Holthausen,R., Larcker, D., and Sloan, R. (1995)***
PANEL C: PAPERS BETWEEN 1996-2000	
Jiambalvo, J., (1996)	Burgstahler, D., and Eames, M. (1998)
Kasanen,E., Kinnunen,J., and Niskanen,J. (1996)	DeFond, M., and Subramanyam, K. (1998)
Dechow, P., Sloan, R., and Sweeney, A., (1996)	Healy, P. (1999)
Guay, W., Kothari, S., and Watts, R. (1996)	Ball, R., Kothari, S. and Robin, A., (1999)
Shivakumar, L. (1996)	Kallunki,J., and Martikainen,M. (1999)
Subramanyam, K. (1996)	Erickson,M., and Wang,S. (1999)
Bernard, V. L., and Skinner, D., J. (1996)	Myers, L., and Skinner, D. (1999)
Burgstahler,D., and Dichev,I. (1997)	Degeorge, F., Patel, J., and Zeckhauser, R. (1999)
Key,K. (1997)	Leone,A., Guidry,F., and Rock,S., (1999)

Hunt, A., Moyer, S., and Shevlin, T. (1997)	Guidry,F., Leone,A., and Rock,S. (1999)
Darrough,M., Pourjalali,H., and Saudagaran,S. (1998)	Shivakumar,L., and Jeter, D. (1999)
Rangan, S. (1998)	*Kasznik, R. (1999)*
Teoh, S., Wong, I., and Wong, T. (1998)	Jeter, D., and Shivakumar, L. (1999)
Becker, C., *et al.* (1998)	***Peasnell, K., Pope, P., and Young, S. (2000)***
Healy, P.M., and Wahlen, J.M. (1998)	***McNichols,M. (2000)***
Konings, J., Labro, E., and Roodhooft, F. (1998)	Kinnunen,J., *et al.* (2000)
Richardson, V. (1998)	Dechow, P., and Skinner, D. (2000)
	Ronen, J., and Yaari, V., (2000)
	Thomas, J., and Zhang, X. (2000)
	Petroni, K., Ryan, S., and Wahlen, J. (2000)
	Jeanjean, T. (2000)
	Bartov, E., and Gul, F. (2000)
PANEL D: PAPERS BETWEEN 2001-2005	
D'Souza, J., Jacob, J., and Ramesh, K. (2001)	García Osma, B., Gill-de-Albornoz, B., and
Xie, H. (2001)	Gisbert, A. (2003)
Bartov,E., Gul,F., and Tsui, J. (2001)	Wysocki, P. (2003)
Ebrahim, A. (2001)	Laux., J. (2003)
Beneish, D. (2001)	Xue, Y. (2003)
Klein,A. (2002)	Henock, L. (2004)
Bartov,E., Givoly,D., and Hayn,C. (2002)	Park,Y., Shin, and Hyun-Han (2004)
Chung,R., Firth,M., and Kim,J. (2002)	*Larcker,D., and Richardson,S. (2004)*
Yoon,S., and Miller,G. (2002a)	Park,M., and Ro,B. (2004)
Yoon,S., and Miller,G. (2002b)	Lau,H. (2004)
Zhang, H. (2002)	Lee, C., and Xue, S. (2004)
Richardson, S., Tuna, I., an d Wu, M. (2002)	Guan,L., Wright,C., and Leikam,S. (2005)
Maijoor, S., and Vanstraelen, A. (2002)	Coppensa,L., and Peek,E. (2005)
Otogawa, K. (2002)	Gill-de-Albornoz,B., and Illueca,M. (2005)
Sun, W., and Sun, J. (2002)	Van Tendeloo,B., and Vanstraelen,A. (2005)
Xie,B., Davidson,W., and DaDalt,P. (2003)	Lybaert, N., Jans, M., and Orens, R. (2005)
Koh, P. (2003)	Zang, A. (2005)
Das,S., and Zhang,H. (2003)	Feres de Almeida, J., *et al.* (2005)
Anandarajan,A., Hasan,I., and Lozano-Vivas,A. (2003)	García Osma,B., and Gill-de-Albornoz,B. (2005)
	Kim, J., and Yi, C. (2005)
Roosenbooma,P., Van der Gootb,T., and Mertens,G. (2003)	Rahman, U., Dowds, J., and Cahan, S. (2005)
	Martinez, A. (2005)
Leuz,C., Nanda,D., and Wysocki,P. (2003)	Markarian, G. (2005)
Vander Bauwhede, H., and Willekens, M. (2003)	Yaping, N. (2005)
Dechow,P., Richardson, S., and Tuna, I. (2003)	Jaggi, B., Chin, C., and Lin, W. (2005)
Johl, S., Jubb, C., and Houghton, K. (2003)	Saleh, N., Iskandar, T., and Rahmat, M. (2005)
	Kothari,S., Leone,A., and Wasley, C. (2005)
PANEL E: PAPERS BETWEEN 2006-2010	
Roychowdhury, S. (2006)	Zhou, J. (2008)
Bergstressera,D., and Philippon, T. (2006)	Ahmed, A., Godfrey, J., and Saleh, N. (2008)
Petrovits,C. (2006)	Habib,A., and Hossain,M. (2008)
Cormier,D., and Martinez,I. (2006)	Mora, A., and Sabater, A. (2008)
Geiger,M. *et al.* (2006)	Aussenegg, W., Inwinkl, P., and Schneider, P. (2008)
Burgstahler,D., Hail,L., and Leuz,C. (2006)	
Lin,K. (2006)	McNicols, M., and Stubben, S. (2008)
Langa,M., Smith Raedya,J., and Wilson,W. (2006)	Sivaramakrishnan, K., and Yu, S. (2008)
Ronen,J., Tzur,J., and Yaari,V. (2006)	Cohen, D., and Zarowin, P. (2008)
Othman,H., and Zeghal,D. (2006)	Yu, F. (2008)
Razzaque, R., Rahman, M., and Salat, A. (2006)	Sun,J., and Liu,G. (2009)
Burghof, H., and Johannsen, M. (2006)	Kao,J., Wu,D., and Yang,Z. (2009)
Katz, S. (2006)	Duh,R., Lee,W., and Lin,C. (2009)
Maijoor, S., and Vanstraelen, A. (2006)	Chang,J., and Sun,H. (2009)
DeDalt, P., Jiraporn, P., and Yaari, V. (2006)	Zhao,Y., and Chen,K. (2009)
Stubben, S. (2006)	Jaggi,B., Leung,S., and Gul,F. (2009)
Lei, K. (2006)	Cornett,M., McNutt,J., and Tehranian,H. (2009)

Hansen, J. (2006)	Chi,J., and Gupta,M. (2009)
Jacob, J., and Jorgensen, B. (2007)	Tsai,C., and Chiou,Y. (2009)
Jo,H., and Kim,Y. (2007)	***Yagüe,J., Gómez-Sala,J., and Poveda-Fuentes,F. (2009)***
Jaggi,B., and Leung,S. (2007)	Iatridis,G., and Kadorinis,G. (2009)
Koh,P. (2007)	Ittonen, K., Peni, E., and Vähämaa, S. (2009)
Shuto,A. (2007)	Adams,B., Carow, K., and Perry,T. (2009)
Agarwal,S., *et al.* (2007)	Bukit, R., and Iskandar, T. (2009)
Byard,D., Hossain,M., and Mitra,S. (2007)	Brau,J., and Johnson, P. (2009)
Arnedo,L., Lizarraga,F., and Sánchez,S. (2007)	Chung, H., Sheu, H., and Wang, J. (2009)
Gill-de-Albornoz,B., and Illueca,M. (2007)	Charoenwong, C., and Jiraporn, P. (2009)
Ye, J. (2007)	García Osma, B., and Guillamón-Saorín, E. (2009)
García Osma, B., and Noguer, B. (2007)	Shah, S., Zafar, N., and Durrani, T. (2009)
Geiger, M., Quirvan, C., and Hazera, A. (2007)	Sun, L. and Rath, S. (2009)
Cohen, D., Dey, A., and Lys, T. (2007)	Tylsch, R. (2009)
Drautz, A. (2007)	Liu, Y., Ning, Y., and Davidson, W. (2009)
Lee, K., Lev, B., and Yeo, G. (2007)	***Chen,A., et al. (2010)***
Hasnan, S., Rahman, R., and Mahenthiran, S. (2007)	***Callao, S. and Jarne, J. (2010)***
Caramanis,C., and Lennox,C. (2008)	Lo, A., Wong, R., and Firth, M. (2010)
Markarian,G., Pozza,L., and Prencipe,A. (2008)	Aharony, J., Wang, J., and Yuan, H. (2010)
Lo, K. (2008)	Dechow, P., Myers, L., and Shakespeare, C. (2010)
Cornett,M., Marcus,A., and Tehranian,H. (2008)	Jiang, J., Petroni, K., and Wang, I. (2010)
Jeanjean, T., and Stolowy, H. (2008)	Chen, C. (2010)
Siregar,S., and Utama,S. (2008)	Dechow, P., *et al.* (2012)
Aono,J., and Guan,L. (2008)	Kempen, R. (2010)
Jiraporn,P., *et al.* (2008)	Taylor, G., and Xu, R. (2010)
Chen,X., and Lee,C., Li,J. (2008)	Sun, L., and Rath, S. (2010)
Ahmad-Zaluki, N. (2008)	Matis, D., *et al.* (2010)
Jiraporn, P., Sang Kim, Y., and Mathur, I. (2008)	***Barth and Taylor (2010)***
Rath, S., and Sun, L. (2008)	
PANEL F: PAPERS BETWEEN 2011-2015	
Rodrigues, Marques and Craig (2011)	Cohen, D., and Zarowin, P. (2012)
Hadani, M., Goranova, A., and Khan, R. (2011)	Ardison, K., Martinez, A., and Galdi, F. (2012)
Okamoto, N. (2011)	***Alhadab, M., Clacher, I., and Keasey, K. (2013)***
Nwaeze, E. (2011)	Badolato, P., Donelson, D., and Ege, M. (2013)
Böching, H. (2012)	Llukani, T. (2013)
Zhang, Y. (2012)	Cimini (2015a)
Yero, J. and Usman, S. (2012)	

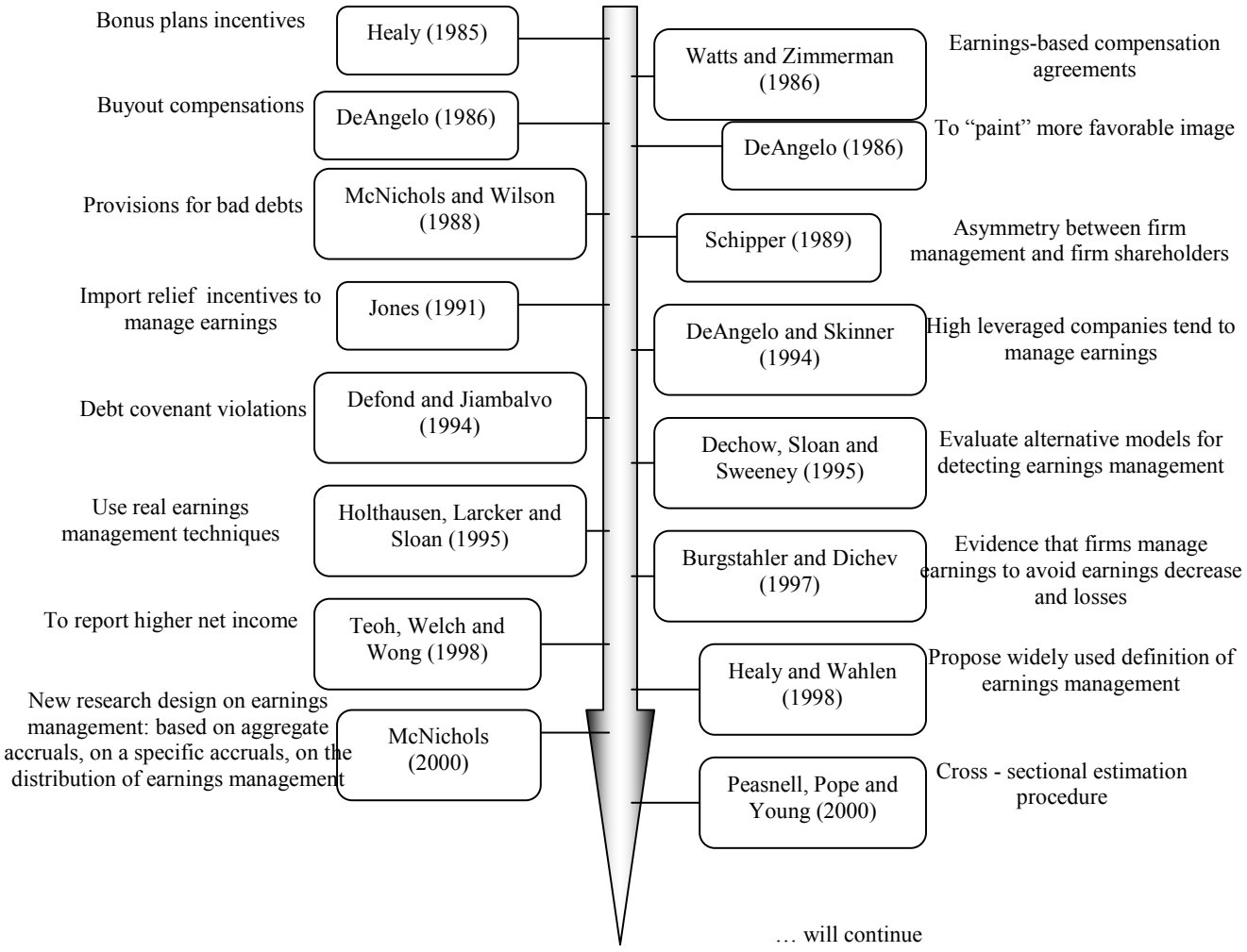
*Papers in bold are in our opinion important papers which influence especially on development of earnings management research and they are explained in the Figure 1.9 or/ and in the text. These papers were selected as they are commonly cited by the other authors over the years.

Source: Callao, Jarne and Wroblewski (2014b).

During the following years authors increasingly treated the issue of earnings management focusing on motivations for such activity, see, for example the study of Watts and Zimmerman (1986), a year later. They argued that managers in firms with earnings-based compensation agreements have an incentive to manipulate the earnings to maximize their award by (always) selecting income increasing accounting policies. They suggested that earnings management behaviour is positive vis-à-vis accounting choice models. It was an income-smoothing hypothesis. It suggested that managers take actions to reduce earnings fluctuations around some level considered normal for the firm, in order to (1) better deliver management's expectations concerning the

persistence of future earnings to investors, (2) increase their job security with the firm, or (3) reduce the firm's borrowing costs (Watts and Zimmerman, 1986).

Figure 1.9: Evolution of investigation of earnings management between 1985-2000 (I part)



Source: The author

In the same year, DeAngelo (1986) hypothesized that managers of firms going private would have incentives to understate reported income in attempts to reduce the buyout compensation but failed to find support for this hypothesis. These management buyouts always engender potentially severe conflicts of interest for insider-managers, who both have a fiduciary duty to negotiate fair value for the publicity-held shares and are themselves the purchases of those shares. In 1988 De Angelo discovered that managers of firms in proxy contests exercise their accounting discretion to paint a more

favourable picture of their own performance to voting stockholders, and that if elected, dissidents than tend to take an immediate earnings bath. The managers typically blame prior management for the previous poor operating performance.

McNichols and Wilson (1988) examined whether managers manipulate earnings but their approach differed from previous earnings management studies, as they considered a single accrual for the provision for bad debts, rather than a collection of accruals. They attempted to isolate a discretionary accrual proxy that is substantially free of nondiscretionary components.

Schipper (1989) is another study mostly cited by the authors. He argued that there is a lack of empirical testing of information asymmetry between firm management and firm shareholders. The environment surrounding earnings management represents a slippage between analytical models and empirical tests of earnings management. Schipper (1989) suggested additionally the need for empirical work considering the environmental conditions surrounding the practice of earnings management.

Perhaps, one of the key studies within the studies on earnings management is a study of Jones (1991). She used discretionary accruals as a measure for the scope of earnings management. Her methodology differs significantly, as previous studies used total accruals as a proxy. She separated the total accruals on the discretionary (manageable) and non-discretionary (non- manageable) part of accruals. Her study tested whether firms that would benefit from import relief (for example, tariff increases and quota reductions) attempt to decrease earnings through earnings management during import relief. While prior studies of earnings management typically examine situations in which all contracting parties have incentives to "perfectly" monitor (adjust) accounting numbers for such manipulation, import relief investigations provide a specific motive for earnings management that is not provided in other earlier earnings management studies (Jones, 1991). Her results of empirical tests reported support the initial hypothesis suggesting that managers perform income-decreasing accruals during import relief investigations.

Following studies still examined the incentives for earnings management. Nevertheless, the methodology for measuring it was based on model proposed by Jones (1991). For example, a firm's performance can often be a primary reason for managers to engage in earnings manipulation via aggressive income recognition techniques. DeAngelo, DeAngelo and Skinner (1994) found that high leveraged troubled companies have large negative accruals related to the renegotiating of their debt contracts. Managers of

troubled companies during a recession can improve their bargaining position with unions through income-decreasing accounting choices only when there is confirmatory evidence of financial trouble and sacrifices by other stakeholders. This would suggest that firms with low or negative real earnings would manipulate downward their accruals even more. DeAngelo, DeAngelo and Skinner (1994) found a negative effect of debt/equity structure, indicating that managers tend to manipulate earnings downward when their firms are highly leveraged.

Defond and Jiambalvo (1994) examined the abnormal accruals of a sample of 94 firms that reported debt covenant violations in annual reports. In contrast with most studies which supported debt covenant. Defond and Jiambalvo relied on leverage as a proxy for the existence and tightness of accounting-based covenants. They examined the abnormal accruals of firms known to have violated debt covenants. The analysis was conducted using both time-series and cross-sectional models for normal accruals. They demonstrated that in the year prior to violation, both models indicate that violation firms have abnormal total and working capital accruals that are significantly positive. Thus, there was substantial evidence consistent with positive manipulation in the year prior to violation. The evidence was robust as to the method of estimating normal accruals (Defond and Jiambalvo, 1994).

The study of Dechow, Sloan and Sweeney (1995) incorporated new perspective. They focused on the methodology of measuring earnings management. They evaluated alternative accrual-based models for detecting earnings management. The evaluation compared the specification and power of commonly used test statistics across the measure of discretionary accruals generated by the models and provides the following major insights. Their result highlighted the importance of the application of models which offer reliability and the most power in detecting earnings management (Dechow, Sloan and Sweeney, 1995). Finally, they proposed their own model. This study opened the problem of specification of the correct model to evaluate the issue of earnings management. Since then, the authors focused not only on motivations of manipulation, but also on correct application and measuring the scope of manipulation. It was an important change in the investigation on earnings management.

Future studies improved the topic of earnings management within the motivations for earnings management as well as the way of measuring the non-discretionary part of accruals (methodology). Among the studies we mentioned some mostly cited by the authors. Holthausen, Larcker, and Sloan (1995) performed a study

which extended the earnings management literature in several ways. First, by utilizing proprietary databases from two human resource consulting firms, they were able to perform a study that used actual bonus plan thresholds and actual bonus plan payments. They were also able to update the sample period, utilize more sophisticated methods for measuring the discretionary component of accounting accruals, and looked at "real" earnings management techniques such as expenditures for research and development initiatives. Holthausen, Larcker, and Sloan (1995) were able to replicate most of Healy's findings with their new data set. However, the authors did not find evidence supporting managers' propensity to perform income-decreasing discretionary accruals when they were below the bonus threshold. In discussing the results of their analysis, the authors noted that the choice of discretionary accrual measures influenced the results found.

Burgstahler and Dichev (1997) provided evidence that firms manage reported earnings to avoid earnings decreases and losses; specifically, in cross-sectional distributions of earnings changes and earnings. They found unusually low frequencies of small decreases in earnings and small losses and unusually high frequencies of small increases in earnings and small positive income. They found evidence that two components of earnings, cash flow from operations and changes in working capital, were used to achieve increases in earnings (Burgstahler and Dichev, 1997).

Teoh, Welch and Wong (1998) found that issuers who adjust discretionary current accruals to report higher net income prior to the offering have lower post-issue long-run abnormal stock returns and net income. The relation between discretionary current accruals and future returns (adjusted for firm size and book-to-market ratio) was stronger and more persistent for seasoned equity issuers than for non-issuers. Their evidence was consistent with investors naively extrapolating pre-issue earnings without fully adjusting for the potential manipulation of reported earnings (Teoh, Welch and Wong, 1998).

In the same year, Healy and Wahlen (1998) proposed the definition of earnings management, which lately has been widely used by investigators of earnings management issue. They defined earnings management comprehensively as an action taking place "…when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholder about the underlying economic performance of company, or to influence contractual outcomes that depend on reported accounting numbers" (Healy and Wahlen, 1998). They offered

additionally a different range of incentives for earnings management, such as, bonus plans, debt contracts, meeting analyst's expectations or raising funds on more favourable terms. They concluded that earnings management is a pervasive phenomenon.

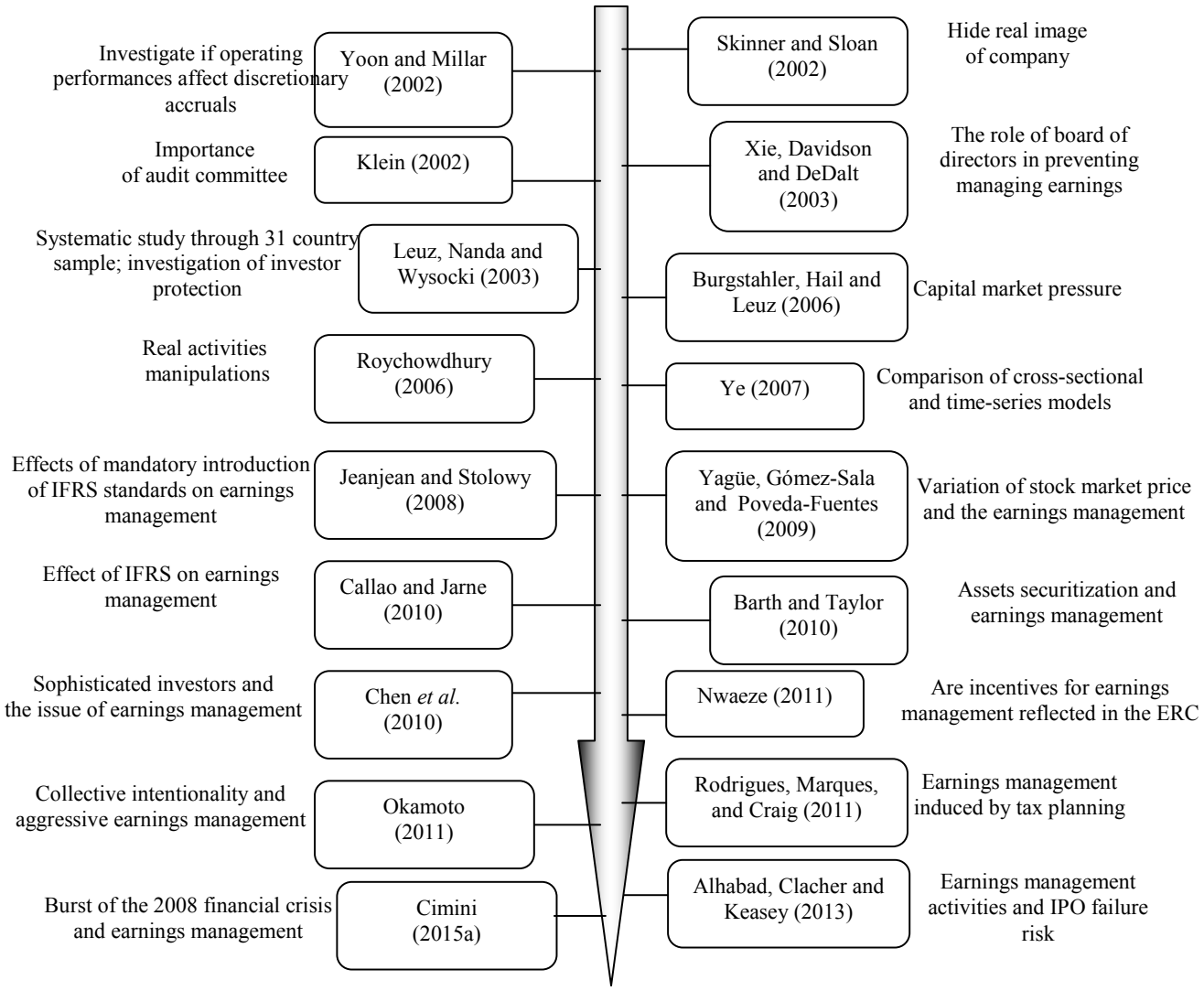
McNichols (2000) offered a very interesting study, which discusses trade-offs associated with three research designs commonly used in the earnings management literature: those based on aggregate accruals, those based on specific accruals and those based on distribution of earnings after management. A key theme of the paper is that empirical procedures for aggregate accruals studies lag behind both our theories of incentives to manage accruals and our institutional knowledge of how accruals behave. Empirical findings suggested that aggregate accruals models that do not consider long-term earnings growth are potentially misspecified and can result in misleading inferences about earnings management behaviour. It suggested that future progress in the earnings management literature is more likely to come from the application of specific accrual and distribution-based tests than from aggregate accruals tests (McNichols, 2000).

Peasnell, Pope and Young (2000) initiated the dispute of widely applied time series data for measuring earnings management. They examined specification and power issues relating to the measurement of abnormal accruals using cross-sectional estimation procedures. Their results indicated that all three cross-sectional models appear well specified when applied to a random sample of firm-years. However, additional tests indicated that the margin model generates relatively better specified estimates of abnormal accruals when cash flow performance is extreme (Peasnell, Pope and Young, 2000). They finally suggested that different models may be required in different circumstances.

Yoon and Miller (2002) followed the line of investigation started by Dechow, Sloan and Sweeney in 1995, where different models were used to find out the most powerful methodology to detect the earnings management issue. Yoon and Miller (2002) investigated the relationship between the operating performances of Korean industrial firms and the behaviour of discretionary accruals. They used four test methods (a mean accrual test, a correlation test, a regression analysis, and a sign-change test) to investigate if operating performances affect discretionary accruals differently. They compared additionally three accrual estimation approaches (two discretionary

accruals and the total accruals) in testing the earnings management hypotheses. They concluded that the Korean industrial firms manage earnings.

Figure 1.9: Evolution of investigation of earnings management between 2001-2015 (II part – continuation)



Source: The author

Skinner and Sloan (2002) supported the hypothesis to hide the real image of a company, giving the explication that managers manipulate earnings to avoid revealing the true value of their firm because reporting lower than expected earnings is harshly punished by the market. Moreover, meeting the analyst forecast has been shown to affect capital markets. Some firms had a greater incentive than others to meet the analyst forecast. Firms found that there was a severe price penalty for growth for firms

that miss the analyst forecast, that could have resulted in a large decline in stock price, especially for high-growth firms (Skinner and Sloan, 2002).

In the last 10-15 years we may observe studies which were conditioned by the significant corporate scandals (Enron, WorldCom, and Tico among others). Increasingly, the discussion focused now on how to prevent such manipulation of companies' earnings. For example, Klein (2002) indicated the core importance of the audit committee. He stressed that the audit committee plays an important role in monitoring the company financial reporting process. In this way, independent audit committees were hypothesized to have an effect on discretionary accounting accruals. The presence of the independent audit committee may have protected the interest of shareholders. Klein (2002) found that audit committee independence is negatively related to earnings management. This result suggested that independent audit committees were able to effectively control earnings management practices. This study was essential, especially in the light of corporate scandals in The United States, as mentioned before.

The study of Leuz, Nanda and Wysocki (2003) is one of the first studies to examine systematic differences in earnings management across a very wide sample of countries. They documented systematic differences in the level of earnings management across 31 countries. The analysis suggested that outsider economies with relatively dispersed ownership, strong investor protection, and large stock markets exhibit lower levels of earnings management than insider countries with relatively concentrated ownership, weak investor protection, and less developed stock markets (Leuz, Nanda and Wysocki, 2003).

Xie, Davidson and DeDalt (2003) examined the role of the board of directors, the audit committee, and the executive committee in preventing earnings management. They showed that the composition of a board in general, and of an audit committee more specifically, is related to the likelihood that a firm will engage in earnings management. Board and audit committee members with corporate or financial backgrounds are associated with firms that have smaller discretionary current accruals. Board and audit committee meeting frequency is also associated with reduced levels of discretionary current accruals. They concluded that board and audit committee activity and their members' financial sophistication may be important factors in constraining the propensity of managers to engage in earnings management (Xie, Davidson and DeDalt, 2003).

Burgstahler, Hail and Leuz (2006) examined how capital market pressures and institutional structures shape firms' incentives to report earnings that properly reflect their economic performance. To isolate the effects of reporting incentives, they exploited the fact that within the European Union, privately held limited companies face the same accounting standards as publicly traded corporations because accounting regulation is based on legal form. They hypothesized that raising capital in public markets rather than from private sources and the institutional environment in which a firm operates had a systematic influence on firms' accounting quality. They focused on level of earnings management as one dimension of accounting quality that is particularly responsive to firms' reporting incentives (Burgstahler, Hail and Leuz, 2006). They concluded that raising capital in public markets and the quality of legal system were associated with the level of earnings management across European countries. Moreover, Burgstahler, Hail and Leuz (2006) found that earnings management was more pervasive in private firms and that both public and private firms exhibit more earnings management in countries with weak legal enforcement.

Roychowdhury (2006) focused her study on real activities manipulations. She found evidence consistent with managers manipulating real activities to avoid reporting annual losses. Specifically, she found evidence suggesting price discounts to temporarily increase sales, overproduction to report lower cost of goods sold, and reduction of discretionary expenditures to improve reported margins. Cross-sectional analysis revealed that these activities are less prevalent in the presence of sophisticated investors. There are also other factors that influence real activities, for example, industry membership, the stock of inventories and receivables, and incentives to meet zero earnings. There is additionally some, though less robust, evidence of real activities manipulation to meet annual analyst forecasts, she pointed out (Roychowdhury, 2006).

Driven by the success of Jones model, a long line of research on earnings management utilized it. Ye (2007) expanded the Jones and performance-adjusted Jones models by incorporating three measures from financial statements: abnormal beginning non-cash working capital, working capital intensity, and historical depreciation rates. In a number of scenarios including loss avoidance and seasoned equity offerings, he showed that unexpected accruals based on the proposed model evince less bias and higher power in testing earnings management compared to those based on existing models. The proposed accruals model displayed the advantages of both the cross-sectional and the time-series Jones models, but overcomes their shortcomings (Ye,

2007). This study was significant in the light of comparison of cross-sectional and time-series models, which earlier were always investigated separately.

In the following years, we may observe an effort to put the attention on the effect and impact of the introduction of IFRS. Jeanjean and Stolowy (2008) offered an investigation in the light of accounting norms, and their importance on the real image of a company. They analyzed the effect of a mandatory introduction of IFRS standards on earnings management. They found that the pervasiveness of earnings management did not decline after the introduction of IFRS, and in fact increased in France. Their findings confirmed that sharing rules is not a sufficient condition to create a common business language, and those management incentives and national institutional factors play an important role in framing financial reporting characteristics.

As well, Callao and Jarne (2010) examined whether the adoption of IFRS in the European Union has increased or decreased the scope for discretionary accounting practices by comparing accruals in the periods preceding and immediately after the regulatory change. Differently from the previous authors, they pointed out that earnings management increased after the adoption of IAS/IFRS standards. As to current discretionary accruals, they found a significant increase for France, Spain and the UK, and not significant changes (both for increase and for decrease) in the other countries. With reference to long-term discretionary accruals, they found that all the changes are significant, but the number of firms in which they increase exceeds the number of firm in which they decreased.

Barth and Taylor (2010) presented a study of discretion in income from asset securitizations. Asset securitizations are an important and growing economic activity and the accounting for securitizations is controversial and has been criticized during the current financial crisis. They clarified the role of fair value in accounting for asset securitizations and; discussed alternative explanations for the evidence presented by Dechow, Myers, and Shakespeare (2010) that provided evidence that managers use asset securitizations to smooth earnings. The Barth and Taylor (2010) study did not seek to provide evidence on whether managers manipulate fair value estimates to increase earnings. It focused solely on securitization volume. They opened new possible paths of investigation to investigate whether securitization income reflects other forms of earnings management.

Chen *et al.* (2010) offered a study which determined whether sophisticated investors can uncover the true value of firms. They pointed out that it can be done by

defining sophisticated investors as those who meet the stringent participation requirements of private equity market. Their results showed that private equity issuing firms overstate their earnings in the quarter preceding private equity placement announcements and that sophisticated investors do not ask for a fair discount when purchasing the shares of private issuing firms. They found additionally evidence showing that the reversal of effects of pre-issue earnings management was a significant determinant of long-term performance of private issues. Further results showed that post-issue stock performance and operating performance of firms using "aggressive" earnings management significantly underperformed those using more "conservative" earnings management (Chen *et al.*, 2010).

Finally, in the last years, between 2011 and 2015, we may observe that the investigation again focused on different incentives and factors which may have influenced earnings management. For example, Nwaeze (2011) investigated the incentives for earnings management reflected in the earnings response coefficient, based on a large sample. He examined the effect of exposure to earnings management incentives on the earnings response coefficient. Drawing from several anecdotes and normative arguments about the implications of managers' incentives for investor perception, he predicted and tested that exposure to earnings management incentives was negatively associated with the earnings response coefficient. He found that the earnings response coefficient was reliably lower for firms with elevated exposure to earnings management incentives, holding constant the effects of actual earnings management and other factors that affect the returns–earnings relation. Furthermore, the effect of incentive exposure on cash flows as well as on total accruals is reliably negative. Additional analysis showed that the effect of such incentives on earnings response coefficient was more pronounced at higher levels of institutional stock ownership. However, certain classes of institutional owners – transient institutions – were less sensitive to the implications of such incentives for earnings quality (Nwaeze, 2011).

In contrast, Hadani, Goranova and Khan (2011) focused on the wide spread practice of earnings management which adversely impacted the quality of financial reports and increases information asymmetries between owners and managers. Their study investigated the effect of shareholder activism (as expressed by the proxy proposals sponsored by shareholders), and monitoring by the largest institutional owner on earnings management. The results indicated that the number of shareholder

proposals received by firms is positively related to subsequent earnings management, yet concurrently, monitoring by the largest institutional owners is negatively related to earnings management. Their findings shed light on equivocal results reported by prior research considering the impact of shareholder activism on firm performance, on one hand, and ownership monitoring and performance, on the other.

Okamoto (2011) pointed out that "bullshit" is prevalent in accounting, and he explicated that the crux of the problems rose in disputes concerning aggressive corporate earnings management. He attempted to shed new light on the present debate over principles - versus rules-based accounting standards and aggressive earnings management. Based on a theoretical analysis, his paper concluded by supporting principles-based accounting standards accompanied by the true and fair override provisions (Okamoto, 2011).

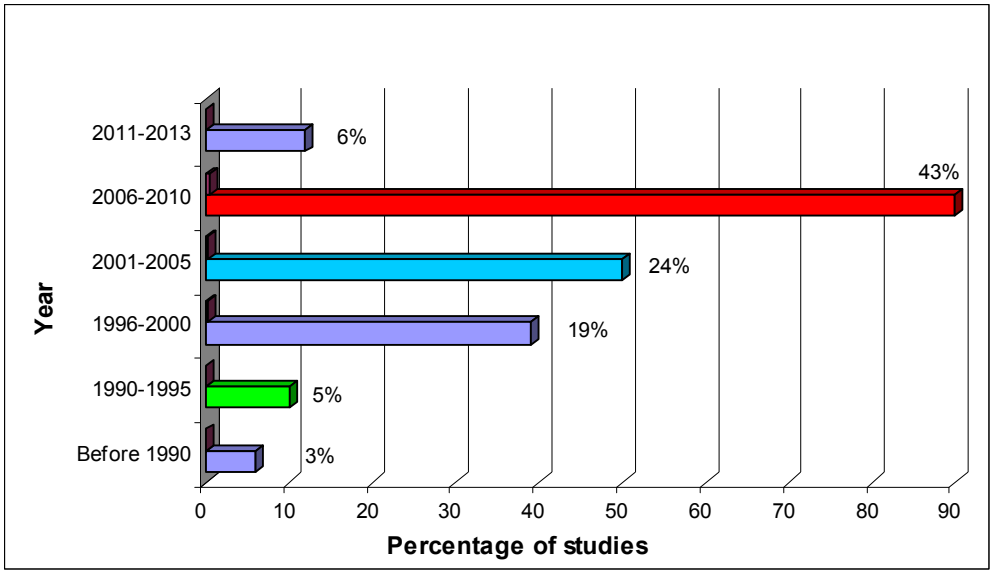
Rodrigues, Marques and Craig (2011) focused on the earnings management induced by tax planning. They found that earnings manipulation appears to have been motivated by desire to minimize amount of income tax planned to pay in advance. Firms with higher rates of income tax were found to reduce earnings to near zero. Firms with higher average income tax rates were more likely to manipulate their earnings than other firms. Their results reinforced the importance for auditors, stakeholders, and tax policy advisors to be alert to the close association between tax planning considerations and reported earnings in their monitoring, analysis, and policy advising activities.

Alhadab, Clacher and Keasey (2013) analyzed the relationship between real and accrual earnings management activities and IPO failure risk. They presented evidence that IPO firms manipulate earnings upward utilizing real and accrual earnings management around the IPO. They additionally found that IPO firms with higher levels of real and accrual earnings management during the IPO year have a higher probability of IPO failure and lower survival rates in subsequent periods.

Finally, Cimini (2015a) investigated whether and how in the European Union, the burst of the 2008 financial crisis affected misrepresentation of financial information due to earnings management. He analysed a sample of 11,844 firm-year observations listed in the EU over the period 2006–2012. He confirmed research hypothesis and suggested a decrease of misrepresentation in the large majority of the European countries after the burst of the financial crisis.

Figure 1.10 presents the investigations made over the time of all investigations on earnings management. We may observe that in the first 10 years of investigation of earnings management there are a few papers, only 9% of all the studies. In the next five years, there is a pretty large increase in the investigations on earnings management: a total of 39 studies, which is 19% of all papers. In the period of 2001-2005 the investigation continues to increase significantly, with a total of 50 studies.

Figure 1.10: Percentage of studies over time



207 papers were revised[6].

Source: Callao, Jarne and Wroblewski (2014b).

And finally, we observe the intensification of research on earnings management in the last 5-6 years. In the period of 2006-2010 there are 90 studies. In the period of 2011 to 2013 we have investigated 12 more studies.

1.3.2. METHODOLOGICAL PERSPECTIVE

The success of any earnings management study critically depends on the precise methodology used to measure it. For example, McNichols (2000) distinguished three main research designs commonly used in the literature: those based on aggregate accruals, those based on specific accruals and those based on distribution of earnings

[6] Our study is based on data until September 2013. Nevertheless, we added some interesting studies, such as: Cimini (2015a,b) to update the research and follow the earnings management tendencies.

after management. ***Firstly, there is a large literature*** that attempts to identify discretionary accruals based on the relation between total accruals and hypothesized explanatory factors. This literature began with Healy (1985) and DeAngelo (1986), who used total accruals and change in total accruals, respectively, as measures of management's discretion over earnings. Jones (1991) introduced a regression approach to control for nondiscretionary factors influencing accruals, specifying a linear relation between total accruals and change in sales and property, plant and equipment. These approaches are typically called aggregate accruals studies.

A second approach in the literature is to model a specific accrual, as in McNichols and Wilson (1988). These studies often focus on industry settings in which a single accrual is sizable and requires substantial judgment. Based on these characteristics, as well as anecdotal evidence, the researchers have priors that management's discretion is likely to be reflected in a specific accrual or set of accruals. As with aggregate accruals studies, a key aspect of the research design task is modelling the behaviour of each specific accrual to identify its discretionary and nondiscretionary components. For example, McNichols and Wilson (1988) focused on residual provision for bad debt, estimated as the residual from a regression of provision for bad debts on allowance beginning balance, and current and future write-offs. Petroni (1992) claimed loss reserve estimation error, measured as the five year development of loss reserves of property casualty insurers. In another study, Beaver and Engel (1996) centred additionally on residual allowance for loan losses. They estimated the residual from a regression of allowance for loan losses on net charge-offs, loan outstanding, nonperforming assets and one year ahead change in nonperforming assets. On the other hand, Beneish (1997) studied days in receivables index, gross margin index, asset quality index, depreciation index, selling general and administrative expense index, and total accruals to total assets index. And finally, for example, Beaver and McNichols (1998) pointed out the serial correlation of the one year development of loss reserves of property casualty insurers

A third approach is to examine the statistical properties of earnings to identify behaviour that influences earnings, as developed for example, by Burgstahler and Dichev (1997) and DeGeorge, Patel and Zeckhauser (1999). These studies focus on the behaviour of earnings around a specified benchmark, such as zero or a prior quarter's earnings, to test whether the incidence of amounts above and below the benchmark are distributed smoothly, or reflect discontinuities due to the exercise of discretion. In

details, for example, a study of Burgstahler and Dichev (1997) contributed to the literature of earnings management methodology by an innovative approach in testing for earnings management. The pooled cross-sectional distribution approach employed here could be adapted to detect earnings management. The innovation shows that by focusing on the density of distribution of earnings after management we can detect earnings management. If earnings are not managed to meet forecasts, we would expect to observe a relatively smooth cross-sectional distribution of deviations of realized earnings from forecasts. In contrast, if earnings are managed to meet forecast goals, we would expect to observe a sharp discontinuity in the vicinity of zero, i.e. a significantly lower concentration of (small) negative deviations of reported earnings from forecasts and a significantly higher concentration of (small) positive deviations. An important determinant of the effectiveness of the pooled cross-sectional distribution approach in other earnings management settings will be the precision with which the earnings management goal can be defined. Considered in this paper: simple goals, and the avoidance of earnings decreases and losses, have the advantage of being sharp and unambiguous (Burgstahler and Dichev, 1997).

DeGeorge, Patel and Zeckhauser (1999) tested whether the frequency of quarterly earnings realizations in the region above (below) zero earnings, last quarter's earnings and analysts' forecasts is greater (less) than expected. A model showed how thresholds induce specific types of earnings management. Empirical explorations identify earnings management to exceed each of three thresholds: report positive profits, sustain recent performance, and meet analysts' expectations. The positive profits threshold proves predominant. The future performance of firms suspected of boosting earnings just across a threshold is poorer than that of control group firms.

Myers and Skinner (1999) tested whether the number of consecutive earnings increases is greater than the expected absent earnings management. They found that there are many more firms with long strings of consecutive increases in quarterly earnings than would be expected by chance and report some evidence that managers of these firms practice income smoothing to help achieve this result.

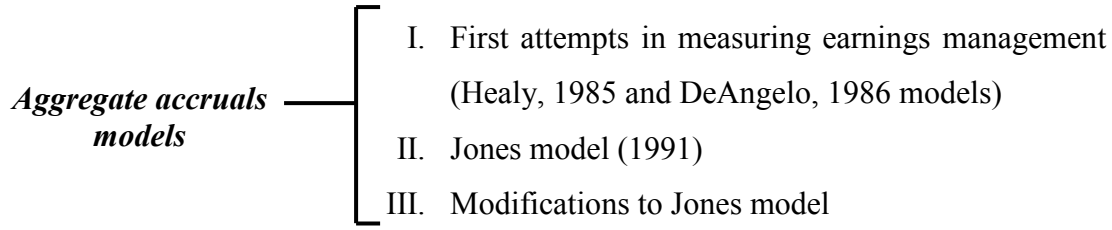
Our research is investigating earnings management based on accruals, specifically, on the discretionary part of accruals, in relation to the total accrual. In this section, we review the most important contributions to the earnings management literature related to this methodology of measuring earnings management. It is

important to make a precise isolation of managed accruals from the normal/unmanaged portion.

Researchers on earnings management over many years of investigation have made various attempts to make this kind of separation. However, details of models for measuring earnings management, such as formulas and full specification we placed in the Chapter 2. This section has only the aim of showing the most important advances in the methodology of accruals earnings management in general. We can divide them into two main blocks: aggregate accruals models and specific accruals models. And than within the aggregate accruals we have three subgroups: Healy model (1985) and DeAngelo model (1986): first attempts in measuring earnings management; Jones model (1991); and modifications to Jones model.

The specific accruals models include for example, the model developed by Beneish (1997), who constructed a holistic model that included ratios based on incentives for earnings manipulation and ratios. He pointed out that according to other research, these variables have a positive relationship with earnings manipulation. The model specifically calculates a percentage which is a proxy for the chance of earnings manipulation. It is unique in this respect and allegedly outperforms conventional accrual models[7]. However, our Thesis is based on aggregate accruals models, and within them we distinguish three groups of models, as we may see on Figure 1.11.

Figure 1.11: Methodology of aggregate accruals models



Source: The author.

[7] Cimini (2015b) shows interesting classification of those methodologies used for detecting earnings management. He divides the models into three groups: "first-generation" models, models such as: the Healy (1985), the DeAngelo (1986); detection of earnings management by ratio analysis, for example, Dechow (1994), Hayn (1995), Burgstahler and Dichev (1997), Leuz, Wysocki and Nanda (2003); and finally "second-generation" models, for example, Larcker and Richardson (2004), Kothari, Leone and Wasley (2005).

1.3.2.1. AGGREGATE ACCRUALS MODELS: HEALY (1985) AND DeANGELO (1986) MODELS

The literature starts with the simplest models, firstly, proposed by Healy (1985), who tested his hypotheses on earnings management behaviour by arranging the observations in his sample into groups based on their hypothesized earnings management behaviour. The correctness of the hypotheses was than tested by pair wise comparisons of mean total accruals (scaled by lagged total assets) between groups for which different earnings management behaviour was assumed.

Later, DeAngelo (1986) estimated the firm's nondiscretionary accruals from the previous period and therefore it can be viewed as a time-series version of Healy model (Dechow, Sloan and Sweeney, 1995). DeAngelo assumed that first order differences in accruals have an expected value of zero. In fact, the DeAngelo model was a special case of the Healy model where total accruals are only dependent on last year's total accruals instead of an average of the years in the estimation period.

1.3.2.2. AGGREGATE ACCRUALS MODELS: JONES MODEL (1995)

Possibly the main advance in the measuring of earnings management was provided by Jones (1991). She relaxed the assumption that non-discretionary accruals are constant. She estimated nondiscretionary accruals as a regression which includes change in sales and the level of property, plant and equipment as explanatory variables. Jones (1991) estimated the regression parameters using data varying between 14 and 32 years per firm and obtained through these the nondiscretionary accruals in the test period. Her model during many years was one of the most popular accrual model used by the authors.

1.3.2.3. AGGREGATE ACCRUALS MODELS: MODIFICATIONS TO JONES MODEL

The study of Dechow, Sloan and Sweeney (1995), perhaps made even more of a contribution to the methodology of earnings management. They modified the original Jones model (1991) to eliminate a conjectured tendency of the Jones model to measure discretionary accruals with error when discretion is used over revenues. Dechow, Sloan and Sweeney (1995) in their study evaluated additionally alternative accrual-based models for detecting earnings management. The evaluation compared the specification and power of commonly used test statistics across the measures of discretionary accruals generated by the models. They evaluated the ability of five alternative models to detect earnings management. The study of Dechow, Sloan and Sweeney (1995) is a key advance in the methodology of measuring earnings management. They initiated the process of generating more and more powerful models in detecting earnings management. By comparing different models they started the discussion of power and ability of existing models.

Kang and Sivaramkrishinan (1995) argued that previous research methods used in previous years were subject to simultaneity, errors-in-variables, or omitted variable problems. They proposed an accrual balance concept and an instrumental variable approach would avoid some of these problems. Using a simulation technique, Kang and Sivaramkrishinan (1995) documented that the instrumental variable model performs better than the Jones model.

Jeter and Shivakumar (1999) made very a fruitful study. In their investigation, they addressed certain methodological issues that arise in estimating abnormal (discretionary) accruals for detection of event-specific earnings management. Unlike prior studies, such as: Dechow, Sloan, and Sweeney (1995), Guay, Kothari, and Watts (1996), that relied primarily on time-series models, Jeter and Shivakumar (1999) focused on specification of cross-sectional models of expected accruals using quarterly as well as annual data. They presented additionally a variation of the Jones model that is shown to be well specified for all cash flow levels. They showed that the cross-sectional Jones model yields systematically positive (negative) estimates of abnormal accruals for firms whose cash flows are below (above) their industry median. Using mean squared prediction errors as well as simulation analysis, Jeter and Shivakumar (1999) showed

that their model is more powerful than the cross-sectional Jones model in detecting earnings management. In addition, they examined differences in the power of current accrual models in detecting earnings management across audited and unaudited quarters.

McNichols (2000) based his research on three research designs commonly used in the earnings management literature: those based on aggregate accruals, those based on specific accruals and those based on the distribution of earnings after management. A key theme of his research suggested that aggregate accruals models that do not consider long-term earnings growth are potentially misspecified and it can result in misleading inferences about earnings management behaviour. It suggested that future progress in the earnings management literature should more likely come into the application of specific accrual and distribution-based tests than from aggregate accruals tests. His review argued that earnings management measures based on Jones and the modified Jones model approach were not sufficiently powerful or reliable to assess earnings management behaviour in many contexts.

The primary goal of study of Bartov, Gul and Tsui (2001) was to evaluate the ability of the cross-sectional Jones model and the cross-sectional Modified Jones model to detect earnings management vis-à-vis their time-series counterparts by examining the association between discretionary accruals and audit qualifications. These two cross sectional models have not been formally evaluated by prior research, and their use may offer certain advantages to investors and researchers over their time-series counterparts. The primary contribution of their study confirmed that the cross-sectional Jones model and the cross-sectional Modified Jones model perform better than their time-series counterparts in detecting earnings management. These results had implications for future earnings management research, particularly because, using the cross-sectional model rather than its time-series counterpart should result in a larger size that is less subject to a survivorship bias arising from requiring long time-series data. Additionally, unlike the time-series models, the cross-sectional models do not prelude samples of firms with short history (Bartov, Gul and Tsui, 2001).

Zhang (2002) evaluated a comprehensive list of metrics proposed for detecting earnings management in a setting where managers manipulate earnings to round up reported earnings per share. He contributed to accounting literature by using a setting different from previous literature. He provided evidence related to the ability of accrual-based models in detecting earnings management of small magnitude. He pointed out

that the difficulty in evaluating the power of metrics for detecting earnings management lies in the fact that earnings management is not directly observable. His results cast doubt on the abilities of accrual-based models to catch "minor offenses". According to the empirical frequency documented in previous earnings management research, it is likely to be the norm, rather than the exception of various forms of earnings management (Zhang, 2002).

Dechow, Richardson and Tuna (2003) re-examined the earnings management explanation. They cautioned the use of ratio of small profit firms to small loss firms as a measure of earnings management. Specifically, they focused on whether earnings management is a complete or a partial explanation for the kink. Their tests centred on "discretionary" accruals and they investigated whether small profit firms have high discretionary accruals relative to two groups: all other firms and, small loss firms. They compared small profit firms to small loss firms to be able to test directly whether boosting of discretionary accruals may cause the kink.

Leuz, Nanda and Wysocki (2003), drawing on existing earnings management literature, computed four different proxies capturing a wide range of earnings management activities: smoothing reported operating earnings using accruals, smoothing and the correlation between changes in accounting accruals and operating cash flows, discretion in reported earnings: the magnitude of accruals, and discretion in reported earnings: small loss avoidance. They recognized that these proxies are not perfect and indicate earnings management only in a relative sense. But in their defence, extreme realizations of measures are unlikely to reflect informative earnings, especially considering that they computed the proxies for a large set of firms over several years. These four different country-level measures of earnings management captured various dimensions. For example, insiders can exercise their discretion to manage reported earnings. Moreover, the magnitude or smoothness of operating cash flows makes it more likely to capture firms' reporting choices in terms of making earnings more or less informative. Furthermore, they performed a descriptive cluster analysis to identify groupings of countries with similar institutional characteristics and then show that earnings management varies systematically across these institutional clusters (Leuz, Nanda and Wysocki, 2003).

Kothari, Leone, and Wasley (2005) examined the specification and power of tests based on performance-matched discretionary accruals. They made comparisons tests using traditional discretionary accrual measures (e.g., Jones and modified-Jones

models). Their results suggested that performance-matched discretionary accrual measures enhance the reliability of inferences from earnings management research. However, it does not imply that earnings management will vary with performance, or that the control firms are not expected to have engaged in earnings management (Kothari, Leone, and Wasley, 2005)

Ye (2007) expanded a widely used Jones model and performance-adjusted Jones models by incorporating three measures from financial statements: abnormal beginning non-cash working capital, working capital intensity, and historical depreciation rates. He showed that unexpected accruals based on the proposed model demonstrate less bias and higher power in testing earnings management compared to those based on existing models. The proposed accruals model displayed the advantages of both the cross-sectional and the time-series Jones models, but overcame their shortcomings. In this way, he focused on how some basic characteristics of firms, measured in financial statements, affect accruals (Ye, 2007).

Within the period of 2007-2015 the methodology was based on existing models. Authors in major studies used the Dechow, Sloan and Sweeney model (1995), see, for example: Cohen and Zarowin (2008), Yu (2008), Liu, Ning and Davidson (2009), Hadani, Goranova and Khan (2011), Nwaeze (2011), Yero and Usman (2012) among others. Other set of authors used Jones model (1991), see, for example: Naz, Bhatti, Ghafoor and Khan (2011), Zhang *et al.* (2012) or Llukani (2013).

Nevertheless, Matis *et al.* (2010) for example used three models to measure discretionary accruals, Jones (1991), Dechow, Sloan and Sweeney (1995) and Kasznik (1999) models. Ardison, Martinez and Galdi (2012) used three models of discretionary accruals as proxy for earnings management: Jones model (1991), Modified Jones model (1995) and Kang and Sivaramakrishnan (1995), thus, nothing innovative was contributed to the methodology in this period.

1.3.3. CROSS-COUNTRY PERSPECTIVE

Researches deal with the earnings management phenomenon need to specify the country of sample selection. Sample selection is one of the key elements in any research. As pointed out by Mattessich (2009) research on countries/geographical areas is a very useful research tool, especially for those engaged in comparative international

research and who wish to extend their knowledge base about developments in countries outside of those which they have previously studied. Moreover, Mattessich (2008) added that this type of work helps to illustrate the links between the ideas expounded in one country to those in another.

Cross-country perspective on earnings management may be a special interest of investigators, as no study has been done to date. Other studies pointed out that the country origin of a sample influences on perceptions and the results of an earnings management investigation, for example: Leuz, Nanda and Wysocki (2003) stated that earnings management is more pervasive in countries where the legal protection of outside investors is weak, because in these countries insiders enjoy greater private control benefits and hence have stronger incentives to obfuscate firm performance. Geiger *et al.* (2006) provided evidence that national origin affects perceptions of earnings management in countries in the English-speaking world and Europe.

Other investigations found out that firms exhibit more earnings management in countries with weak legal enforcement (Burgstahler, Hail and Leuz, 2006). In this case, investigators would expect that individuals from different countries would vary in their perceptions of earnings management on these different situational factors. Following the study of Geiger, Quirvan and Hazera (2007) we would expect that companies from different countries would differ across their perceptions of earnings management. Therefore, Geiger, Quirvan and Hazera (2007) set different suppositions:

- Perceptions of earnings manipulations will differ across the countries.
- Perceptions of accounting rules-based earnings manipulations will differ across the countries.
- Perceptions of operating decisions to manipulate based earnings will differ across the countries.
- Perceptions of differences between accounting and operating manipulations will differ across the countries.

It suggests that election of country for the study of earnings management will determine the results and the perception of earnings management.

Moreover, as we may observe in the presented above systematic research, authors are interested in investigating earnings management around the different countries. However, there is surprisingly little space devoted to country origin. It is barely touched in the earnings management. This section comprises a very useful set of

country origin bibliographical references for earnings management investigators, which provides an excellent starting point for any reader who wishes to follow up any of the issues related to this topic, and needs to opt for sample selection.

Furthermore, this work helps to illustrate the links between the results of manipulating earnings in one country and those in another, and for those interested in the diffusion and comparison study, this work provides valuable insights. As well as, this country perspective may provide source evidence for those who look for new and non-investigated markets in terms of the issue of earnings management. As a result, this work represents an attempt to be as comprehensive as possible in its coverage of different countries. The research identified 207 articles testing for earnings management using proxies for discretionary behaviour. To characterize the research designs we applied in our study research from 1985 to 2013. Among existent studies on earnings management we can determine three main tendencies in the origin of country sample:

- Studies based on a sample from one country. In these investigations, the researchers try to explore the phenomenon in one particular country to determine whether there is a manipulation of earnings in the sample from this country.
- Studies based on a sample from two or three countries. These papers focus on comparison of two or three origin samples to detect the differences and similarity between countries. Authors try to establish connections, divergences, variations within two/ three markets.
- And finally studies based on a set of countries (more than three) to indicate the general tendencies in the investigation of earnings management across countries. We can not match these two last groups as a single group for the substantial reason: the level of details between the studies based on two or three sample countries' and based on four or more countries are completely different. The latter studies only point out some convergence between the group of countries, and the studies of two or three countries, evaluate in detail differences and similitude between the countries. These research studies are much more detailed studies.

1.3.3.1. INVESTIGATIONS BASED ON UNIQUE COUNTRY SAMPLE

In the earnings management literature we may observe that a common practice of researchers is a use of one-country selection sample. The authors in these studies focus on one particular market, normally in response to a special situation. For example, the study of Byard, Hossain and Mitra (2007) examined earnings management using US-based oil companies in the period immediately after the impact of hurricanes Katrina and Rita. They showed that large petroleum refining firms recorded significant abnormal income-decreasing accruals in the fiscal quarter immediately after the impact of hurricanes Katrina and Rita.

Aono and Guan (2008) examined the effect of the Sarbanes-Oxley Act on earnings management using the publicly listed US companies during 2-year periods before and after the year 2002 when Sarbanes-Oxley Act went into effect. The empirical results suggested that indeed in the 2-year period prior to the Act, there was evidence of earnings management. Or, for example, the study of Chen, Lee and Li (2008) who investigated the consequence of the introduction of a set of government regulations related to the quality of Chinese listed firms and the response of local governments to help listed firms in earnings management to circumvent the central government's regulation. The conclusion suggested that the collusion between government and listed firms in earnings management exists mainly in firms controlled by local governments, among a wide range of studies.

As we may perceive, these very detailed studies centre on a special topic. These studies provide a high level of analysis and systematic results. It is possible because investigating one country the author can do it in all depth. They are most appropriately viewed to investigate exhaustively one aspect of earnings management within one market as a reason that they can be done carefully and accurately.

1.3.3.1.1. U.S. STUDIES ON EARNINGS MANAGEMENT

The investigation of earnings management began in the US and it has increased with time. Table 1.3 shows details on studies of earnings management from the US. The origin sample from the US is the most frequent selection in the literature on earnings

management. We show a chronological review of some of the studies based on samples from the US.

Table 1.3: US studies on earnings management

Author (year)	Country	No. of companies	Objective of study
Healy (1985)	U.S.	250	The study investigated the effect of bonus schemes on accounting decisions.
DeAngelo (1986)	U.S.	64	The study investigated the accounting decisions made by the managers of the American Stock Exchange.
Jones (1991)	U.S.	31	The study tested earnings management during import relief.
DeFond and Jiambalvo (1994)	U.S.	94	The study examined the abnormal accruals of companies that reported debt covenant violations.
Dechow, Sloan and Sweeney (1995)	U.S.	1000	The study evaluated alternative accrual-based models for detecting earnings management.
Burgstahler and Dichev (1997)	U.S.	64,466 observations	The study provided evidence that firms manage reported earnings to avoid earnings.
Key (1997)	U.S.	47	The study tested political costs theory by examining the cable television industry.
Rangan (1998)	U.S.	712	The study investigated whether earnings management around the time of offering can explain a portion of poor performance.
Healy (1999)	U.S.	179	The study tested the effect of earnings management on bonus awards.
Xie, Davidson and DaDalt (2003)	U.S.	110	The study examined the role of board of directors, the audit committee, and the executive committee in preventing earnings management.
Klein (2002)	U.S.	692	The study examined whether the magnitude of abnormal accruals is related to audit committee independence.
Richardson, Tuna and Wu (2002)	U.S.	225	The study examined the usefulness of accounting information in predicting earnings management.
Das and Zhang (2003)	U.S.	103,944 firm-quarter observations	The study provided evidence that firms manipulate earnings so that they can round-up and report one more cent of earnings per share.
Dechow, Richardson and Tuna (2003)	U.S.	48	The study investigated whether boosting of discretionary accruals to report a small profit is a reasonable explanation for this “kink”.
Larcker and Richardson (2004)	U.S.	5,815	The study examined the relation between the fees paid to auditors for audit and non-audit services and the choice of accrual measures for a large sample of firms.
Louis (2004)	U.S.	1,280	The study examined the market’s efficiency in processing manipulated accounting reports.
Guan, Wright and Leikam (2005)	U.S.	172	The study examined the discretionary accounting choices made by CEOs facing forced dismissal.
Kothari, Leone and Wasley (2005)	U.S.	250 samples of 100 firms	The study examined the specification and power of tests based on performance-matched discretionary accruals, and made a comparison with tests using traditional discretionary accrual measures.
Bergstresser and Philippon (2006)	U.S.	4,671	The study showed evidence that the use of discretionary accruals to manipulate reported earnings is more pronounced at firms where the CEO’s potential total

			compensation is more closely tied to the value of stock and option holdings.
Roychowdhury (2006)	U.S.	21,758 firm-years	Managers are manipulating real activities to avoid reporting annual losses
Petrovits (2006)	U.S.	323	The study examined the strategic use of corporate philanthropy programs to achieve financial reporting objectives.
Lang, Smith and Wilson (2006)	U.S.	698	Non-US firms' earnings exhibit more evidence of smoothing, greater tendency to manage towards a target, lower association with share price and less timely recognition of losses.
Koh (2007)	U.S.	16,641	The study examined the association between institutional investor type and firms' discretionary earnings management strategies in two mutually exclusive settings: firms that (do not) use accruals to meet/beat earnings targets.
Jacob and Jorgensen (2007)	U.S.	22,015	The study examined if earnings management is a tool to avoid earnings decreases and losses.
Ye (2007)	U.S.	total number of observations is 75,348	The study showed that unexpected accruals based on proposed model evince less bias and higher power in testing earnings management compared to those based on existing models.
Byard, Hossain and Mitra (2007)	U.S.	29	The study examined earnings management by US-based oil companies in the period immediately after the impact of hurricanes Katrina and Rita.
Chi and Gupta (2009)	U.S.	91,742 firm-year observations	The study examined the agency costs of overvalued equity.
Duh, Lee and Lin (2009)	U.S.	55	The study examined whether the reversal of a previously recognized impairment loss provides an opportunity for earnings management and whether such behaviour is associated with managers' incentives.
Zhang and Gimeno (2010)	U.S.	124	The study examined the effect of pressure felt by management to meet or beat analysts' earnings forecasts on firms' behaviour in oligopolistic output competition.

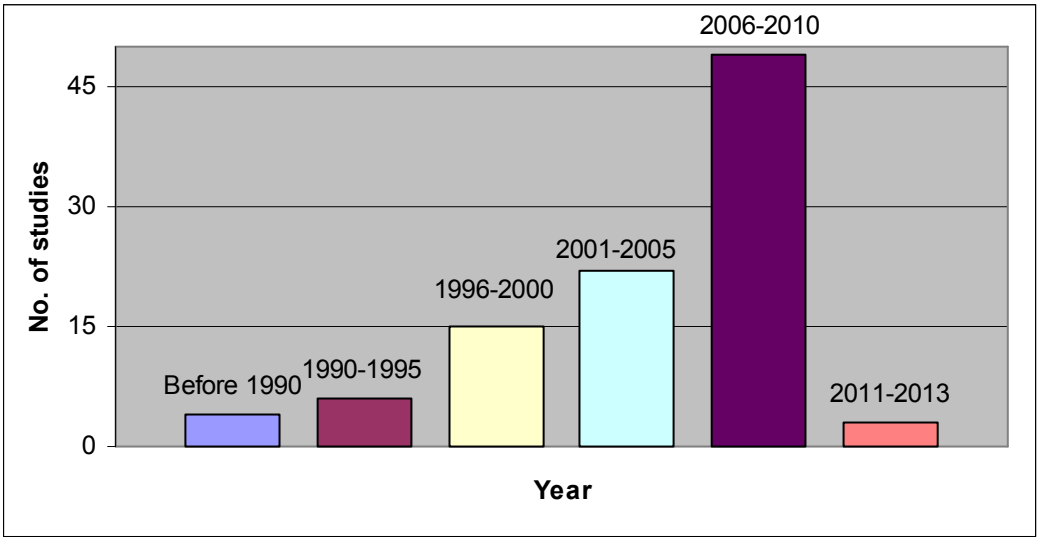
Source: Callao, Jarne and Wroblewski (2014a).

The literature starts in 1985 with the study of Healy, who first treated the topic of earnings management. Later, two studies must be highlighted in relation to the methodology applied by the authors: the study of Jones (1991), who proposed a new model to measure the manipulation; and the study of Dechow, Sloan and Sweeney (1995) who evaluated different alternative accrual-based models. In the following years, the wide diversity and selection of topics should be noted, such as: managing earnings to avoid report earnings (Burgstahler and Dichev, 1997); testing the influence of political costs on earnings management (Key, 1997); the relationship between fees paid to auditors and the choices of accruals methods (Larcker and Richardson, 2004); market's efficiency in processing manipulated accounting reports (Louis, 2004); agency costs of overvalued equity (Chi and Gupta, 2009), as well as other topics.

The sample selection differed also. Some studies used a small number of companies, for example, the study of Byard, Hossain and Mitra (2007) using 29 listed companies, the study of Jones (1991) based on 31 companies, the study of Key (1997) employing 47 companies of cable television industry, or Dechow, Richardson and Tuna (2003) using a sample of 48 firms. On the other hand, we may note studies applying very large samples, such as, that of Ye (2007) with 75,348 companies, and Burgstahles and Dichev (1997) who provide evidence from 64,466 companies.

The market of US firms was investigated in all profundity. Figure 1.12 shows details on studies on earnings management from the US over the years.

Figure 1.12: Number of studies from the US



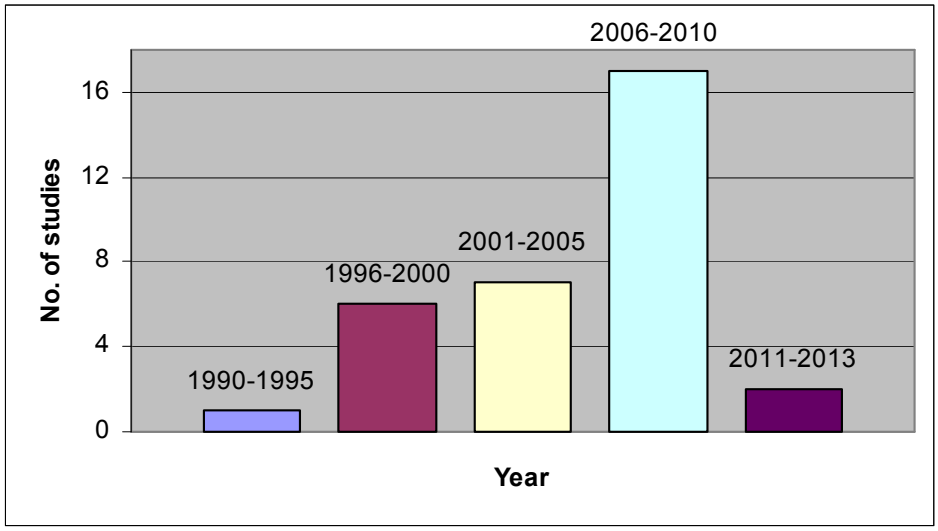
Source: Callao, Jarne and Wroblewski (2014a).

We observe a relatively small number of studies in the first years of investigations on earnings management. However taking into consideration that at that time, it was still an innovative topic, this is quite normal. In the period of 1990-1995 we may register already 6 studies based on a sample from the US (it is a significant number of studies, still topic of earnings management was a very pioneering topic). In the next five years, there was a massive increase, up to 15 studies. Later, between 2001 and 2005 we may observe the same tendency, the increase in the number of investigation (22 studies). Between 2006 and 2010 we observe the intensification of studies, reaching 49 studies on earnings management based on the US samples. Finally, in the last three years there are 3 studies using the US sample. The total number of investigations based on sample from the US is 99 studies.

1.3.3.1.2. EUROPEAN COUNTRY STUDIES ON EARNINGS MANAGEMENT

Europe is also a common source of sample to measure earnings management. There is wide spectrum of studies from the Europe, see Figure 1.13.

Figure 1.13: Number of studies on European countries



Source: The author.

The investigation appeared in Europe at the end of 90s. It suggests that Europe is a follower of US investigators. There is only one study from Europe, before 1996. Later, the same level remains through the investigation's years on earnings management, period 1996-2000 six studies, and period 2001-2005 seven studies. The intensification of investigation is observed in the period from 2006 to 2010 (17 studies). In the last period again we detect few studies. The total of studies from Europe is the 33 studies.

Table 1.4 presents some of the most important studies from Europe. We may observe that these studies based their research on small samples rather than a large sample. We find only four studies which exceed the total of 1,000 companies used for the study, see study of Jeanjean (2000) who investigated 1,383 companies from France; Lybaert, Jans and Orens (2005) who examined the 10,418 Belgium companies; Arnedo, Lizarraga and Sánchez (2007) who based on 7,428 Spanish firms; or Kempen (2010) who based his study on 77 public and 3,105 private firms from Netherlands. Most studies focused on less numerous samples, see, for example Kasanen, Kinnunen and

Niskanen (1996) who evaluated 37 companies from Finland; Markarian, Pozza and Prencipe (2008) examined the 130 Italian firms; or Yagüe, Gómez-Sala and Poveda-Fuentes (2009) who based their study on only 45 Spanish companies.

Table 1.4: European studies on earnings management

Author (year)	Country	No. of companies	Objective of study
Konings, Labro and Roodhooft (1998)	Belgium	175	The study examined the hypothesis that in firms with strong trade unions, management manipulates reported earnings downward, compared to firms without trade union activity.
Vander Bauwhede and Willekens (2003)	Belgium	Review of empirical evidence	The study discussed the empirical evidence of earnings management practices by Belgian companies. Also the review on influence of larger boards and Big 6 auditors on earnings management.
Lybaert, Jans and Orens (2005)	Belgium	10,418	The study examined whether Belgian companies manage their earnings by focusing on their policy of provisions during the period 1997-2002. Concerning the technique of income smoothing, some proof has been found that companies engage in income smoothing by increasing or decreasing the provisions.
Kasanen, Kinnunen and Niskanen (1996)	Finland	37	The study found that predicted and actual earnings management is in the same direction, and that reported earnings depend on dividend-based target earnings.
Kallunki and Martikainen (1999)	Finland	509	The study investigated the adjustment process of earnings management of a firm to industry-wide targets also in Finland, where accounting and tax legislation provide extensive possibilities for firms to manage their earnings.
Kinnunen *et al.* (2000)	Finland	37	The study measured earnings management and expected dividend increases around seasoned share issues.
Sundgren (2007)	Finland	99 public and 99 private	The paper showed earnings management in public and private companies and whether earnings management is a function of a company's leverage using a matched sample with public and private Finnish companies.
Jeanjean 2000	France	1,383 firm-years	The study investigated the role of independent directors to monitor earnings management. Using a latent variable approach to assess earnings management, it shows that external monitoring by a CEO (big six or five auditor, significant stockholder, percentage of independent board members) discourages the manager from engaging in opportunistic income increasing decisions.
Cormier and Martinez (2006)	France	118	The study investigated managers' motivations to engage in earnings management through purposeful interventions in the setting of discretionary accruals, in the context of initial public offerings.
Burghof and Johannsen (2006)	Germany	850	The study examined whether market participants differently assess the information uncertainty associated with earnings management depending on degree of income smoothing. Further hypothesis tests demonstrated that within a high income smoothing sub-sample, the differences in the degree of information uncertainty between high and low earnings management firm years are about half the size compared to a low income smoothing sub-sample.
Böcking (2012)	Germany	599	The study contributed to the discussion of standardized Europe-wide enforcement mechanisms by assessing the

			German enforcement system.
Caramanis and Lennox (2008)	Greece	633	The study tested the effect of audit efforts on earnings management using a unique database of hours worked by auditors.
Markarian, Pozza and Prencipe (2008)	Italy	130	The study examined whether companies' decisions to capitalize R&D (research and design) costs are affected by earnings-management motivations.
Cimini, Gaetano and Pagani (2014a)	Italy	137 listed companies	The authors investigated the relation between the different accounting treatments of R&D expenditures and the risk of the entity in order to identify under which treatment insiders are more likely to carry out earnings management. They confirmed that entities, which considered the R&D investments as costs, are the riskier ones due to the higher probability that insiders carried out earnings management.
Roosenbooma, Van der Gootb and Mertens (2003)	Netherlands	64	The study investigated the pattern of discretionary current accruals over time and examines the impact of earnings management on long-run stock price performance of IPOs.
Kempen (2010)	Netherlands	77 public and 3,105 private	The study investigated the use of earnings management in public and private companies.
Kamela-Sowinska (2003)	Poland	Based on one company	The study described the case of Enron.
Prusak (2003)	Poland	Theoretical research	The study treated the problem of distortion of financial statements. It explained the situation of the occurrence of accounting scandals. The role of investor and the board in the companies in order to control the managerial decisions.
Tokarski and Tokarski (2007)	Poland	Theoretical research	The study treated the topic of creative accounting.
Wiercińska (2008)	Poland	Theoretical research	The study presented the issue of terminology connected with accounting frauds, which were committed by famous companies such as Enron, WorldCom etc. The author explained the main differences between such terms as creative, aggressive and fraudulent accounting..
Tokarski (2009)	Poland	Theoretical research – mentioned the wide range of companies which use creative accounting	Balance policy is not only the art of making what is possible, but also the art of making it according to the law. Examples of these occurrences are known as: creative accounting, window dressing, incomes smoothing, or off balance sheet financing. The aim of the article is to show that financial statements can be an imperfect source of information about the financial situation of enterprise and possible the negative consequences for potential users.
Gierusz (2010)	Poland	Theoretical research	The bankruptcy of Enron in December 2001, which shook the American economy and world public opinion, marked the beginning of a fierce discussion on creative accounting. The purpose of this article is to attempt to define these issues.
Jackowicz and Kozłowski (2010)	Poland	382 banks from 11 different countries	The article examined the importance of thresholds of profitability in the operation of commercial banks originating from the countries of Central and Eastern Europe. The authors assumed that the threshold is important, when banks take management actions. The results of these actions are characteristic discontinuities in distributions profitability measures around the threshold.
Wojtowicz (2010)	Poland	Theoretical research	This monograph is an attempt at a comprehensive look at the issue of phenomenon known in the English-language literature as earnings management. The study presented the terminology on earnings management. In this paper the author proposes that earnings management be translated

			into Polish as "shaping the financial result."
Brzeszczyński, Gajdka and Schabek (2011)	Poland	359	The paper presented results based on the companies listed on the Polish stock market. The results indicated asymmetric distribution of earnings around the zero threshold along with the relative deterioration of earnings in the year following the period when the companies were suspected to conduct earnings management practices, provide evidence that this phenomenon exists among Polish stock market companies.
Welc (2011)	Poland	2,016 firm-year observations	The paper explored the presence of earnings management in the case of companies listed on the Warsaw Stock Exchange. The research found that there is unusually low number of observations with the net margin between -1,5% and 0% and unusually high number of observations with the net margin between 0% and 2%, which suggests that companies with unmanaged earnings just below zero boost those earnings to the levels just above zero. The research also confirmed the earnings management around zero earnings growth, which suggests that companies with unmanaged earnings that would show the small decline y/y boost those earnings in order to report the positive growth at the level just above zero.
Strojek-Filus and Piosik (2013)	Poland	82 questionnaires were received (study was based on surveys)	The study presented an overview of earnings management tools of reporting entities and capital groups in Poland. Data collection was based on surveys. The conducted analysis showed that the most effective instrument influencing the desired level of results presented in a financial statement is carrying out transactions under conditions which ensure the achievement of a reported goal. This applies also to capital groups, in which transactions effected between group units were indicated as the ones used to the greatest extent.
Rodrigues, Marques and Craig (2011)	Portugal	6,652	They assessed the extent to which the special payment accounts tax policy measure encouraged private Portuguese companies to manipulate earnings. They found that earnings manipulation appears to have been motivated by desire to minimize special payment account.
Matis *et al.* (2010)	Romania	101	The study intended to be a first step in an attempt at measuring earnings management using an econometric model valid for the Romanian specificities by trying to establish the level of significance of three acknowledged econometric models: Jones (1991), Dechow, Sloan and Sweeney (1995) and Kasznik (1999) in the Romanian economic environment. Given the above mentioned premise, the study was conducted using Romanian listed companies.
Anandarajan, Hasan Lozano-Vivas (2003)	Spain	970 observations of which 490 are commercial bank observations and 480 are savings banks observations	The study examined the relative importance of key factors affecting the loan loss provisions decisions of Spanish depository institutions. Among others, they focused on the role of organizational structure. They specifically examined if and how loan loss provisions are used prior to and after the implementation of capital adequacy regulations in the Spanish depository industry in 1992.
Gill-de-Albornoz and Illueca (2005)	Spain	114	The study analyzed the effect of price regulation on the accounting policy of Spanish electricity companies
García Osma	Spain	155 firm-year	They tested whether corporate governance mechanisms

and Gill-de-Albornoz (2007)		observations	promoted by best practice codes are effective in constraining earnings manipulation
Arnedo, Lizarraga and Sánchez (2007)	Spain	7,428 firm-year observations	The authors analyzed the difference in earnings quality between public and private firms
Mora and Sabater (2008)	Spain	281	They analyzed total and discretionary accruals around the time of labour negotiations. The "political costs" hypothesis predicts that labour bargaining creates incentives to reduce accounting earnings in order to avoid salary demands.
Yagüe, Gómez-Sala and Poveda-Fuentes (2009)	Spain	45	The study examined the use of stock split announcements as signals of a firm's earnings performance.
García Osma and Guillamón-Saorín (2009)	Spain	106	They studied the association between corporate governance and impression management in annual results press releases. Press releases constitute a timely vehicle to communicate a firm's performance to third parties that can be manipulated to distort readers' perceptions of corporate achievements.
Rodríguez-Pérez and van Hemmen (2010)	Spain	192	They used panel-estimation techniques to calculate discretionary accruals and to produce a better understanding of the nature of the relationship between debt and earnings management. It was consistent with the transparency hypothesis (which suggests that diversification increases the complexity of firms' activities and reduces their transparency to outsiders).
Laínez and Ferrer (2013)	Spain	153	The results demonstrate that not only the earnings attribute is crucial to assess earnings quality, but also the different ways of measuring them could determine the results.
Peasnell, Pope and Young (2000)	United Kingdom	837	The study examined specification and power issues in relation to cross-sectional models used to estimate abnormal accruals based on a sample of UK companies.
Iatridis and Kadorinis (2009)	United Kingdom	239	They focused on investigation of motives for, and characteristics of, UK firms that engage in earnings management activities.
Pina, Arcas and Martí (2009)	United Kingdom	67	They researched whether public sector managers apply accounting numbers. They learned about the motivations of public sector managers to manipulate accounting numbers and how managers are managing accounting numbers.

Source: Callao, Jarne and Wroblewski (2014a).

The topic of European studies varies. Konings, Labro and Roodhooft (1998) measured earnings management and its effect on trade union activity in Belgian firms. Kallunki and Martikainen (1999) investigated the adjustment process of earnings management of Finland industry firms, where accounting and tax legislation provide extensive possibilities for earnings management. Roosenbooma, Van der Gootb and Mertens (2003) made evidence on the impact of earnings management on the long-run stock price performance of initial price offerings. Burghof and Johannsen (2006) examined whether market participants differently assess the information uncertainty

associated with earnings management depending on the degree of income smoothing. Or the study of Caramanis and Lennox (2008) who tested the effect of audit effort on earnings management.

1.3.3.1.3. ASIAN STUDIES ON EARNINGS MANAGEMENT

There are additionally extensive investigative studies based on samples from Asian countries, such as: China, Taiwan, Japan, etc. Table 1.5 shows the details.

Table 1.5: Asian studies on earnings management

Author (year)	Country	No. of companies	Objective of study
Razzaque, Rahman and Salat (2006)	Bangladesh	14	The study evaluated earnings management in the textile sector.
Lee and Xue (2004)	China	329	The study examined the earnings management of loss-firms during 1995-2000 in the Chinese capital market.
Lau (2004)	China	736	The study showed that using average earning per share to set the Initial Public Offering pricing may be an additional incentive for earnings management. The research additionally investigated whether the forecasted EPS disclosed in the prospectus or public announcement can be realized under different regulations.
Yu, Du and Sun (2006)	China	5,921 observations	The study examined whether Chinese firms manipulate their earnings to meet the regulatory requirements.
Lin (2006)	China	112	The study investigated whether foreign investment enterprises in China alter their corporate reporting behaviour in response to a known schedule of tax-rate increases. The context of this investigation is a tax-incentive scheme that allows firms to pay taxes at a reduced rate for a limited period of time, and than at a higher rate when this period expires.
Liu and Lu (2007)	China	5,977 firm-year observations	The study indicated that Chinese firms heavily engaged in earnings management to meet the rights issue.
Chen, Lee and Li (2008)	China	4,437 firm-year observations	The study examined how local governments in China help listed firms with earnings management to circumvent central government's regulation.
Shen, Coakley and Instefjord (2008)	China	506	The study examined the under-pricing and long-term performance of Chinese initial public offerings issued during the 1998-2003 period in the accrual context. While issuers use income-increasing discretionary accruals to inflate earnings prior to IPOs, sentiment investors do not price discretionary accruals correctly but extrapolate past histories of managed earnings too far into the future.
Kao, Wu and Yang (2009)	China	366	The study examined whether government regulatory initiatives in China involving initial public offerings may have contributed to opportunistic behaviours by the issuer.
Lo, Wong and Firth (2010)	China	266	The study investigated whether good governance structures help constrain management's opportunistic behaviours (in

			the form of transfer pricing manipulations) in one of the world's most dynamic economies.
Aharony, Wang and Yuan (2010)	China	185	The study showed that related-party sales of goods and services could be used opportunistically to manage earnings upwards in the pre-IPO period. They provided additionally evidence that such behaviour may be motivated by the prospect of tunnelling opportunities in the post-IPO period, i.e. exploiting economic resources from minority shareholders for the benefit of the parent company.
Jaggi and Leung (2007)	Hong Kong	770 firm-year observations	The study examined whether the establishment of audit committees by Hong Kong firms would constrain earnings management, especially in firms with family-dominated corporate boards.
Jaggi, Leung and Gul (2009)	Hong Kong	633	The study investigated family control, board independence and earnings management.
Siregar and Utama (2008)	Indonesia	144	The study investigated whether companies listed on the Jakarta Stock Exchange conduct efficient or opportunistic earnings management and examines the effect of ownership structure, firm size, and corporate-governance practices on it.
Aflatooni and Nikbakht (2009)	Iran	2,458 firm-years	Using the Tucker-Zarowin statistic of income smoothing, they found that firms with higher income smoothing rankings exhibit lower long-run return and abnormal return.
Darrough, Pourjalali and Saudagaran (1998)	Japan	1,440	They examined choices of accounting accruals using a large sample of Japanese companies, which operate in an environment that is generally regarded as being rather different from the United States.
Otogawa (2002)	Japan	828	They investigated earnings management surrounding initial public offerings using Japanese firms that went public in the over-the-counter market between 1990 and 1999.
Shuto (2007)	Japan	16,368 firm-year observations	The study investigated the relation between discretionary accounting choices and executive compensation.
Agarwal *et al.* (2007)	Japan	78	The study measured earnings management behaviours in different economic environments.
Yoon and Miller (2002)	Korea	663	The study explored the relationship between the operating performances of industrial firms and the behaviour of discretionary accruals.
Kim and Yi (2005)	Korea	63,386 firm-year observations	Using a large sample of both publicly traded and privately held firms in Korea, the authors investigated whether, and how, the deviation of controlling shareholders' control from ownership, business group affiliation, and listing status differently affects the extent of earnings management.
Johl, Jubb and Houghton (2003)	Malaysia	596 firm observations	The authors assumed that evidence considering audit quality can be derived from the level of earnings management reflected in reported abnormal or discretionary accruals. Given this assumption, audit quality is examined in the context of the 1997 Asian financial crisis using data from Malaysia. Examining audit quality in its association with earnings management across differential macroeconomic periods provides insights that may be otherwise masked.
Saleh, Iskandar and Rahmat (2005)	Malaysia	559	The study assessed the effectiveness of some board characteristics to monitor management behaviour with respect to their incentives to manage earnings.
Rahman, Dowds and Cahan (2005)	Malaysia	99	The authors presented the differences between the earnings management practices of the Muslim-managed firms and the non-Muslim-managed firms listed on Kuala Lumpur Stock Exchange in Malaysia.

Ahmad-Zaluki (2008)	Malaysia	254	The study investigated the operating performance and the existence of earnings management.
Bukit and Iskandar (2009)	Malaysia	155	The study examines whether high surplus free cash flow is related to earnings management. The authors hypothesized that those managers of high surplus free cash flow companies have an incentive to engage in earnings management.
Ali Shah, Butt and Hassan (2009)	Pakistan	654	The authors observed the relationship between Board Composition and earnings management.
Duh, Lee and Lin (2009)	Taiwan	55	The study examined whether the reversal of a previously recognized impairment loss provides an opportunity for earnings management, and whether such behaviour is associated with managers' incentives. They examined additionally whether a corporate-governance mechanism can mitigate this behaviour.

Source: Callao, Jarne and Wroblewski (2014a).

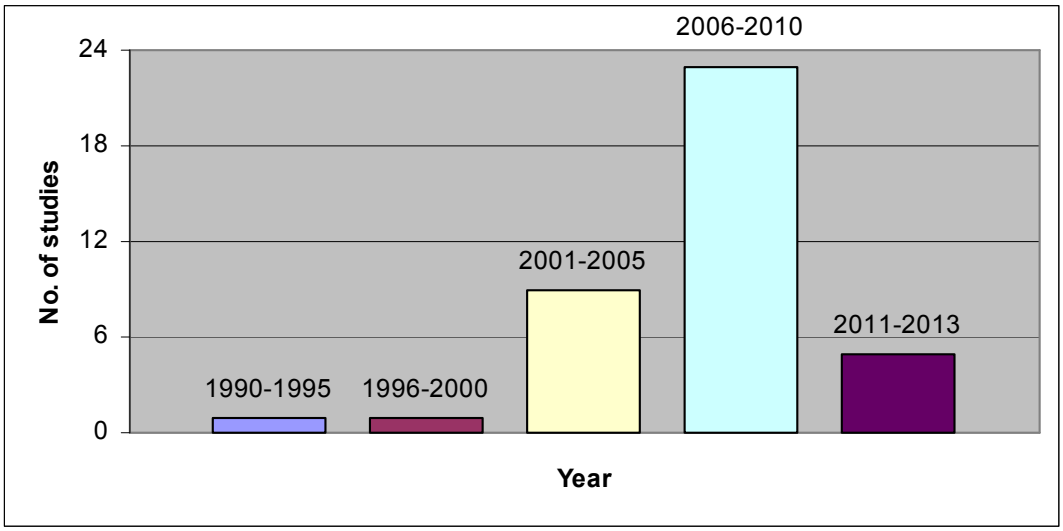
Studies from Asia vary in sample selection and in topics. We may observe studies which are based on large samples. For example, Kim and Yi (2005) used a sample of 63,386 firm-year observations. Yu, Du and Sun (2006) based their study on 5,921 Chinese companies. Liu and Lu (2007) used a sample from 5,977 companies. Chen, Lee and Li (2008) investigated 4,437 firms from China. On the other hand, we have studies using small samples, for example, Rahman, Dowds and Cahan (2005) worked on 99 companies from Malaysia. Razzaque, Rahman and Salat (2006) took their sample from only 14 companies from Bangladesh. Agarwal *et al.* (2007) based their investigation on 78 Japanese companies.

Related to the topic of investigations, we found studies which assessed the effectiveness of a board of directors in monitoring earnings management, see, for example Saleh, Iskandar and Rahmat (2005) or Ali Shah, Butt and Hassan (2009). We observed studies assuming the evidence considering audit quality and the level of earnings management (Johl, Jubb and Houghton, 2003). Lo, Wong and Firth (2010) examined whether good governance helps constrain management's opportunistic behaviours. Lin (2006) investigated whether foreign investment enterprises in China alter their corporate reporting behaviour. Yu, Du and Sun (2006) examined whether Chinese firms manipulate their earnings to meet the regulatory requirements. Jaggi, Leung and Gul (2009) centred on family control and its influence on earnings management.

In the Figure 1.14, we may perceive that the investigation from the oriental countries appeared much later than in US, or even in Europe. There is only one study from Japan at the beginning and in the late of the 90s. Intensive investigation on the

Asian market appeared from the year 2000. At the beginning is a minor investigation of this market: nine studies from the period of 2001-2005, but in the last years we observe a "boom" of investigations based on samples from Asia. In the period of 2006-2010 we observe 23 investigation researches. The total number of studies from Asia is 39.

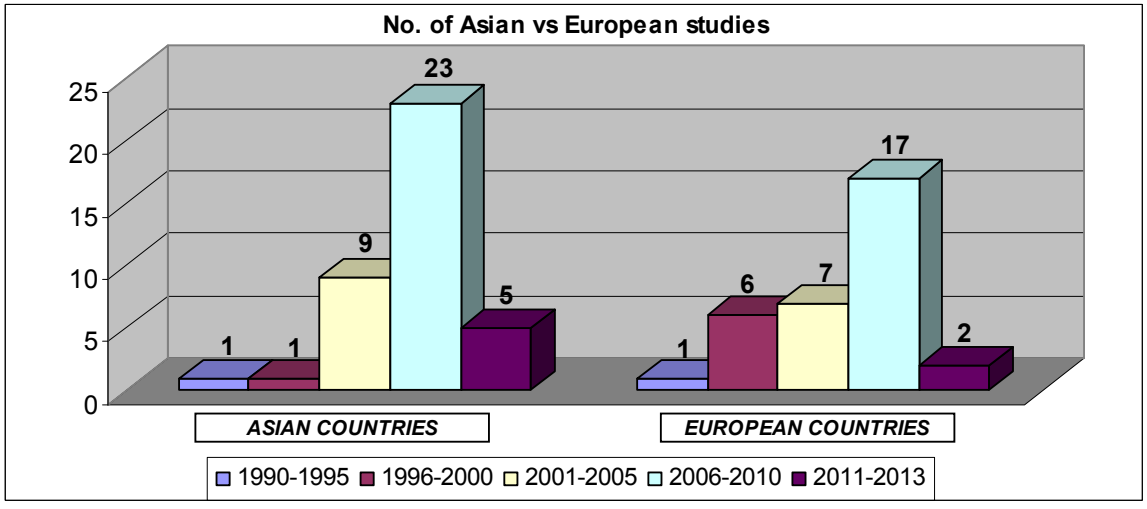
Figure 1.14: Number of studies from Asia



Source: The author.

We may also observe, that the investigation from the oriental countries offers a large sample of papers on earnings management. What is surprising is that, the number of studies from Asia is greater than from Europe, 39 to 33 studies from Europe, see Figure 1.15.

Figure 1.15: Comparison of Asian and European number of studies on earnings management



Source: The author.

1.3.3.1.4. NORTH AND SOUTH AMERICA STUDIES (EXCEPT US STUDIES) ON EARNINGS MANAGEMENT

We need to point out that there is a small number of studies from Canada (one study) and Latin America, exactly only from Brazil, see Table 1.6. The papers have the following research subjects: the effect of board composition on the practice of earnings management in Canada (Park and Shin, 2004); evidence of Brazilian public companies as a response to capital market incentives of earnings management practice (Martinez, 2005); investigation of quality of financial accounting reports and earnings management (Feres de Almeida *et al.*, 2005); or study of the impact of US GAAP on earnings management practices of Brazilian firms (Lopes, Tukamoto and Galdi, 2006).

Table 1.6: America North and South studies on earnings management

Author (year)	Country	Nº of companies	Objective of study
Park and Shin (2004)	Canada	539	The study investigated the role of the board by investigating the effect of board composition on the practice of earnings management in Canada. They found that earnings are managed upward to avoid reporting losses and earnings declines.
Martinez (2005)	Brazil	Theoretical	The authors presented empirical evidence that Brazilian public companies practice earnings management as a response to capital market incentives.
Feres de Almeida *et al.* (2005)	Brazil	156	The study investigated the earnings management activities of Brazilian firms, after the Enron and WorldCom accounting scandals, which brought new attention to the quality of financial accounting reports produced by listed corporations.
Lopes, Tukamoto and Galdi (2006)	Brazil	1026 observations	The study investigated the impact of cross listing and of adjustments to US GAAP on earnings management practices of Brazilian firms. The institutional environment in Brazil is characterized by poor investor protection and uninformative accounting numbers. In this environment firms with better prospects could try to opt out of the country's poor institutional environment and to commit themselves to superior governance systems by cross-listing in the US.

Source: Callao, Jarne and Wroblewski (2014a).

1.3.3.1.5. OCEANIA STUDIES ON EARNINGS MANAGEMENT

There are only two studies from Australia, see Table 1.7. The first study focused on the association between institutional ownership and Australian firms' aggressive

earnings management strategies (Koh, 2003). The second study examined whether managers manage earnings to 'just meet or beat' analyst forecasts in Australia (Habib and Hossain, 2008). Both studies based their samples on a small number of companies, 836 and 738, correspondingly.

Table 1.7: Australia studies on earnings management

Author (year)	Country	Nº of companies	Objective of study
Koh (2003)	Australia	836	The study examined the association between institutional ownership and Australian firms' aggressive earnings management strategies.
Habib and Hossain (2008)	Australia	738	The study examined whether managers manage earnings to 'just meet or beat' analyst forecasts in Australia. Previous Australian studies on benchmark-beating have focused on loss avoidance and small earnings increases as benchmarks.

Source: Callao, Jarne and Wroblewski (2014a).

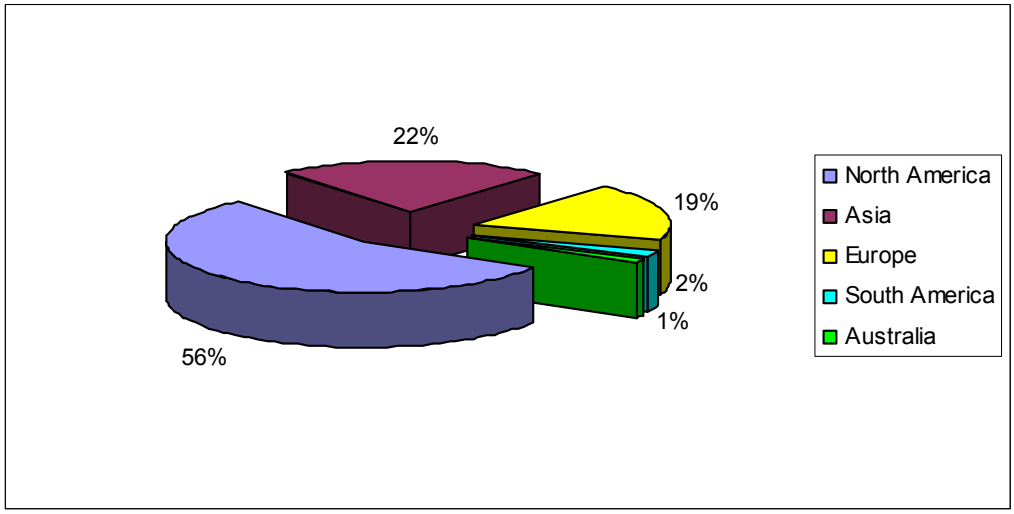
1.3.3.1.6. UNIQUE COUNTRY SAMPLE: MAIN OBSERVATIONS

Analyzing the studies of earnings management based on unique sample countries, we may notice the intensification of the investigation of earnings management from North America almost 60% of all studies (99 studies from US and one study from Canada) on earnings management. Figure 1.16 presents the distribution of studies of earnings management related to continents[8].

We observe additionally a significant number of studies from Asia: 39 studies, which is more than 20% of total studies. There are 33 European studies, which is almost 20% of the total. We observe also two studies from Australia, and from South of America: four studies.

[8] In the total of 207 articles, 14 papers are theoretical papers, and 177 are papers represent studies based on one country sample.

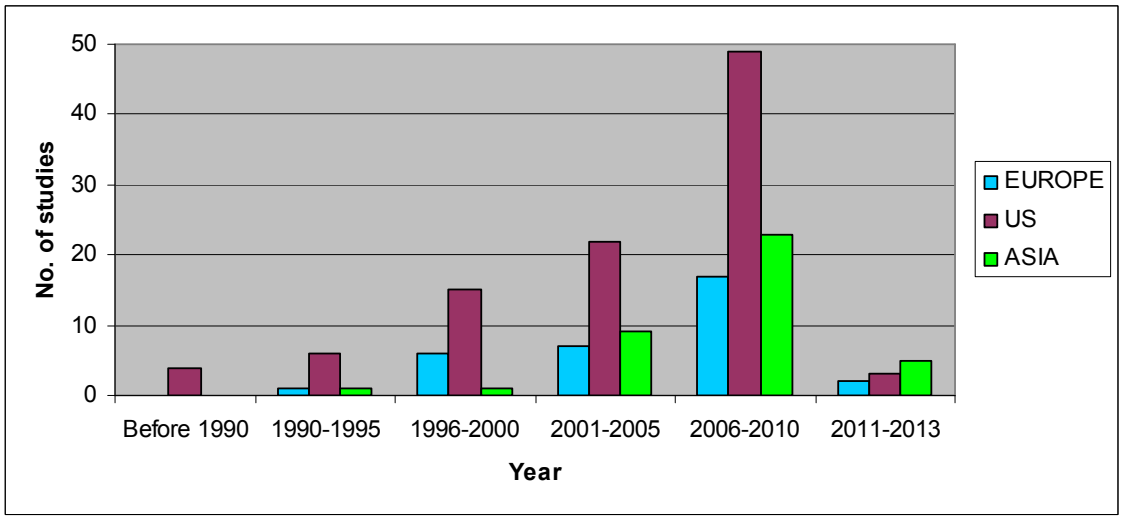
Figure 1.16: Distribution of studies of earnings management related to continents



Source: Callao, Jarne and Wroblewski (2014b).

Figure 1.17 shows the studies based on Europe, the US, and Asia. It presents the number of studies over the years. This graphic clearly indicates the prevalence of US studies over the other continents. Nevertheless, again we stress the importance of Asian studies over the European sample countries.

Figure 1.17: Number of studies from the Europe, the US and Asia



Source: Callao, Jarne and Wroblewski (2014a).

1.3.3.2. INVESTIGATIONS BASED ON A SAMPLE FROM TWO OR THREE COUNTRIES: COMPARATIVE STUDIES

We separate these studies based on two/ three country sample from the studies based on multi-country samples (sample from more than three countries, presented in the next section). As explained by Ragin (1994), comparative researchers examine patterns of similarities and differences across a moderate number of cases. So, the typical comparative study has a handful number of cases/ samples. The number of cases is limited because one of the concerns of comparative research is to establish familiarity with the particular case included in a study (Ragin, 1994). It is typically used when researchers have substantial knowledge of a particular case included in an investigation and there are a relatively small number of such cases, as mentioned. The best way to grasp the essential features of comparative method is to examine it in light of contrasts.

On the other hand, the studies based on multi-country samples try to find common pattern of all samples. These studies are less detailed and are focused on exploration of general characteristics within all samples rather than evaluating the details of a particular sample market. Moreover, multi-country studies are oriented to explore a narrow number of characteristics within all samples, and contrast the situation for all countries. It is very helpful in terms of evaluating the wide range of countries and perceiving general tendencies. However, as we mentioned, it is impossible to explore all samples in the same detail as in the comparative studies. In these circumstances, we separate these two types of studies.

In the literature of earnings management we do not find many comparison studies, in other words, papers based on samples from two or three countries. For example, Maijoor and Vanstraelen (2006) examined earnings management using very important samples of 17,394 companies from: France, Germany and UK (3,904; 4,067; 9,423, correspondingly). They focused on audit quality in international capital markets. Othman and Zeghal (2006) used only samples from France and Canada (1,674 French and 1,470 Canadian companies). They investigated factors that potentially influence earnings-management policy with reference to the Anglo-American and Euro-Continental accounting models.

Drautz (2007) used the sample from Germany and UK (63 companies from Germany and 112 from UK) to clarify the question of earnings management as a

function of national audit environment. Tylsch (2009) presented the study on three countries: Germany, Japan, and USA (Germany 735 companies, Japan: 720, and USA 675). He provided empirical evidence on differences in the extent of earnings management across countries; and confirmed a possible link between real economic performance of a country and the extent of earnings management.

Another study of Jeanjean and Stolowy (2008) used a sample of Australian, French, and UK companies (422, 321 and 403 companies, correspondingly) to analyze the effect of mandatory introduction of IFRS standards on earnings management. Ittonen, Peni and Vähämaa (2009) analyzed companies from Finland and Sweden to demonstrate the association between earnings management and the gender of the audit engagement partner. Table 1.8 shows the details of studies from two / three countries.

Table 1.8: Studies on earnings management based on two / three countries sample

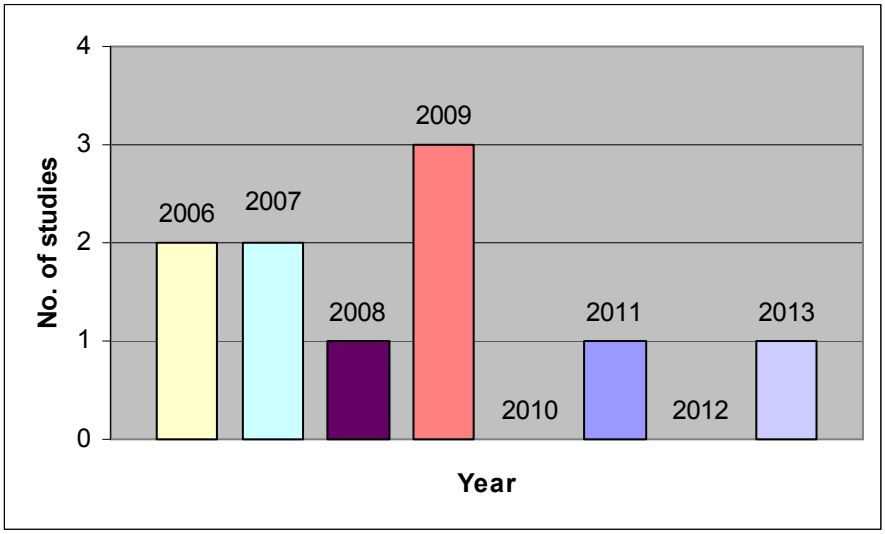
Author (year)	Countries	Nº of companies	Objective of study
Maijoor and Vanstraelen (2006)	France, Germany and UK	17,394 companies (France 3,904 Germany 4,067; UK: 9,423)	The study examined earnings management studying three factors: member state audit environment, audit firm quality and presence in international capital markets.
Othman and Zeghal (2006)	France and Canada	1,674 French and 1,470 Canadian firm-year observations	The study investigated factors that potentially influence earnings-management policy with reference to the Anglo-American and Euro-Continental accounting models.
Drautz (2007)	Germany and UK	The final data sample consists of 175 observations including 63 German IPOs and 112 UK IPOs.	The authors concentrated on the question of whether earnings management is a function of the national audit environment and other factors influencing earnings quality.
Geiger, Quirvan and Hazera (2007)	United States and Mexico	13 earnings management scenarios by country	The study investigated whether national origin influences perceptions of earnings management.
Jeanjean and Stolowy (2008)	Australia, France, and UK	1,146 firms (5,051 firm-year observations): 422 (1933) for Australia, 321 (1316) for France, 403 (1802) for the UK	They analyzed the effect of mandatory introduction of IFRS standards on earnings management.
Tylsch (2009)	Germany, Japan, USA	2,130 firm-year observations	The authors provided empirical evidence on differences in the extent of earnings management

		(Germany735; Japan: 720; USA 675)	across countries. They also investigated a possible link between real economic performance of a country and the extent of earnings management.
Ittonen, Peni and Vähämaa (2009)	Finland and Sweden	Using a sample of 371 Finnish and Swedish listed firms.	They examined the association between earnings management and the gender of the audit engagement partner.
Charoenwong and Jiraporn (2009)	Singapore and Thailand	49 financial institutions and 386 non-financial companies in Singapore; 96 financial institutions and 380 non-financial companies in Thailand	The study investigated earnings management and whether it exceed thresholds in Singapore and Thailand.

Source: The author.

As we may perceive, all of the comparative studies are latest studies, see Figure 1.18. The first study found is from 2006, it suggests that investigators in the last five years are focusing on comparative studies of two or three countries to demonstrate some aspects of earnings management, such as the influence of audit control on earnings management; effect of national origin on earnings management; or analysis of the effect of mandatory introduction of IFRS standards on earnings management.

Figure 1.18: Number of studies on two/ three country sample



Source: Callao, Jarne and Wroblewski (2014b).

1.3.3.3. INVESTIGATIONS BASED ON A SAMPLE FROM MORE THAN THREE COUNTRIES: PANEL STUDIES

The important implications for earnings management investigation have studies across countries (panel samples). This country cluster analysis contributes to literature by signalling and determining the differences among a wide number of countries related to the phenomenon of earnings management. Table 1.9 presents details on multi-country sample studies.

These studies examine earnings management as panel studies to compare the obtained results between the various countries, for example, between France, Germany and UK (Maijoor and Vanstraelen, 2006); between United States and Mexico (Geiger, Quirvan and Hazera, 2007); between Finland and Sweden (Ittonen, Peni and Vähämaa, 2009); or Singapore and Thailand (Charoenwong and Jiraporn, 2009), among others.

The objective of studies can vary, beginning with audit control and earnings management (see studies of Maijoor and Vanstraelen, 2006; Drautz, 2007; and Ittonen, Peni and Vähämaa, 2009); the investigation of factors that potentially influence earnings management policy (Othman and Zeghal, 2006); national origin and its influence on perceptions of earnings management (Geiger, Quirvan and Hazera, 2007); or analysis of the effect of the mandatory introduction of IFRS standards on earnings management (Jeanjean and Stolowy, 2008).

Table 1.9: Studies on earnings management based on mutli-country samples /panel studies

Author (year)	Countries	Nº of companies	Objective of study
Maijoor and Vanstraelen (2002)	4 countries: France, UK, the Netherlands and Germany	The total umber of firm year observations is 17,838 (France: 3,904 Germany: 3,992; the Netherlands: 1,244; UK: 8,698).	They studied earnings management in an international context. More specifically, they presented the effects of three factors on earnings management: the national audit environment, audit firm quality and reliance on international capital markets.
Leuz, Nanda and Wysocki (2003)	31 countries: Australia, Austria, Belgium, Canada,	70,955 firm-year observations,	The study examined systematic differences in earnings management across 31 countries.

	Denmark, Finland, France, Germany, Greece, Hong Kong, India, Indonesia, Ireland, Italy, Japan, Korea, Malaysia, Netherlands, Norway, Pakistan, Philippines, Portugal, Singapore, South Africa, Spain, Sweden, Switzerland	and 8,616 non-financial firms	
Coppens and Peek (2005)	8 countries: Belgium, Denmark, France, Germany, Italy, the Netherlands, Spain, United Kingdom	77,124 firm-year observations	The authors addressed the questions of whether private firms in eight European countries engage in earnings management, and if so, whether tax incentives affect such practices.
Burgstahler, Hail and Leuz (2006)	13 countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Netherlands, Portugal, Spain, Sweden, United Kingdom	287,354 firm-year observations	The study examined how capital market pressures and institutional structures shape firms' incentives to report earnings that properly reflect their economic performance.
Geiger *et al.* (2006)	8 countries: Australia, Hong Kong, Malaysia, Singapore, Spain, Indonesia, United Kingdom, United States	745 firms	This study investigated whether national culture influences perceptions of acceptability of earnings management.
Aussenegg, Inwinkl and Schneider (2008)	17 countries: Austria, Belgium, Denmark, France, Finland, Germany, Greece, Ireland, Italy, Luxemburg, Netherlands, Portugal, Spain, Sweden, United Kingdom	18,896 firm-year observations	The study examined how the transition from local GAAPs to IAS/IFRS of companies that are publicly traded on a European stock exchange affects earnings management.
Callao and Jarne (2010)	11 countries: Belgium, Finland, France, Germany, Greece, Italy, Netherlands, Portugal, Spain, Sweden, United Kingdom.	1,408 firms (5,632 observations)	The authors focused on the effect of IFRS on earnings management.

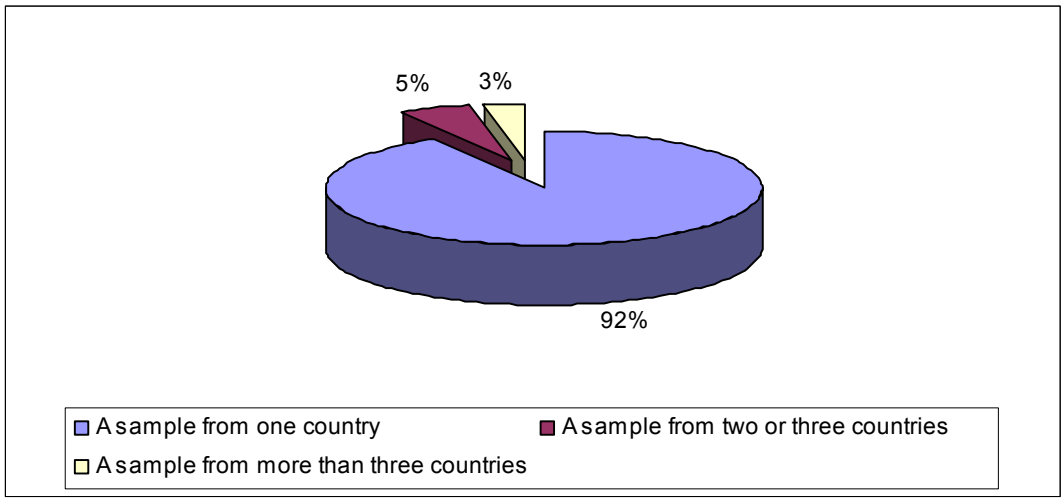
Source: The author.

These studies focused on very large samples of companies, see, for example the study of Maijoor and Vanstraelen (2002): 17,838 firm year observations; Burgstahler, Hail and Leuz (2006): 287,354 firm-year observations; or 18,896 firm-year observations in the study of Aussenegg, Inwinkl and Schneider (2008). The unique exception is study of Geiger *et al.* (2006) who based their research on 745 firms.

Therefore, we may observe that within the total of 193 papers (14 theoretical papers are not included in our statistics) there are few papers dedicated to the

exploration of earnings management through the large country sample. Only 3% of all of investigations are based on panel sample. Also, a very low percentage of the studies (5%) is from two/ three country samples. 177 papers of earnings management construct a data set using a unique country sample, which is 92% of all studies of earnings management, see Figure 1.19.

Figure 1.19: Number of studies divided into the number of sample countries



We have investigated a total of 207 papers. 14 theoretical papers (no sample selection) are not included in our statistics.

Source: Callao, Jarne and Wroblewski (2014b).

1.3.4. EVOLUTION OF THE INVESTIGATION OF EARNINGS MANAGEMENT: A SUMMARY

As we may see, one making a revision of recent studies on earnings management realizes the existence of manipulation in the accounting numbers in companies. Moreover, in the light of corporate scandals (such as: Enron, WorldCom, Tico) there is no doubt that the credibility of present accounting regulation is being questioned. A recent study executed by PricewaterhouseCoopers (following a Dipiazza y Eccles, 2002) revealed that only 20% of analysts, investors and executives consider that information prepared under the present accounting norms is very useful to knowing the true image of companies.

In this chapter we discussed and reviewed the debates and the concept of earnings management. We also did important revisions on the issue of earnings management from three main perspectives: chronological, methodological and cross-

country perspective. We did important and systematic analysis of a total of 207 papers. In the chronological perspective, we may observe, that the major intensification of studies is between 2006 and 2010. Moreover, in the previous five years (2001-2005) the tendency for improvement on research on earnings management was also observed.

Furthermore, earnings management is an issue which was influenced by many factors and circumstances. Different topics on earnings management have been shown to be related to the present situation of markets. For example, in first years of research, authors focused their investigations on motivations for earnings management. The main question considered was: why managers manage earnings. During other period of time, the authors centred their attention on ways of detecting earnings management. They developed different models on measuring earnings management. Finally, in the last period, they opted for finding a response as special difficulties appeared, such as for example, corporate financial scandals. All these investigations lead to underline the importance of reporting information, and the strong demand for quality of information.

We discussed and analysed additionally the methodological perspective related to the use of different models to detect earnings management. Within the existent models, we highlight the importance of the Jones model (1991) and the modified Jones model (Dechow, Sloan and Sweeney, 1995). These two models are still widely used by the authors. However, a wide range of modifications to Dechow, Sloan and Sweeney (1995) model was done, and increasingly the authors try to use other metrics for measuring the discretionary part of accruals. We pointed out important limitations of different models to help future researchers opt for the most appropriate model for their particular research environment, as the "perfect" model for measuring earnings management does not exist.

Finally, we developed the country perspective on sample selection. The country analysis is a new perspective presented in our chapter. This section comprises a very useful set of country origin bibliographical references for earnings management investigators. It helps to illustrate the link between the results on manipulating of earnings in one country to those in another, and shows important insights for future studies such as: where until now earnings management has not been explored.

We observed that earnings management was investigated in the majority of situations. We would like to stress the wide use of samples from the US. Within the total of 207 papers analysed 99 studies are from US. Europe is also a common source of samples to measure the earnings management. European samples were used in 33

studies, which is third place (related to continents) in this investigation on earnings management (Asia occupies second place with 39 studies on this topic). Comparative studies (sample based on two or three countries) are recent studies. The first study is from 2006, it suggests that investigators in the last five years are focusing on comparative studies of two or three countries to demonstrate some of the aspects of earnings management.

Finally, panel studies (multi-country studies) occupy a very small percentage of the total. Although, they have important implications for earnings management investigation as they signalize and determine the differences among a wide number of countries related to the earnings management phenomenon, they occupy only 3% of all the investigations on earnings management.

CHAPTER 2

MEASURING EARNINGS MANAGEMENT BASED ON THE ACCRUALS MODELS

A major issue with respect to the power of the research is the ability to identify proxies or conditioning variables that reflect discretionary and non-discretionary components of accruals (Beaver, McNichols, and Nelson, 2003). To estimate discretionary accruals, previous studies develop models to control for non-discretionary accruals. If there is no earnings management, then total accruals will equal non-discretionary accruals. On the other hand, if there is a difference between them, then the unexplained amount is attributed to discretionary accruals (see Healy, 1985; DeAngelo, 1986). Research studies are still concerned with the problem of measuring earnings management. In this chapter, we present the developments in the matter of detecting and measuring earnings management. We present advantages and weaknesses of existing models proposed by the earnings management literature looking for the most reliable model in the detection of the discretionary part of accruals. We contribute to the literature by presenting a detailed literature review on existing accruals models.

This chapter is structured in the following manner: first, we focus on the methodological aspects of measuring earnings management. We define the accruals, and the elements which compound the accruals. In the second part of the chapter, we describe the wide range of existing models presented in the literature and discuss the advantages and limitations of each model and the differences among them.

2.1. DEFINITION OF ACCRUALS

Accruals are defined as the difference between the earnings and operating cash flow (Ronen and Yaari, 2008). In detail, accruals are defined as a part of revenues and expenses that do not imply collections and payments. They are indirectly calculated as the difference between earnings and operating cash flow. Jones (1991) defines total accruals as the difference between earnings and operating cash flow. Her accrual approach is based on the idea that information on operational cash flow presents a more objective measure of real economic performance than earnings. Similarly, Subramanyam (1996) defines a firm's total accruals for a given year as earnings before discontinued operations and extraordinary items minus operating cash flows.

Accruals occur when revenues and expenses are recognized as they are accrued. Managers can manipulate accruals at the end of the financial year. Manipulations in

accruals are a suitable form of earnings management, because they will not directly affect the cash flow (Roychowdhury, 2004).

Once total accruals are defined, they are decomposed into a discretionary and a non-discretionary part, see equation *(1)*. Non-discretionary accruals (NDA) can be defined as accruals which managers are not able to manipulate. The discretionary component (DA) of total accruals (TA) is believed to represent the degree of earnings management. A model is needed to separate the discretionary component from total accruals (Yoon and Miller, 2002). Discretionary accruals can be controlled and managed by the managers (McNichols, 2000), as they are composed of the subjective part, for example, assessment of provisions for bad debtors is very subjective.

$$TotalAccruals(TA) = NonDiscretionaryAccruals(NDA) + DiscretionaryAccruals(DA) \quad (1)$$

While a firm's total accruals are easily accessible from its financial statements, its discretionary and non-discretionary accruals are not directly observable and must be inferred through an estimation model. McNichols and Wilson (1988) argue that because both the discretionary and non-discretionary components are unobservable, it is complicated to separate measurement error from a discretionary accrual proxy. Bernard and Skinner (1996) explain that any attempt to separate total accruals into expected and unexpected components can always be criticized for misclassifying because the model of expected accruals is incomplete.

Nevertheless, rather than simply examining total accruals, we are interested in identifying the "unexpected" component of total accruals. Non-discretionary accruals reflect a firm's economic environment, or its underlying level of activity independent of strategic earnings management by its executives (Key, 1997). A large body of research has attempted to identify the "unexpected" (also called discretionary or abnormal) accrual component using different models.

2.2. MODELS OF MEASURING THE DISCRETIONARY PART OF ACCRUALS

The literature starts with the simplest models, proposed by Healy (1985), who measured earnings management by a simply comparison of mean total accruals (scaled by lagged total assets) between sample groups. Later, DeAngelo (1986) estimated the

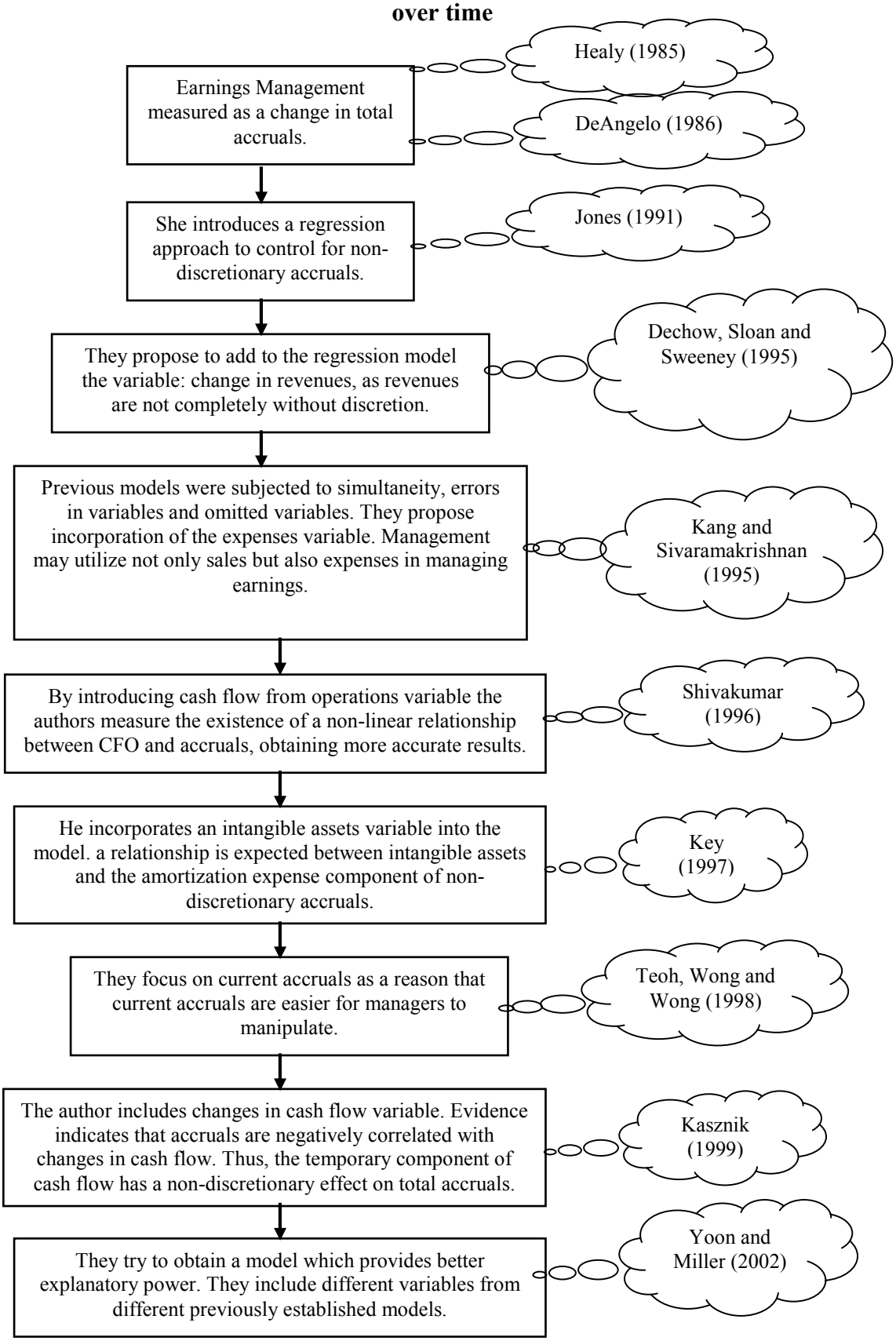
firm's non-discretionary accruals from the previous period and assumed that first order differences in accruals have an expected value of zero. In fact, the DeAngelo model is a special variation of the Healy model where total accruals is only dependent on last year's total accruals instead of the average of the years in the estimation period.

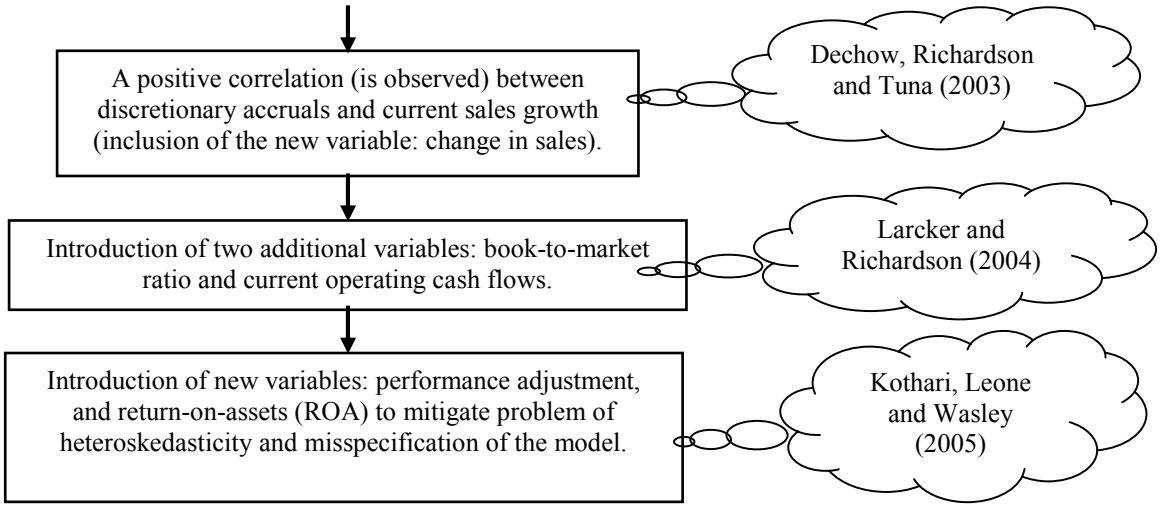
The main advance in the measuring of earnings management is offered by Jones (1991), still one of the most popular accrual estimation models in earnings management research. Jones (1991) relaxes the assumption that non-discretionary accruals are constant. She estimates non-discretionary accruals as a regression which includes change in sales and the level of property, plant and equipment as explanatory variables. Later, the study of Dechow, Sloan and Sweeney (1995), is an important contribution to the methodology of measuring earnings management. They modify the original Jones model (1991) to eliminate a conjectured tendency. They evaluate alternative accrual-based models for detecting earnings management. They initiate the process of generating more and more powerful models in detecting earnings management.

In the following years, the authors use the modified Jones model (1995), making to it certain modifications (adding new variables) trying to improve the reliability of measuring earnings management, models such as: Key model (1997), Teoh, Wong and Wong (1998), Kasznik (1999), Yoon and Miller (2002), Larcker and Richardson (2004), among others. Authors also estimate the effect of the cross-sectional or time-series data base, as both methodologies have their advantages and weaknesses.

Finally, within the period from 2007 to date research papers are based on the existent methodology to detect and measure earnings management. Mainly, authors use the Dechow, Sloan and Sweeney model (1995), see for example, Cohen and Zarowin (2008), Yu (2008), Liu, Ning and Davidson (2009), Hadani, Goranova and Khan (2011), Nwaeze (2011), among others. Nevertheless, Matis *et al.* (2010) for example use three models to measure discretionary accruals, the Jones (1991), Dechow, Sloan and Sweeney (1995) and Kasznik (1999) models. Figure 2.1 shows an outline of the main advances in the development of the models over years (improvements and progression) of each model with respect to the previous one. We present models in chronological order. We show details of each of them and their contribution to the earnings management literature. Performance in detection of the discretionary part of accruals will be, as well, discussed.

Figure 2.1: Advances in the development of the models on earnings management over time





Source: The author.

2.2.1. The Healy Model (1985)

Healy (1985) tests for earnings management by comparing mean total accruals (scaled by lagged total assets) across the earnings management partitioning variable. Healy (1985) assumes that each manager observes income before discretionary accruals and makes either income-increasing or decreasing discretionary accruals based on his/her incentives. The resulting implications are: first, when income before discretionary accruals is sufficiently below the lower bound or above the upper bound, managers will make income-decreasing discretionary accruals in anticipation of increasing the probability of earning a bonus in the future; and second, when earnings before discretionary accruals fall between the upper and lower bounds or are sufficiently close to the lower bound, the manager will make income-increasing discretionary accruals.

Consistent with this hypothesis, Healy (1985) divides the sample into three groups, with earnings predicted to be controlled upwards in one of the groups and downward in the other two groups. Implications are then made through pair-wise comparisons of the mean total accruals in the group where earnings are predicted to be managed downwards. The mean of total accruals from the estimation period, then represents the measure of non-discretionary accruals.

Healy (1985) reports evidence that discretionary accruals are more negative for managers with bonus-related incentives to manage earnings downward than for

managers with incentives to manage earnings upward. Finally, he hypothesizes that because short-term bonuses based on accounting earnings comprise a large part of their compensation, managers choose discretionary accruals to maximize their short-term bonuses. He concludes that managers use accruals to strategically manipulate bonus income.

As explained, Healy (1985) tests for earnings management by comparing mean total accruals (scaled by lagged total assets) across the earnings management portioning variables. The mean total accruals from the estimation period then represent the measure of non-discretionary accruals. In this way, we have the following model:

$$NDA_t = \frac{\sum_t TA_{it}}{T}$$

and then scaled by the total assets:

$$NDA_t = 1/n \sum_t \frac{TA_{it}}{A_{it-1}} \qquad (1)$$

$$DA_t = TA_t - NDA_t$$

where NDA is estimated non-discretionary accruals; TA_{it} is total accruals; A_{it-1} is total assets for period *t* and *t-1* for firm *i;* t is a year of estimation period; n is the number of years in the estimation period.

2.2.2. The DeAngelo Model (1986)

DeAngelo (1986) tests for earnings management by computing differences in total accruals. He assumes that the differences have an expected value of zero under the null hypothesis of no earnings management. This model uses the previous period's total accruals (scaled by lagged total assets) as the measure of non-discretionary accruals (following the conclusion of Dechow, Sloan, and Sweeney, 1995).

$$NDA_t = TA_{t-1}$$

where NDA is estimated non-discretionary accruals; TA is total accruals scaled by lagged total assets; and *t* is a year subscript indicating a year in the event period.

This approach to separate *NDA* (non-discretionary accruals) and *DA* (discretionary accruals) assumes that *NDA* are constant such that the cumulative effect of *DA* equals the change in current accruals (DeAngelo, 1986). This procedure uses current accruals from an earlier period as a measure for normal accruals, such difference in current accruals is viewed as the amount of current accruals that are at managerial discretion. A significant positive change in current accruals is interpreted as indicative of income-increasing *DA*. However, an important reason as to why firms go public may be that they experience rapid growth. Such growth may rise to non-discretionary accruals that are not stationary. Therefore, adjustments are made to reduce the chance that the measure of *DA* is due solely to growth (Aharony, Lin and Loeb, 1993). The adjustment involves dividing the differences by the average of total assets in the period instead of lagged total assets DeAngelo (1986), such that:

$$DA_{i,t} = \frac{CA_{i,t}}{(A_{i,t} + A_{i,t-1})/2} - \frac{CA_{i,t-1}}{(A_{i,t-1} + A_{i,t-2})/2}$$

where *i* is firm index (i=1,. . .,64), *t* represents the fiscal year (t =2,. . .,3), *DA* denotes discretionary current accruals, *CA* represents current accruals, and *A* stands for total assets.

The DeAngelo (1986) model uses the last period's total accruals (TA_{t-1}) scaled by lagged total assets (A_{t-2}) as the measure of non-discretionary accruals. Thus, the model for non-discretionary accruals is:

$$NDA_{i,t} = \frac{TA_{i,t-1}}{A_{i,t-2}} \qquad (2)$$

The discretionary portion of accruals is the difference between total accruals in the event year *t* scaled by $A_{i,t-1}$.

If non-discretionary accruals are constant over time and discretionary accruals have a mean of zero in the estimation period, then both the Healy (1985) and the DeAngelo (1986) models will measure non-discretionary accruals without error. If, however, non-discretionary accruals change from period to period, then both models will tend to measure non-discretionary accruals with error (Dechow, Sloan, and Sweeney, 1995). Kaplan (1985) points out, that the level of non-discretionary accruals should change in response to changes in economic circumstances, and the impact of the economic circumstances on non-discretionary accruals will cause inflated standard error due to the omission of relevant (uncorrelated) variables. In this way, new models were needed.

2.2.3. The Jones Model (1991)

Jones (1991) advocates a cross-sectional technique regressing current accruals on change in revenues to control for changes in non-discretionary accruals, thereby allowing the non-discretionary accruals to vary from period to period. In the study Jones (1991) introduces a regression approach to control for non-discretionary factors influencing accruals, specifying a linear relation between total accruals and change in sales and property, plant and equipment.

$$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it} \qquad (3)$$

where TA_{it} is accruals in year *t* scaled by lagged total assets, i.e. total assets in year *t-1*. Accruals equal the annual change in the current assets (excluding cash) minus current liabilities (excluding short-term debt and income tax payable) minus depreciation. A_{it-1} is total assets in the year *t-1;* ΔREV_{it} is the annual change in revenues in year *t* (scaled by lagged total assets); PPE_{it} is gross property, plant, and equipment, in year *t* (scaled by lagged total assets); ε_{it} is the error term.

In her equation, gross property, plant, and equipment and change in revenues are included in the expectations model to control for changes in non-discretionary accruals

caused by changing conditions (this is a new approach). Revenues are used to control for the economic environment of the firm because they are an objective measure of the firms' operations before managers' manipulations, but they are not completely exogenous[1] (Jones, 1991). As she pointed out, the variable: gross property, plant, and equipment are included to control for the portion of total accruals related to non-discretionary depreciation expense. Gross property, plant, and equipment are included in the expectations model rather than changes in this account because depreciation expense is included in the total accruals measure (Jones, 1991).

Posterior studies investigating the case of earnings management use variations of the Jones (1991) model, demonstrating and explaining many limitations of the Jones model. Defond and Jiambalvo (1994), for example, point out that an important limitation of the Jones models time series formulation is the need for a long time-series of data to allow effective estimation of the regression parameters, which excludes firms without a sufficient number of observations from the sample (survivorship bias). Dechow, Sloan and Sweeney (1995) and Kothari, Leone and Wasley (2005) found that the Jones model is misspecified for firms that experience extreme performance. In practice, different models were appearing (which proceed in our study) to cope with these and other limitations of this model.

2.2.4. Dechow, Sloan and Sweeney Model (Modified Jones Model) (1995)

Following Jones' seminal contribution, other researchers have introduced changes to her model. Dechow, Sloan, and Sweeney (1995) suggest a modified version of the Jones model which controls for the possibility that revenues were manipulated. They assume that all changes in uncollected credit sales result from earnings management. The original Jones Model implicitly assumes that discretion is not exercised over revenue in either the estimation period or the event period. The modified version of the Jones Model implicitly assumes that all changes in credit sales in the event period result from earnings management (Dechow, Sloan and Sweeney, 1995). As pointed out by the authors, this is based on the reasoning that it is easier to manage

[1] Reported revenues may be affected to some extent by managers' attempts to decrease reported earnings. Managers, for example, may postpone the shipment of merchandise during import relief investigation year in order to postpone recognition of revenue until the following year (Jones, 1991).

earnings by exercising discretion over the recognition of revenue on credit sales than it is to manage earnings by exercising discretion over the recognition of revenue on cash sales (Dechow, Sloan and Sweeney, 1995). They state that if the modification is successful, then the estimate of earnings management should no longer be biased toward zero in samples where earnings management has taken place through the management revenues (Dechow, Sloan and Sweeney, 1995).

The authors present evidence of a slight superiority of their modified Jones model over the original version. Dechow, Sloan, and Sweeney (1995) propose to adjust the change in revenue by subtracting the change in receivable accounts. The refinement is intended to remove the effects from managerial discretion over credit sales from non-discretionary accruals, thereby improving the likelihood of detecting revenue-based earnings management. Dechow, Sloan and Sweeney (1995) argue that tests of earnings management using extant estimation methods are likely of low power, and in this way, they modify the Jones (1991) model to include the change in receivable accounts.

$$TA_{it} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it} \qquad (4)$$

where TA_{it} (total accruals) is the fitted value of firm *i*'s TAs in year *t*; ΔREV_{it} is the change in net revenues in year *t* from year *t – 1*, ΔREC_{it} is the change in net receivables, PPE_{it} is gross property, plant, and equipment, and A_{it-1} is lagged total assets (total assets less cash). The regression equation is deflated by lagged total assets in order to reduce heteroscedasticity.

However, many studies have not found significant differences between the two versions of the model of Jones, e.g. Chaney, Jeter and Lewis (1998); Peasnell, Pope and Young (2000); Shivakumar (2000). The original Jones model has frequently been used to test alternative earnings management hypotheses. Nevertheless, this model has also been criticized, mainly because of the omission of relevant explanatory variables. Dechow (1994) found a significant negative correlation between accruals and cash flows, suggesting that such a relationship should be included in the abnormal accruals models.

2.2.5. The Kang and Sivaramakrishnan Model (1995)

Kang and Sivaramakrishnan (1995) offer a different model for accruals estimation. They assume that the balance of receivable accounts and operating liabilities, as well as the depreciation rate, follow an autoregressive process. The receivables accounts, for example, are assumed to follow this model. Kang and Sivaramakrishnan (1995) argue that many of the research methods used in previous studies, for example, the Jones model, were subject to simultaneity, errors-in-variables, or omitted variable problems. Kang and Sivaramakrishnan propose an accrual balance concept and an instrumental variable approach (the generalized method of moments, GMM) that would avoid some of these problems. Using a simulation technique, Kang and Sivaramakrishnan document that the instrumental variable model performs better than the Jones model (Yoon and Miller, 2002). Kang and Sivaramakrishnan (1995) state that accrual balances will change in proportion to the changes in revenue, expense and gross property, plant, and equipment.

$$\frac{AB_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it}}{A_{it-1}} + \alpha_2 \frac{EXP_{it}}{A_{it-1}} + \alpha_3 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it} \qquad (5)$$

where AB_{it} is accrual balance, which is:

$$AB_{it} = AR_{it} + INV_{it} + OCA_{it} - CL_{it} - DEP_{it}$$
$$A_{it} = accrual = \Delta AR_{it} + \Delta INV_{it} + \Delta OCA_{it} - \Delta CL_{it} - \Delta DEP_{it}$$

where AR_{it} is receivables; INV_{it} is inventory; OCA_{it} is other current assets than cash, receivables, and inventory; CL_{it} is current liabilities excluding taxes and current maturities of long-term debt; DEP_{it} is depreciation and amortization. ΔREV_{it} is variation of net sales revenue in year *t*; EXP_{it} is operating expenses (cost of goods sold, selling and administrative expenses before depreciation); PPE_{it} is gross property, plant, and equipment; A_{it-1} is net total assets.

The Kang and Sivaramakrishnan model implies that accrual balances will change in proportion to changes in *REV* (sales revenue), *EXP* (expense), and *PPE* (gross property, plant, and equipment). The Kang and Sivaramakrishnan model does not distinguish between a normal and abnormal balance in working capital (Yoon and Miller, 2002). Moreover, since the independent variables are accounting numbers there will be a correlation between the errors (Discretionary Accruals) and the regressors if earnings are managed; causing the regression (OLS- ordinary least square) of the estimates to be inconsistent and biased.

However, Martinez (2001) draws attention to one of the advantage of the Kang and Sivaramakrishnan model which resides in the fact that it works with absolute year results (e.g. revenue in year t) instead of the yearly variation used by Jones (e.g. ΔREV_{it} divided by total assets A_{it-1}) and in this way nearly eliminates the effect of the inflation factor. Finally Kang and Sivaramakrishnan work exclusively with accounting numbers and use more accounts than the Jones Modified model. The results, therefore, are more robust and precise.

2.2.6. The Shivakumar Model (1996)

Shivakumar (1996) introduces a cash flow variable to be Jones model. It includes the cash flow from operations (*CFO*) as an additional regressor in the Jones model.

$$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \alpha_3 \frac{CFO_{it}}{A_{it-1}} + \varepsilon_{it} \qquad (6)$$

where TA_{it} is accruals in year *t* scaled by lagged total assets; A_{it-1} is total assets in the year *t-1;* ΔREV_{it} is the annual change in revenues in year *t*; PPE_{it} is property, plant, and equipment, in year *t*; CFO_{it} is a cash flow from operations; and ε_{it} is the error term.

Shivakumar (1996) claims that cross-sectional and time-series models yield conceptually different discretionary accruals estimates. Discretionary accruals estimated using a time-series approach could be interpreted as a firm's 'actual' discretionary accruals because earnings management is supposed not to occur during the estimation

period. On the other hand, cross-sectional discretionary accruals estimates should be interpreted as a firm's discretionary accruals "relative to its industry", since systematic earnings management can be taking place within the industry (Shivakumar, 1996).

The empirical evidence provided by Shivakumar (1996) and Jeter and Shivakumar (1999) indicates that this model produces more accurate discretionary accruals estimates than the Jones standard model. By introducing the *CFO* variable, Jeter and Shivakumar (1999) present the existence of a non-linear relationship between accruals and *CFO* in cross-sectional data. They wanted to control it for the non-linear relationship between accruals and *CFO*.

In 2006, Ball and Shivakumar in their study, demonstrated that the coefficients for *CFO* on average are strongly negative, supporting the noise reduction role of accruals. It is, however, noticeable that the *CFO* coefficients for the lowest three deciles were positive more often than the *CFO* coefficients for the highest two deciles. The median values of the *CFO* coefficients for the lowest two quintiles were also noticeably higher (less negative) than the median *CFO* coefficients for the highest three deciles. This gives some support for the timely loss recognition role of accruals as *CFO* can be considered a proxy for gains or losses (Ball and Shivakumar, 2006).

Furthermore, Jeter and Shivakumar (1999) show that the average R^2 value increased from 0.43 with the Jones model to 0.73 with the *CFO* model. However, Ball and Shivakumar (2006) do not directly test for the earnings management detection ability of the different models, although they do document noticeably higher R^2 values for the *CFO* based piecewise linear Jones models. When abnormal returns were used as a proxy for gains and losses, the value was only marginally higher than with the linear Jones model.

2.2.7. The Key Model (1997)

Key (1997) proposes a modification for his model of measuring discretionary accruals by adding a new variable: intangible assets. He based his models on the Jones model (1991). Property, plant, and equipment are included based on the assumption that a large portion of total depreciation expense in a given period is non-discretionary in that period (Jones, 1991). Intangible asset data is added to the original Jones specification because of an expected relation between intangible assets and the

amortization expense component of non-discretionary accruals (Key, 1997). No previous research includes gross intangible assets in the expectations model. Change in revenue is assumed to affect changes in working capital accounts (Key, 1997).

$$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \alpha_3 \frac{IA_{it}}{A_{it-1}} + \varepsilon_{it} \qquad (7)$$

where TA_{it} is accruals in year *t* scaled by lagged total assets, i.e. total assets in year *t-1;* A_{it-1} is total assets in the year *t-1;* ΔREV_{it} is the annual change in revenues in year *t* (scaled by lagged total assets); PPE_{it} is gross property, plant, and equipment, in year *t* (scaled by lagged total assets); IA_{it} is gross intangible assets in year *t* (scaled by lagged total assets); ε_{it} is the error term.

2.2.8. The Teoh, Welch and Wong Model (1998)

Teoh, Welch, and Wong (1998) find a strong ability of pre-issue discretionary current accruals to predict multiyear post-issue abnormal returns by using simple cross-sectional regressions of the panel. They also document that discretionary current accruals have a (time-diminishing) ability to predict subsequent returns for all firms, although this predictive ability is significantly greater for issuers. In contrast, discretionary long-term accruals predict returns only in the year immediately following the issue (which results in a lower significance in the simple cross-sectional regressions). Finally, non-discretionary pre-issue accruals have no reliable predictive ability on post-issue stock market performance. Xie, Davidson and DaDalt (2003) resuming the study of Teoh, Welch, and Wong (1998) stress that it is necessary to focus on current accruals because current accruals are easier for managers to manipulate.

Teoh, Welch, and Wong (1998) define current accruals (*CA*) as the change in non-cash current assets minus the change in operating current liabilities. Total current accruals are assumed to be the sum of both discretionary and non-discretionary components. To identify the non-discretionary component of accruals for a given firm-year observation, they first estimate ordinary least square regressions of current accruals on the change in sales from the previous year. The error terms of this regression exhibit

heteroskedasticity, as pointed out by Xie, Davidson and DaDalt (2003). Teoh, Welch, and Wong (1998) deflate each variable in the model by the book value of total assets from the prior year.

Non-discretionary current accruals are the part of current accruals caused by a firm's sales growth and are viewed as independent of managerial control (Teoh, Welch, and Wong, 1998). The non-discretionary current accruals are estimated by the formula.

$$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta SALE_{it} - \Delta REC_{it}}{A_{it-1}} + \varepsilon_{it} \quad (8)$$

where A_{it-1} is total assets in the year *t-1;* $\Delta SALE_{it}$ is a change in sales in year *t;* ΔREC_{it} is the change in trade receivables in year *t;* ε_{it} is the error term.

Then to define the discretionary current accruals (DCA_{it}) is the remaining portion of the current accruals (Teoh, Welch, and Wong, 1998),

$$NDA = \frac{TA_{it}}{A_{it-1}}:$$

$$DCA_{it} = \frac{CA_{it}}{A_{it-1}} - NDA_{it}$$

where CA_{it} is current accruals in year *t* scaled by lagged total assets from the previous year (A_{it-1} is total assets in the year *t-1)*.

2.2.9. The Kasznik Model (1999)

The Kasznik (1999) model modifies the model of Jones (1991) on three dimensions. The first and major modification involves the inclusion of the change in the level of cash flow from operations as a third explanatory variable. It is indicated that accruals are negatively correlated with changes in cash flows, most likely due to properties of the accounting model (Dechow, 1994). Thus, to the extent that the temporary component of cash flows has a non-discretionary effect on total accruals, some of this non-discretionary component can be extracted by orthogonalizing total accruals with respect to changes in cash flow from operations (Kasznik, 1999).

The second modification to the Jones model relaxes the assumption that revenues are exogenous. The timing of revenue recognition is often used by managers to manage reported earnings. If revenues were to be considered exogenous, earnings management through timing of revenue recognition would not be detected by the model, reducing the power of the earnings management test (Kasznik, 1999). Following Dechow, Sloan and Sweeney (1995), this problem can be mitigated by adjusting the sale revenues variable for the change in receivable accounts.

The third modification involves the construction of the estimation portfolios rather than using a time-series approach in estimating the coefficients. The cross-sectional approach has the advantage of controlling for the effects of changing industry-wide economic circumstances on total accruals and allows the coefficients to change across years due to possible structural changes (Kasznik, 1999).

Concluding, Kasznik (1999) finds that measurement error for the signed abnormal accrual of the cross-sectional Jones model is positively related to net earnings. Consequently, Kasznik (1999) supports the inclusion of the additional variable, using the change in cash flow as an independent variable ΔCFO instead of the current cash flow level. As perceived, Kasznik (1999) estimates non-discretionary accruals as a function of the change in revenue adjusted for the change in receivables – the levels of property, plant, and equipment – and the change in operating cash flows.

$$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \alpha_3 \frac{\Delta CFO_{it}}{A_{it-1}} + \varepsilon_{it} \qquad (9)$$

where TA_{it} is accruals in year *t* scaled by lagged total assets; A_{it-1} is total assets in the year *t-1;* ΔREV_{it} is the annual change in revenues in year *t* (scaled by lagged total assets); PPE_{it} is property, plant, and equipment, in year *t* (scaled by lagged total assets); ΔCFO_{it} is change in the cash flow from operations; and ε_{it} is the error term.

Finally, Kasznik (1999) shows that discretionary accrual estimates are correlated with earnings performance. Firms with higher (lower) earnings exhibit significantly positive (negative) discretionary accruals. Presumably this arises because firms with abnormally high (low) earnings have positive (negative) shocks to earnings that include an accrual component. As a consequence, the Kasznik model is more likely to detect

earnings management that increases earnings for the most profitable firms and earnings management that reduces earnings for the least profitable firms.

2.2.10. The Yoon and Miller Model (2002)

Yoon and Miller (2002) develop a better-fitting model, based partly on models discussed previously. They intend to provide better explanatory power.

$$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{\Delta EXP_{it} - \Delta PAY_{it}}{A_{it-1}} + \alpha_3 \frac{NCASH_{it-1} \times GPPEGRW_{it}}{A_{it-1}} + \varepsilon_{it} \quad (10)$$

where TA_{it} is total accruals in year *t* scaled by lagged total assets; ΔREV_{it} is a change in net sales revenue; ΔREC_{it} is the change of receivable accounts; ΔEXP_{it} is change in the operating expenses excluding non-cash expenses; ΔPAY_{it} is change in payables; $NCASH_{it-1}$ is previous period non-cash expenses such as depreciation; $GPPEGRW_{it}$ is a rate of growth in gross property, plant, and equipment; A_{it-1} is total assets from the previous period, however in the study of Yoon and Miller (2002) they suggest the total assets at the beginning of the current period, indeed we are talking about the same value, the last value of the previous period is always the value at the beginning of the current period; ε_{it} is the error term.

The model posits that total accruals (*TA*) will normally depend on changes in cash-sales revenue, changes in cash expenses and non-cash expenses, which in turn depend partly on changes in gross property, plant, and equipment (Yoon and Miller, 2002). The first explanatory variable, $(\Delta REV_{it} - \Delta REC_{it}) / A_{it-1}$, was taken from the modified Jones model. The variable represents changes in cash revenues since they subtract changes in receivables from changes in revenue. The changes in the cash revenues account for the effect of current accruals and represent the normal or the non-discretionary portion for revenue. This variable should capture a firm's tendency to increase net incomes by increasing credit sales toward the end of the fiscal year. In other words, the change in cash sales should not be affected by the front-loading of

credit sales. Therefore, this variable should properly capture a firm's tendency to increase the front-loading of credit sales (Yoon and Miller, 2002).

The second explanatory variable, $(\Delta EXP_{it} - \Delta PAY_{it}) / A_{it-1}$, was adopted from the Kang and Sivaramakrishnan model (1995). The variable associates current accruals with changes in cash expenses. Management may utilize not only sales but also expenses in managing net incomes. Hence, unless Yoon and Miller (2002) properly take into account both cash sales and cash expenses, they may not properly capture the dual aspects of current accruals. However, it is difficult to predict the relationship the changes in cash sales will have with total accruals (*TA*). Therefore, the predicted relationship can be either positive or negative. Sometimes, sales and receivables will be utilized to manage earnings, whereas at other times expenses and payables can be utilized for the same purpose. If only the first variable in the model is included, it may in fact capture the impact of cash expenses on the current accruals because cash revenues and cash expenses are correlated to a certain degree (Yoon and Miller, 2002).

The third variable associates non-cash expenses for the current period with non-current accruals. A normal or non-discretionary level of non-cash expense is obtained by multiplying the previous year's non-cash expense by the growth rate of gross property, plant, and equipment. The third variable will have a negative sign by construction (Yoon and Miller, 2002).

2.2.11. The Dechow, Richardson, and Tuna Model (2003)

Dechow, Richardson, and Tuna (2003) suggest a model, which they built in order to smoothly incorporate new variables. They think that the simple Jones (1991) model assumes that the entire change in revenues is free from managerial discretion. The modified Jones model backs out credit sales from the change in revenues (Dechow, Richardson, and Tuna, 2003). They make an adjustment for the expected increase in credit sales. The modified Jones model assumes all credit sales in each period are discretionary and induces a positive correlation between discretionary accruals and current sales growth (Dechow, Richardson, and Tuna, 2003).

$$\Delta REC = \alpha + k\Delta REV + \varepsilon_{it}$$

The slope coefficient *(k)* from this regression captures the expected change in receivable accounts for a given change in sales. So, in this way, the first change in the model ensures that, the adopted model includes only the unexpected portion of the change in receivable accounts in discretionary accruals. Therefore, they subtract the full amount of the change and add back the expected change, which is *k* multiplied by the change in sales (Dechow, Richardson, and Tuna, 2003).

$$TA_{it} = \alpha_0 + \alpha_1((1+k)\Delta REV_{it} - \Delta REC_{it}) + \alpha_2 PPE_{it} + \varepsilon_{it}$$

However, some proportion of accruals is predictable based on last year's accruals. Hence, Dechow, Richardson, and Tuna (2003) include the value of total accruals in *t-1* (TA_{t-1}) to capture the predictable component.

$$TA_{it} = \alpha_0 + \alpha_1((1+k)\Delta REV_{it} - \Delta REC_{it}) + \alpha_2 PPE_{it} + \alpha_3 TA_{it-1} + \varepsilon_{it}$$

As a final adjustment, Dechow, Richardson, and Tuna (2003) include future sales growth in the model. Accruals by their nature are designed to smooth the reporting of financial transactions. For example, a firm that is growing and anticipates future sales will rationally increase inventory balances. Observing an increase in inventory in this circumstance is not due to managers manipulating earnings by not writing-off obsolete inventory (Dechow, Richardson, and Tuna, 2003). However, the Jones model classifies such increases as earnings management. They include a measure of future sales growth to identify this aspect of accruals (Dechow, Richardson, and Tuna, 2003; see also McNichols, 2000). They obtain the following model.

$$TA_{it} = \alpha_0 + \alpha_1((1+k)\Delta REV_{it} - \Delta REC_{it}) + \alpha_2 PPE_{it} + \alpha_3 TA_{it-1} + \alpha_4 \Delta SALE_{it+1} + \varepsilon_{it}$$

where *k* is a slope coefficient from regression ΔREC on ΔREV; ΔREV_{it} is a change in sales; ΔREC_{it} is the change of receivable accounts; PPE_{it} is property, plant, and equipment; TA_{it-1} is a total accruals in *t-1* scaled by a total assets in *t-2*; $\Delta SALE_{it+1}$ is a change in sales from the current year (*t*) to next year (*t+1*) scaled by revenue in current

year (t) (($SALE_{t+1} - SALE_t$) / $SALE_t$); and ε_{it} is the error term. The final formula of the model is:

$$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{(1+k)\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \alpha_3 \frac{TA_{it-1}}{A_{it-2}} + \alpha_4 \frac{\Delta SALE_{it+1}}{A_{it}} \varepsilon_{it} \quad (11)$$

2.2.12. The Larcker and Richardson Model (2004)

Attempts to decompose total accruals into expected and unexpected components can always be criticized for misclassifying expected accruals as unexpected because the model of expected accruals is incomplete (e.g., Bernard and Skinner, 1996). To address this issue, Larcker and Richardson (2004) use a more advanced model that attempts to mitigate the misclassification issue. The advanced model is similar to that employed in Dechow, Richardson, and Tuna (2003), which shows that:

- their model has far greater explanatory power than the cross-sectional modified Jones model;
- their model identifies unexpected accruals that are less persistent than other components of earnings;
- their model identifies unexpected accruals that detect earnings manipulation;
- finally, their model identifies unexpected accruals that are associated with lower future earnings and lower future stock returns.

The model of Larcker and Richardson (2004) assumes that the change in revenues minus the change in receivable accounts is free from managerial discretion (i.e., credit sales are assumed to be abnormal) and that capital intensity drives normal accruals. They include two additional independent variables that have been shown to be correlated with measures of unexpected accruals. First, they include the book-to-market ratio (*BM*). *BM* is the ratio of the book value of common equity to the market value of common equity. *BM* is included as a proxy for expected growth in the firm's operations.

Second, they include a measure of current operating performance (Larcker and Richardson, 2004). Previous research has shown that measures of unexpected accruals are more likely to be misspecified for firms with extreme levels of performance

(Dechow, Sloan and Sweeney, 1995). Also, they therefore include current operating cash flows, *CFO*, as an additional independent variable (Larcker and Richardson, 2004).

$$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta SALE_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \alpha_3 \frac{BM_{it}}{A_{it-1}} + \alpha_4 \frac{CFO_{it}}{A_{it-1}} + \varepsilon_{it} \quad (12)$$

where TA_{it} is total accruals in year t (difference between operating cash flow and income before extraordinary items); A_{it-1} is total assets using assets from the start and end of the fiscal year; $\Delta SALE_{it}$ is a change in sales from the previous year to the current year; ΔREC_{it} is the difference in receivable accounts from the start to the end of the year; *PPE* is the end of year gross property, plant and equipment; BM_{it} is book-to-market ratio; CFO_{it} is cash flow from operations; and ε_{it} is the error term.

The inclusion of both *BM* and *CFO* is not without issue. It is likely that incentives to manage earnings vary in response to growth opportunities and current operating performance. Specifically, market expectations of future growth can place greater pressure on management to engage in earnings management (Dechow and Skinner, 2000).

2.2.13. The Kothari, Leone and Wasley Model (2005)

To improve the Jones model (1991), Kothari, Leone and Wasley (2005) introduce a performance adjustment. They argue that performance measures are important because of potential momentum in the economic activities and earnings of firms. Kothari, Leone and Wasley (2005) suggest that researchers who do not use performance-adjusted discretionary accruals "are likely to draw inferences that are unreliable at best and incorrect at worst." The linear version of their model adds some lagged performance measures, such as return-on-assets (ROA), to the Jones model.

Kothari, Leone and Wasley (2005) propose a model that includes an intercept and *a lag ROA* (return on assets) to mitigate the problematic heteroscedasticity and misspecified issues of the Jones (1991) and the modified Jones models (Dechow, Sloan,

and Sweeney, 1995) in estimating accruals, as Kothari, Leone and Wasley (2005) found the Jones model is misspecified for firms experiencing extreme performance.

$$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta SALE_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \alpha_3 \frac{ROA_{it-1}}{A_{it-1}} + \varepsilon_{it} \quad (13)$$

where TA_{it} is accruals in year *t* scaled by lagged total assets; A_{it-1} is total assets in the year *t-1;* $\Delta SALE_{it}$ is a change in sales in year *t* (scaled by lagged total assets); ΔREC_{it} is the change of receivable accounts; PPE_{it} is property, plant, and equipment, in year *t* (scaled by lagged total assets); ROA_{it-1} is a return on assets from the year *t-1;* and ε_{it} is the error term.

To account for potential non-linearity in *ROA*, they suggest a performance-matching method, subtracting the unexpected accruals of a matched firm from that of the event firm. They show that existing methods for estimating discretionary accruals are biased toward rejecting the null hypothesis of no earnings management when the event related to the incentive is associated with performance (Jo and Kim, 2007).

2.3. ACCRUALS MODELS: LOOKING FOR THE MOST COMMONLY USED MODEL

Many studies have proposed different models to measure discretionary accruals. They measure using different methods, and including different variables. The authors tried to focus on different perspectives and intended to elaborate the most powerful model.

As we have seen, the literature began with Healy (1985) and DeAngelo (1986), who used total accruals and change in total accruals, respectively, as measures of management's discretion over earnings. Jones (1991) introduced a regression approach to control for non-discretionary factors influencing accruals, specifying a linear relation between total accruals and change in sales and property, plant and equipment. She pointed out that these variables were included to control for the portion of total accruals related to non-discretionary depreciation expense. Therefore, different authors over

years have proposed including different variables to improve the strength, meticulousness and precision of the obtained results of each of the progressing models.

By introducing different variables into the models authors tried, for example, to eliminate or at least limit correlation between the variables, see for example, the Dechow, Sloan and Sweeney model (1995). Their model has been criticized because of the omission of relevant explanatory variables and in this way the existence of a significant negative correlation between accruals and cash flows. Later, other variables were introduced that eliminated this correlation.

There is a criticism given on the Healy model (1985), where the changes in non-discretionary accruals should not be equal to zero, because non-discretionary accruals can be sensitive to performance (Ronen and Yaari, 2008). Just like the Healy model (1985), the DeAngelo model (1986) assumes that non-discretionary accruals are constant, which is also a limitation of this model. The Jones model assumes that revenues are non-discretionary; when earnings are managed through discretionary accruals the Jones model will then be biased towards zero and will make an incorrect assumption that there is no case of earnings management, since the part of the managed earnings will be removed from the discretionary accrual proxy (Dechow, Sloan and Sweeney, 1995).

Another important aspect found through many years of investigations was a problem of heteroscedasticity and misspecified issues for firms experiencing extreme performance. It was also finally eliminated. Kothari, Leone and Wasley (2005) introduced a performance adjustment. They argue that performance measures are important because of potential momentum in the economic activities and earnings of the firms.

Again, an important limitation was found in the time series model. Here there is a need for a long time-series of data to allow effective estimation of the regression parameters. It is an important problem, because it required excluded firms without a sufficient number of observations from the sample (survivorship bias). Cross-sectional version is a kind of solution for this limitation.

Furthermore, since the independent variables were accounting numbers the correlation between the errors (discretionary accruals) and the regressors if earnings are managed was also expected; causing the regression (OLS, ordinary least square) of the estimates to be inconsistent and biased. Kang and Sivaramakrishnan (1995) in their model coped with this limitation.

Definitely, there are many other limitations, difficulties and dilemmas which emerged in the literature of earnings management over time. We may conclude, that there is no perfect way to measure earnings management. The use of a more refined method to estimate discretionary accruals allows for more effective identification of discretionary accruals and detection of earnings management, or at least permits us to describe earnings management more effectively.

After discussing and showing the models, it is important to choose the right model, the one which may secure the most powerful results. As perceived, it is very complicated to choose one model, as all models have a wide range of limitations. Earnings management literature has tried to compare the models and make the most appropriate selection of models over time. Dechow, Sloan, and Sweeney (1995) is the first study that tried to evaluate different earnings management models. They compare the relative performance of five alternative discretionary accrual models: the Healy, DeAngelo, Jones, Modified Jones, and Industry models for detecting earnings management. They conclude that the so-called "modified Jones (1991) model" provides the most power for detecting earnings management.

In another study, Bartov, Gul, and Tsui (2001) also support the use of the modified Jones model, estimated in a cross-section using other firms in the same industry. In this case, the key was the sample of the companies from the same industry. In the study of Key (1997) four alternative expectations models are specified, and regression equation tests of the three hypotheses are recalculated. Firstly, it is an original Jones (1991) model, which is the same as the main model except that intangible asset data are excluded. Then, a modified Jones model is used (Dechow, Sloan and Sweeney, 1995) that subtracts the change in receivable accounts from the change in revenue measure and is tested with and without intangible assets (second and third model used). The fourth model substitutes subscriber data (scaled consistently with other variables) for the change in revenue measure. Subscriber data are investigated because the data are a unique, important industry characteristic that potentially affects accruals. The results using the four alternative models are qualitatively the same. They conclude that no differences have been observed using different measures.

Shiue and Lin (2004) evaluate five commonly cited discretionary accruals estimation models. They conclude that the DeAngelo model and Healy model are better than the others in detecting earnings management, among other studies.

Drawing on existing earnings management literature, it must be emphasized that the model of aggregate accruals proposed by Jones (1991), and modified Jones model (Dechow, Sloan and Sweeney, 1995) are the most commonly used models in the literature to measure earnings management, see Table 2.1. We show different models applied by the authors over time, and the number of studies which used them to measure discretionary parts of accruals.

These two models were used in almost half of the studies (47%). We can conclude that the two models proposed by Jones (1991) and Dechow, Sloan and Sweeney (1995) offer the most power to evaluate the existence of earnings management basing this assumption on the results suggested by the literature of earnings management.

Table 2.1: Discretionary accruals proxies

Accrual models	***Number of studies***
Modified Jones Model from Dechow, Sloan and Sweeney (1995)	61
Jones (1991)	40
Healy (1985) and DeAngelo (1986)	14
Teoh, Welch and Wong (1998)	11
Kothari, Leone and Wasley (2005)	9
Kasznik (1999)	7
Dechow, Tuna and Richardson (2003)	4
Kang and Sivaramakrishnan (1995)	4
Larcker and Richardson (2004)	4
Others	61
	215*

*Authors in some of the papers used more than one model, for that reason the number of studies (207) do not match with the number of applied models. Moreover we find 10 theoretical studies which do not apply earnings management model.
** The revision was made within the period of 1985 to September of 2013 (we finalized our database).

Source: The author.

CHAPTER 3

CAUSES OF THE EXISTENCE OF EARNINGS MANAGEMENT

A wave of corporate scandals, such as the tragic collapses and losses of giant companies such as Enron corporation, WorldCom and Tyco International in the United States, highlights the critical need to improve the information presented by managers. These together with other scandals such as Parmalat in Italy, followed by revelations of misrepresentation of financial statements, have intensified the investigation and drawn further attention to the manipulation of earnings, and the issue of reasons of such behaviour of managers.

As mentioned, incentives for earnings management are always present in managers' daily activities. Some authors (see for example, Dechow and Sloan, 1991; Holthausen, Larcker and Sloan, 1995; Shackleford and Shevlin, 2001) believe that managers always have an incentive to control information. However, in some circumstances the level of certain incentives may decrease or increase depending on some factors which come from the environment where the company operates. A set of relationships and circumstances may stimulate the managers to earnings management; on the contrary, other set of circumstances or factors may significantly limit the behaviour of the managers.

Additionally, these circumstances are affected by the agency problems referring to the relationship between managers and shareholders (called agency theory). Lambert (2001) points out that agency theory is commonly used to explain certain accounting issues such as conflicts of interest, incentive problems, and mechanisms for controlling incentive problems.

Agency theory raises a fundamental problem in the organization of self-interested behavior. A corporation's managers may have personal goals that compete with the owner's goal of maximization of shareholder wealth. Since shareholders authorize managers to govern the firm's assets, a potential conflict of interest exists between these two groups: managers and shareholders (see for example, Fama and Jensen, 1983; Sunder, 1997; Core, Holthausen, and Larcker, 1999; Lambert, 2001; Quick, Sattler and Wiemann, 2013). Agency theory explains the behaviour when one individual (the principal) delegates work to another individual (the agent). Therefore, the agent will make decisions that are in the best interest of the principal (Eisenhardt 1989). The agency relationship occurs when principles employ another agent (for example managers) to perform some services on their behalf (Jensen and Meckling, 1976).

Sivaramakrishnan and Yu (2008) state that due to the absence of this agency problem, reporting manipulation is a non-issue because managers do not have any incentive to misreport or hide information (keeping aside reporting incentives that might arise from strategic product market considerations). In contrast, in the presence of an agency conflict, informational asymmetries and unobservability of managerial actions can give rise to adverse reporting incentives (Sivaramakrishnan and Yu, 2008). In effect, Chtourou, Bedard, and Courteau (2001) provide evidence that effective boards and audit committees, and not agency problems constrain earnings management activities. On the other hand, Core, Holthausen, and Larcker (1999) show evidence that firms with greater agency problems perform worse than companies that have no agency problems.

Consequently, in this conflict of interests the managers may deal with decisions that do not maximise shareholders' interests. Hence, they (managers) may manage reported earnings to obscure their actions. Furthermore, earnings management may lead to investors making non-optimal investment decisions taking into consideration manipulated reported earnings (see, Dye, 1988; Antle and Demski, 1989; Antle, Demski and Ryan, 1994; Sunder, 1997; Lambert, 2001). Literature calls it: "agency costs". We may distinguish three main categories within agency costs (see Denis, Denis and Sarin, 1996; Deegan, Rankin and Voght, 2000; Hoque, 2006; Iskander, 2008):

1- ***Monitoring costs***: the costs which stem from the agent's monitoring behaviour, such as corporate governance structure cost, external auditing cost or any action which might curb opportunistic behaviour (Denis, Denis and Sarin, 1996; Deegan, Rankin and Voght, 2000; Hoque, 2006; Shen and Chih, 2007; Iskander, 2008).

2- ***Bonding costs:*** the costs which are associated with aligning the agent's interest with the principal's interest, such as compensation or any reward structure that mitigates opportunistic behaviour. In other words, managers are bonding themselves to prepare financial reporting (Denis, Denis and Sarin, 1996; Deegan, Rankin and Voght, 2000; Hoque, 2006; Iskander, 2008).

3- ***Residual costs:*** these are defined as all costs incurred as a result of disputes between agent and principal's interest apart from bonding and monitoring cost. The residual costs stem from inequality between the monitoring cost and bonding cost (Denis, Denis and Sarin, 1996; Deegan, Rankin, and Voght, 2000; Hoque, 2006; Iskander, 2008).

Companies may choose certain mechanisms to align the interests of agents and principles and to monitor the behaviour of agents and minimize these costs (Coles, McWilliams and Sen, 2001). These mechanisms are: external governance instruments in terms of takeovers (Easterwood, Seth and Singer, 1997), or merger (Erickson and Wang, 1999), use of internal control mechanisms to monitor by non-executive directors (Klein, 2002), monitoring by institutional shareholders and auditors (Chung, Firth and Kim, 2005), among others.

In these circumstances, does lack of agency theory necessarily lead to lack of earnings quality or at least low earnings quality? Or in other words, does existence of agency theory necessarily result in existence or higher level of earnings management? As we may perceive, there is a connection between agency theory, earnings management and managers' incentives for such behaviour. We draw attention to the agency theory, as it provides a natural background for our analysis of reasons for earnings management, as mentioned (see for example, Beatty and Harris, 1998; Richardson, 2000; Kim and Yi, 2006). The interests of agents are not aligned with the objectives of the shareholders, hence, to be able to understand reasons for earnings management we need to take into consideration agency relationship within the company and the scope of the conflicts of interests. It is a starting point for the consideration of the quality of the information presented by managers and in effect of the existence of earnings management.

The agency conflicts in companies generate reasons for manipulation. On one side managers have incentives to be engaged in earnings management, and on the other, an ample scope of circumstances may drive or limit managers to manage earnings.

Incentives appear from unambiguous situations and decisions which managers can undertake. These decisions may derive from specific economic, financial, political or social interest (from the conflict of interest in the agency theory). The interest may be important for the company or managers in a precise period of time. Managers may, for example, use decreasing earnings (one of the earnings management techniques) to benefit from tax reductions, price control reductions, etc. As other example, managers can use increasing earnings techniques to obtain higher bonuses, fulfil stewardship responsibilities (see for example, Burgstahler and Dichev, 1997; Teoh, Welch and Wong, 1998; Kasznik, 1999; Healy and Wahlen, 1999; Ball and Shivakumar, 2006).

Additionally, there are a number of incentives that pressure managers to satisfy analyst expectations, or to maintain a competitive position in the market. Cheng and Warfield (2005) point out managing earnings can come from the aspiration to meet or beat analysts' forecasts. Another range of incentives may come from managers' ambitions and desire to undertake special goals and objectives marked by the executives (see, Burgstahler and Dichev, 1997; Teoh, Welch and Wong, 1998; Kasznik, 1999; Healy and Wahlen, 1999; Ball and Shivakumar, 2006).

Besides the incentives, managers may be faced with circumstances of the environment where the company is operating. Influence of regulatory bodies or characteristics of the background of the company may influence on managers' decisions to opt for managing earnings. More favorable conditions may facilitate/ preserve the manipulation. On the other hand, more strict characteristics of the business environment may preserve or in some situations facilitate the manipulation. These sets of circumstances we call factors. In effect, we may represent reasons for the existence of earnings management as a function of two variables: incentives and factors.

Earnings Management = f (incentives, factors)

Source: The author.

The objective of this chapter is straightforward: we present possible managers' incentives and environmental factors that stimulate or limit managers' activities for earnings management. This chapter is structured in the following manner. In the next section, we present the incentives for earnings management. Then we discuss factors of the company's environment which influence on the scope of manipulation and which may facilitate or limit earnings management. Finally, we present the future possible tendencies towards investigation on reasons for earnings management.

3.1. INCENTIVES FOR EARNINGS MANAGEMENT

Literature of earnings management has widely focused on incentives for earnings management, as it is important to know why managers manipulate their earnings. Different authors propose different theories on why companies manage earnings, and propose different types of classifications of incentives for managing

earnings, including groups such as: compensation and bonus schemes (implications for corporate governance), stewardship value of accounting, debt covenants and related liquidity implications, listing requirements and stock market pressures, legal rights of outside investors, regulatory motivations for earnings management, see for example, Healy (1985), DeFond and Jiambalvo (1993), Holthausen, Larcker, and Sloan (1995), Warfield, Wild, and Wild (1995), Dechow, Sloan, and Sweeney (1996), Burgstahler and Dichev (1997), DeFond and Subramanyam (1998), Healy and Wahlen (1999), Guidry, Leone, and Rock (1999), Healy and Wahlen (1999), Amat, Blake, and Dowds (1999), Comiskey and Mulford (2002), Dichev and Skinner (2002), Peasnell, Pope and Young (2003), Cheng and Warfield (2005), Lybaert, Jans, and Orens (2005), among others.

We classify all the different group of incentives into the following four main groups of incentives:

- *incentives related to market expectation and valuation,*
- *contractual incentives,*
- *political incentives, and*
- *other incentives* (incentives which can not be matched within one of the former groups).

As we may observe, we add a fourth group of incentives, called other incentives. In the last group we include incentives that are not included in the previous groups, for example, labor union contracts, proxy contest, hostile takeover situations, etc.

3.1.1. INCENTIVES RELATED TO MARKET EXPECTATION AND VALUATION

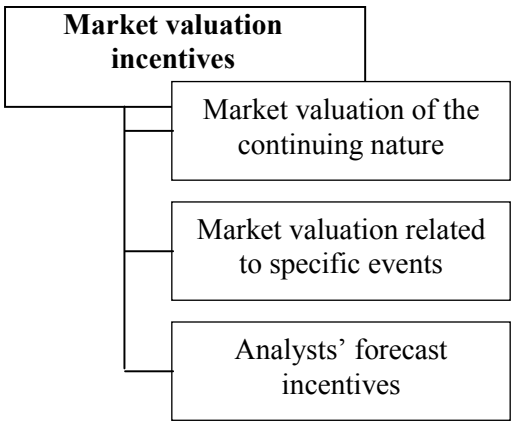
Market incentives arise when firms' managers perceive a connection between reported earnings and the company's market value. Jiambalvo (1996), for example, suggests that managers can use their accounting discretion to bolster earnings in the periods surrounding initial public offerings and seasoned equity offerings (in other words, when stock offerings by companies that have previously sold stock to the public) in an apparent effort to alter investors' perceptions. DeAngelo (1986) takes a look at management buyout offers (MBOs) of public stockholders. Managers typically engage independent investment bankers to evaluate the adequacy of buyout offers. In turn, investment bankers typically use earnings-based valuation methods, creating a link

between earnings and the amount that must be paid to consummate an MBO. This is because managers have a financial incentive to minimize the buyout price. Hence, it is not surprising that some managers choose to manipulate earnings downward before MBOs (DeAngelo, 1986).

Rangan (1998) investigates analysts' forecasts. The markets are sensitive to companies that miss analysts' earnings expectations or management's earnings forecasts. Companies in danger of falling below these earnings targets may use their discretion to manage earnings upwards (Rangan, 1998).

In effect, markets react to new information. If the information is positive (negative) the fundamental value of the company increases (decreases) (Amat, Blake and Dowds, 1999). This information may stimulate managers to manage earnings. Following Warfield, Wild and Wild (1995), Scott (1997), Healy and Wahlen (1999), Weil *et al.* (2006), Chen (2010) as to the incentives related to market expectations and valuation we distinguish finally three main categories: market valuation of the continuing nature, market valuation related to specific events, and analysts' forecast incentives, see Figure 3.1.

Figure 3.1: Incentives related to market expectations and valuation



Source: The author.

3.1.1.1. INCENTIVES OF THE MARKET VALUATION OF CONTINUING NATURE

Operating in the global, competing and open market leads companies to a steady process of evaluation and assessment of their activities. Some circumstances can lead managers to manipulate earnings. According to Stein (1989), even in a fully efficient market, managers are under market pressure to take prejudiced actions that endanger long-term value creation. As Barth, Elliot and Finn (1999) and Myers and Skinner (2002) state, firms are under increasing pressure to maintain earnings momentum and hence market valuations. Richardson, Tuna and Wu (2002) also find evidence consistent with the argument that firms undertake aggressive accounting practices due to market pressures.

Traditionally, market pressure has been interpreted as efficient monitoring mechanisms by shareholders (Jensen and Meckling, 1976; Jensen, 1986). However, a recent view has been less optimistic about the likely effects of such pressures (Porter, 1985). Managers have accused markets of being short-term oriented, and distracting them from the long-term commitment to a strategy. In 2006 McKinsey and Company carried out a worldwide survey, in which more that 42% percent of respondents (managers and board members of publicly traded firms) strongly agreed that issuing earnings guidance and trying to meet them led firms to focus more on short-term earnings. This contrast between theory and practice highlights the importance of examining the impact of market pressure on firm's strategic behaviour. It as well shows what types of firms' actions managers choose to deal with market pressures.

In fact, managers can respond to market pressures in multiple ways, such as ignoring the pressures, or engaging in earnings management, or modifying strategic decisions to accommodate the pressures (Zhang and Gimeno, 2010). This raises the question of whether managers will respond to earnings pressures with substantive changes in competitive strategy decisions, or by manipulating their earnings.

3.1.1.2. MARKET VALUATION RELATED TO SPECIFIC EVENTS

Market pressure incentives also may be connected with the punctual and specific events of the companies. Managers can use their accounting discretion to bolster

earnings in special periods of the companies, such as: surrounding initial public offerings, equity offerings, buy-outs, mergers, etc., by the effort to alter investors' perceptions. Not surprisingly, high accruals may be observed in the periods before stock offerings or equity offerings to increase the image and value of the company.

One such situation is where companies issue new stocks and offer them on the markets. It is called: ***equity offering*** (Masulis and Shivakumar, 1999). Earnings manipulators are more inclined to report positive earnings or earnings increases in the year preceding an equity offering to create an illusion of firm growth and a need to raise funds (see for example, Beaver, Lambert and Morse, 1980; Easton and Zmijewski, 1989, etc.). It is a way to attract potential investors. The same evidence is observed by Aharony, Lin and Loeb (1993), Teoh, Wong and Wong (1998) and DuCharme, Malatesta and Sefcik (2004) who state that there is a strong evidence showing a positive relationship between earnings management and abnormal stock returns, and a negative relationship between reported earnings and abnormal post-offering stock returns.

The evidence often create this image because managers of firms are willing to issue equity manage earnings upward in order to increase the offering proceeds. On the other hand, the potential investors, or mainly speaking, the market, may understand these high earnings reported as a transitory increase. Hence, it is created an important pressure between managers and investors, see Figure 3.2.

Figure 3.2: Payoffs from earnings management game between offering firms and market participants

At offering announcement	***Before offering announcement***	
	Firms do not overstate earnings	Firms overstate earnings
Investors do not believe prior earnings to be overstated	(0,0)	(H,-H)
Investors believe prior earnings to be overstated	(-H,H)	(-C,-C)

*H stands for a positive payoff (earnings) and C stands for the costs of earnings management.

Source: Shivakumar (2000).

We may observe that firms before announcing their offerings may follow two strategies: they can either overstate the value of stocks or not overstate. The market participants (investors) also have two strategies. They either believe or do not believe that earnings before offering announcements were overstated. If the firms do not

overstate the values and the investors do not believe prior earnings to be overstated, both firms and investors do not receive additional earnings (payoffs from earnings management). It means, earnings management is not observed (0,0). On the contrary, if the firms before offering announcement overstate earnings and investors do not believe prior earnings to be overstated, in this situation, managers of the firms may perceive inflated earnings, and investors on the opposite side, loose the same magnitude of the earnings overblown by the firms (H,-H).

If the firms overstate earnings, but the investors believe prior earnings to be overstated, both firms and investors lose the value of the costs of earnings management (-C,-C). It means that value between the real value of the equities and the estimated value, for one side managers as well as for investors' decreases. And finally, if the firms do not overstate earnings and the investors do believe prior earnings do be overstated, it means that firms lose the estimation at the offering announcement and the investors on the contrary gain this difference (-H,H).

This relationship between the markets's reported value of company shares before and at offering announcement is documented in amplitude of studies. Myers and Majluf (1984), for example, suggest that managers acting in existing shareholders' interests take advantage of information asymmetry and issue new equity when existing equity is overvalued by the market. In the same direction, Loughran and Ritter (1997), based on US companies within the period of 1979 to 1989, document that the operating performance of issuing firms shows substantial improvement prior to the offering, but then deteriorates. Hansen and Crutchley (1990), McLaughlin, Safieddine and Vasudevan (1996) and Fu (2010) show, as well, that deteriorating operating performance is observed after issuance of equity in the industrial sector of firms.

Earnings management literature confirms that issuing firms underperform after the issue when compared to non-issuing firms with similar characteristics.

In equity offerings, managers may not have any apparent incentive to refrain from maximizing the price of the company stock and obtaining the best deal for the company and its owners. However, this situation is totally reversed in ***management buyout transactions*** where the interests of owners and managers are opposite. DeAngelo (1986) investigates if managers use their discretion over earnings in an attempt to decrease the purchase price. Using a simple model to test for discretionary accruals, DeAngelo finds little evidence supporting her hypothesis of downward

earnings management. Perry and Williams (1994) and Woody (1997), both demonstrate that income decreasing earnings management exists before management buyouts.

Management buyouts provide a bridge to the area of earnings management studies where managers manage earnings to receive private capital gains. Theoretically, managers can increase their probability of receiving capital gains by creating favourable buy and sell opportunities of the company's stock for themselves (Spohr, 2005).

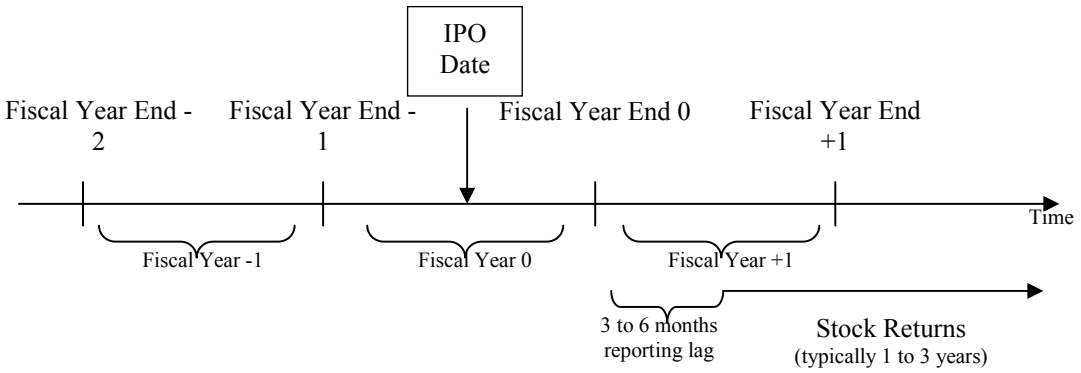
Another situation when market efficiency may constitute a support for the existence of earnings management in particular is ***a mergers and acquisition context***. Theoretically, as Louis (2004) explains this hypothesis provides an explanation of post-acquisition underperformance in the case of earnings management. He finds a significant negative relationship between discretionary accruals in stock acquisition. Erickson and Wang (1999) show that bidder managers manipulate earnings upward to raise the market price which favourably affects the exchange ratio. Similarly, Easterwood (1998), Loughran and Vijh (1997), Rau and Vermaelen (1998) and Botsari and Meeks (2008) provide strong evidence that acquiring firms overstate their earnings reports prior to stock swap acquisition announcement by aggressively using discretionary accruals. Nonetheless, the bidder manager manipulates earnings downward prior to making an acquisition offer (see for example, Perry and Williams, 1994; Le Nadant, 1999). Hence, literature indeed shows the evidence of post-merger reversal price effects of pre-merger earnings management.

Finally, a special case of offerings is a process of the issuing of offerings for the first time. ***The initial public offerings (IPO)*** process is particularly susceptible to earnings management, offering entrepreneurs both motivation and opportunities to manage earnings (see for example studies of Buser and Chan, 1987; Ritter, 1991; Jain and Omesh, 1994; Mikkelson, Partch and Shah, 1997; Teoh, Wong and Rao, 1998). It comes from the situation that, as reports Rao (1993), there is almost no news media coverage of firms in the years before the IPO. This scarcity of information about the issuer forces investors to rely heavily on the prospectus, which itself may contain incomplete financial information (Rao, 1993).

Several studies find that initial public offerings underperform after the issue (see for example, Stoll and Curley, 1970; Stern and Borstein, 1985; Ritter, 1991; Loughran and Ritter, 1995). Other studies, for example, Teoh, Welch and Wong (1998) demonstrate that firms also have an incentive to boost earnings soon after the IPO to

maintain a high market price. As explained by authors, it comes from the situation that the original entrepreneurs may wish to sell some of their personal holdings in the secondary market at the end of the lockup period. In the Figure 3.3 we may observe the time line of the IPO date.

Figure 3.3: Time line of the Initial Price Offering date



Source: Teoh, Welch and Wong, 1998.

The interval of manipulation may be observed in the period following to the IPO date, in our case in the fiscal year+1, where the 3 to 6 months reporting lag is normally established, and the stock returns are expected in one to three years.

3.1.1.3. ANALYSTS' FORECAST INCENTIVES

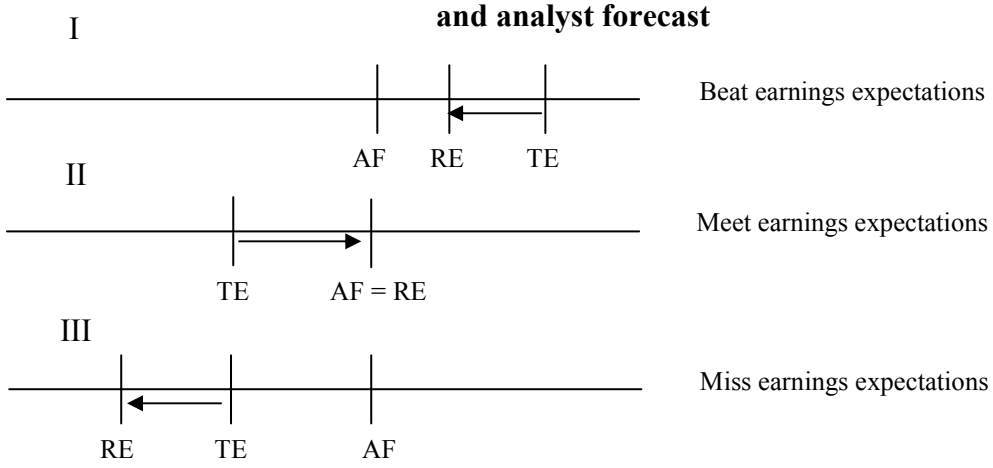
Some studies have examined the relationship between analyst forecasts incentives and earnings management. Such research has focused on whether analysts can recognize earnings management on behalf of managers, and the relationship between analyst forecasts and managers' accounting decisions in order to meet or exceed earnings expectations (Matsumoto, 2002 and Markarian, 2005).

Payne and Robb (2000) examine managements' incentives to meet and exceed earnings forecasts to protect a company's stock price. Their findings suggest that managers increase income to achieve forecasted earnings levels, and their desire to increase income is negatively correlated with analysts' forecast dispersion. Abarbanell and Lehavy (2003) examine the relationship between systematic analyst forecast errors in terms of management behaviour. Specifically, he hypothesizes that common forms of

earnings management are not completely accounted for in analysts' forecasts. Hence, extreme income decreasing earnings management results in extremely optimistic analyst forecasts, and the incidence of small positive forecast errors is associated with managers applying discretion to slightly beat analyst forecasts.

Brown and Caylor (2004) indicate that managers have the highest incentives to meet forecasts by analysts, as the price effects of meeting or beating such earnings expectations are higher as compared to earnings decreases or to losses. Matsumoto (2002) adds that managers exceed forecasts by guiding forecasts downward, and reporting income increasing abnormal accruals. Lee (2007) predicts possible earnings management paths where the firms may beat, meet or miss earnings expectations, see Figure 3.4. As explained by Lee (2007) for firms that beat earnings expectations, it is expected that firms manage earnings to downwards them. As documented in Abarbanell and Lehavy (2003), there are greater returns associated with zero or slightly positive earnings surprises and decreasing gains to larger good news surprises (observe first situation on Figure 3.4).

Figure 3.4: Predicted earnings management paths of firms and analyst forecast



AF = Analyst forecast
TE = True earnings
RE = Reported earnings

Source: Lee, 2007.

For firms that meet earnings expectations, it is expected that firms manage earnings upwards. As documented by Skinner and Sloan (2002) and Bartov, Givoly and Hayn (2002), the market penalizes firms asymmetrically for failing to meet or beat

analyst' expectations, hence firms have very strong incentives to at least meet earnings expectations, especially for growth firms. Degeorge, Patel and Zeckhauser (1999) find evidence that firms face a hierarchy of thresholds that help drive earnings management. The most important threshold is to report profits, and to meet or beat performance relative to the prior comparable period, and finally, to meet or beat analysts' earnings expectations. In this way, Lee (2007) expects that firms that meet earnings expectations manage earnings upwards to meet these thresholds and to avoid negative capital markets repercussions (second situation on the Figure 3.4).

Finally, for firms that miss earnings expectations (third situation on the Figure 3.4), it is expected that when managers know that they cannot meet earnings expectation even with earnings management, they will not manage earnings upwards. Hence, they have a higher chance of meeting or beating analysts' expectations in future periods.

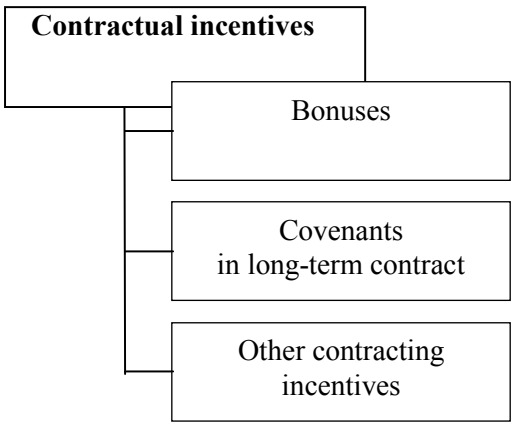
3.1.2. CONTRACTUAL INCENTIVES

The second group of incentives is contractual incentives. The previous group of incentives (incentives related to market valuation) focuses on improving, decreasing or maintaining firm's valuations. Here we centre attention on the contracts between the firm and its stakeholders. In this context, the accounting information is in order to arbitrate conflicts of interest between different groups within the company.

Watts and Zimmerman (1978) developed a Positive Accounting Theory. They explain that a firm can be viewed as a nexus of contracts and is inclined to minimize contracting costs associated with various contracted parties. Positive Accounting Theory takes the view that firms' accounting choices should be made to minimize the contracting costs, so as to attain efficient corporate governance. Nevertheless, Positive Accounting Theory assumes that managers are rational as well as investors. They will choose accounting procedure to influence contractual outcomes for their interests. So when managers have flexibility to choose from a set of accounting policies in the face of changing circumstances, they will choose discretion for their own benefits which opens up the door for opportunistic behaviour ex post. Watts and Zimmerman (1978) formulate Positive Accounting Theory around management compensation, debt

covenant violations and political violations. They hypothesize that managers try to influence contractual outcomes of bonus plans and debt covenants and reduce political costs by exercising judgement over accounting variables. Following studies such as: Watts and Zimmerman (1978, 1986), DeFond and Jiambalvo (1994), Gaver, Gaver and Austin (1995) and Chen (2010), we differentiate three categories in contractual incentives for earnings management (see Figure 3.5): bonuses, covenants in long-term contract, and other contracting incentives.

Figure 3.5: Contractual incentives



Source: The author.

3.1.2.1. MANAGEMENT COMPENSATION INCENTIVES: BONUSES

One of the most widely cited papers related to the effect of executive compensation plans on accrual decisions is the Healy (1985) study. Healy (1985) hypothesizes that managers have an economic incentive to manipulate earnings in order to increase their cash compensation. Healy (1985) examines typical bonus contracts, providing a complete analysis of their accounting incentive effects, see Figure 3.6.

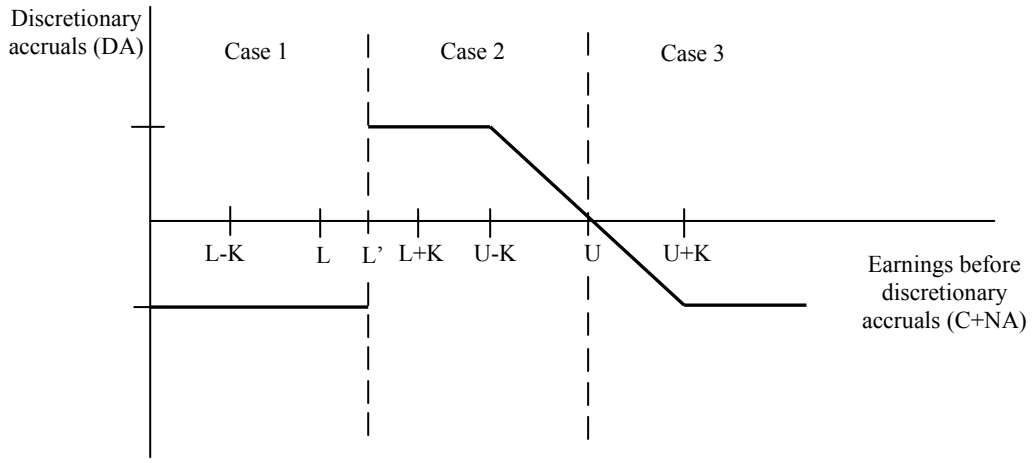
In the first situation, (Case 1), the manager has an incentive to choose income decreasing discretionary accruals. This case has two elements. In the first one, earnings before discretionary accruals are more than K (limit on the discretionary accruals) below the lower bound (i.e., $C + NA < L - K$). The manager selects the minimum

discretionary accrual (DA= -K) because even if he chooses the maximum, reported income will not exceed the lower bound and no bonus will be awarded. By deferring earnings to the following period, he maximizes his expected future award. In the second element of case 1, earnings before discretionary accruals in period (C + NA, C stands for cash flow from operations, and NA stands for non-discretionary accruals) are within ±K of the lower bound (L). The manager either selects the minimum (DA = -K) or maximum (DA = K) discretionary accrual. If the manager chooses the maximum accrual, he receives a bonus in the present period but foregoes an expected bonus in the following period because he is now constrained to report the minimum accrual in that period (DA of the following period = -K). If he selects the minimum discretionary accrual in the present period the manager maximizes his expected bonus in the next period, but receives no bonus in the present period. He trades off the present value and certainty advantages of receiving a bonus in the present period against the foregone expected bonus in the next period. Conditional on the bonus plan parameters, expected earnings before discretionary accruals in following period, the discount rate, and his risk aversion, the manager estimates a threshold (denoted by L' in Figure 3.6) where he is indifferent between reporting the minimum and maximum accrual in present period. In Figure 3.6, the threshold (L') exceeds the lower bound in the bonus plan (L). However, the threshold can also be less than the lower bound, depending on expected earnings in the next period. The manager selects the minimum discretionary accrual (DA = -K) when earnings before discretionary accruals are less than the threshold, i.e., C + NA < L'.

In the second situation (Case 2), the manager has an incentive to choose income-increasing discretionary accruals. If present period earnings before discretionary accruals exceed the threshold L', the present value and certainty advantages of accelerating income and receiving a bonus in the present period outweigh foregone expected awards in the next period. The manager, therefore, selects positive discretionary accruals. When earnings before accounting choices are less than (U- K, U stands for the upper bound on earnings), he chooses the maximum accrual (DA = K). When earnings before accounting choices are within K of the upper bound, the manager selects less than the maximum discretionary accrual because income beyond the upper bound is lost for bonus calculations. He chooses DA = (U- C - NA), thereby reporting earnings equal to the upper bound. If the bonus plan does not specify an upper bound,

the manager selects the maximum discretionary accrual (DA=K) when earnings before accounting choices exceed the threshold L'.

Figure 3.6: Managerial discretionary accrual decisions as a function of earnings before discretionary accruals and bonus plan parameters



where: L = the lower bound defined in the bonus plan,
U = the upper bound on earnings,
L' = a cutoff point which is a function of the lower bound, the manager's risk preference, expected earnings in the following period and the discount rate,
K = the limit on discretionary accruals,
C = cash flows from operations,
NA = non-discretionary accruals.

Source: Healy (1985).

Finally, in Case 3, the manager has an incentive to select income decreasing discretionary accruals. When the bonus plan upper bound is binding, earnings before discretionary accruals exceeding that bound are lost for bonus purposes. By deferring income that exceeds the upper bound, the manager does not reduce his current bonus and increases his expected future award. When earnings before discretionary accruals are less than U+ K, he selects DA= (C + NA - U), reporting earnings equal to the upper bound. When earnings before discretionary accruals exceed (U + K), he chooses the minimum accrual (DA= -K).

Healy (1985) shows that managers have an economic incentive to manipulate earnings in order to increase their cash compensation. Other studies also underline the relationship between earnings management and manager bonuses. Managers apply earnings management in order to increase their compensation and remuneration.

Holthausen, Larcker and Sloan (1995), for example, investigate the extent to which executives manipulate earnings to maximize the present value of bonus plan payments. Evidence shows that managers manipulate earnings to obtain bonuses.

Gaver, Gaver and Austin (1995) show that managers manipulate earnings downward when the limit cap is exceeded, and manipulate earnings upwards when below the threshold. Xu (1997), on the other hand, shows the relation between bonuses and the annual dividends paid. He points out that executive bonuses are less likely to be paid (in Japan, he measures the Japanese companies) if the annual dividends per share is less than a level expected or net income is less than dividends. He concludes that executive bonuses depend mainly on accounting income, if they are paid.

Another study, Joh (1999), shows that management compensation is positively linked to industry profit, suggesting the use of management-incentive compensation. Joh (1999) confirms that compensation is positively linked to the industry performance, which is directly related to earnings management. In the same year, Guidry, Leone, and Rock (1999) test the bonus-maximization hypothesis that managers make discretionary accrual decisions to maximize their short-term bonuses. The evidence is consistent with business-unit managers manipulating earnings to maximize their short-term bonus plans. The results also highlight the influence of internal contracting on external reporting.

Finally, the study of Shuto (2007) examines the relation between discretionary accounting choices and executive compensation in Japanese firms. The results show that the use of discretionary accruals increases executive compensation. The research indicates additionally that the association between discretionary accruals and executive bonus varies depending upon the circumstances of the firm.

We may conclude with one of the most famous examples, the case of WorldCom. Managers had bonuses that were based on revenue growth. Their salaries, bonuses and options were also tied to the stock price of the company. Top-level managers were receiving about $10m of retention bonuses and several loans from the company that were repayable on termination (Ball and Shivakumar, 2006).

3.1.2.2. COVENANTS IN LONG-TERM LENDING CONTRACTS

Covenants are agreements between agents of the companies, frequently written in terms of accounting numbers. Within the different agreements in the company, we focus on the debt covenants contracts, which are agreements between a company and its creditors. As is pointed out in the literature (see for example, Duke and Hunt, 1990; DeAngelo, DeAngelo and Skinner, 1992; Beneish and Press, 1993; Sweeney, 1994; DeFond and Jiambalvo, 1994; Dichev and Skinner, 2002, among others), accounting choices in firms are influenced by debt covenants incentives. Managers of firms that are close to violating debt covenants make accounting choices that reduce the likelihood of default (Watts and Zimmerman, 1986). Sweeney (1994) states that the costs of violating a debt covenant can be extremely high for the company, for that reason the manager's interests lie in keeping the corporation at a level that does not put in danger the contractual agreement. In order to do so, the manager could precisely use earnings management to create the illusion that the company has not violated the debt covenant. Moreover, Scott (2009) points out that managers will also avoid being close to violation because this can constrain their freedom of action in operating the firm (Scott 2009).

Earnings management in a debt covenant context has been investigated in a number of studies, as mentioned above. With them, different results were obtained. For one hand, Sweeney (1994) and DeFond and Jiambalvo (1994) find that managers of firms close to debt covenant violation respond with income-increasing accounting changes. They report significantly positive unexpected accruals in the year prior to violation, and suggest that managers manipulate earnings to prevent default on debt contracts.

However, other studies do not find evidence supporting the debt covenants hypothesis. DeAngelo, DeAngelo and Skinner (1992), for example, argue that managers of financially distressed firms are not likely to inflate earnings in order to avoid debt covenant violations. Instead, their findings indicate that managers of financially troubled firms use negative abnormal accruals, which reduce the reported earnings even further. They suggest that managers of these firms have an incentive to highlight the firm's financial difficulties by reducing the reported earnings to obtain better terms in their contract renegotiations.

Beneish and Press (1993) use a large sample of 488 firms that experienced technical default between 1983 and 1997 to examine managers' accrual strategies. Their findings are consistent with the notion that incentives to avoid debt-covenant violation are not homogenous across firms and that the signal contained in managers' trading behavior is useful in determining whether earnings have been managed.

Finally, Dichev and Skinner (2002) provide large sample tests of the debt covenant hypothesis. They find that private lenders set debt covenants tightly and use them as "trip wires" for borrowers, that technical violations occur relatively often, and that violations are not necessarily associated with financial distress.

3.1.2.3. OTHER CONTRACTING INCENTIVES

Within other contracting incentives we may distinguish several incentives, for example, ***nearing retirement incentives***. Dechow and Sloan (1991) use a sample of 91 research and development intensive firms to provide evidence that managers nearing retirement use earnings management and may jeopardize the long-run results of the firm. Other authors, such as, Butler and Newman (1989), Gibbons and Murphy (1992) and Murphy and Zimmerman (1993) show as well that executives respond to earnings-based incentives and behave opportunistically in this context.

Davidson *et al.* (2007) investigate whether the age and ***career horizon*** of the firm's executives affect earnings management. Their findings suggest that firms with older chief executive officers, who are nearing the retirement age are associated with extensive income increasing earnings management. This study also confirms that retirement of executives has an impact on the increasing effect of earnings management.

Another contracting incentive is connected to ***executive changes in the company***. The literature (see for example, Vancil 1987, Pourciau 1993, Wells 2002) finds that the motivations and opportunities for income manipulation vary with the circumstances of the chief executive officer change. The authors separate the routine and non-routine executive change. In the case of routine executive changes, there is little conflict of interest between the old and the new executives, which might lead to less opportunistic earnings management (Vancil, 1987). As explains Vacil (1987) during a routine, planned executive turnover, with a relatively ordered process of chief executive officer succession, the former and successor chief executive officer both have

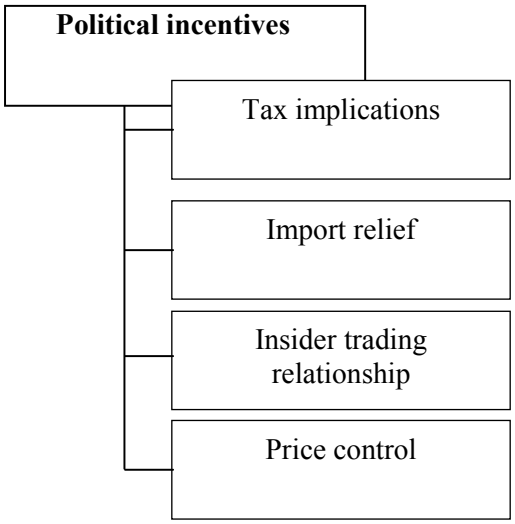
the same goal: to make the incoming chief executive officer successful. If the new executive is unsuccessful, it reflects badly on the former chief executive officer's judgment and management skills (Vancil, 1987).

On the other hand, the degree of earnings management will be higher in times of non-routine changes. Non-routine changes are often unplanned due to inadequate time and/or insufficient opportunity to select a successor chief executive officer, and in this way are more easily used for earnings management (Vancil, 1987). Moreover, as executive changes are less orderly, the incentive for earnings management is more present (Pourcian, 1993).

3.1.3. POLITICAL INCENTIVES

In this section we examine the extent to which political incentives have an impact on accounting choice, and how those incentives themselves are controlled. The political cost hypothesis (Watts and Zimmerman, 1978) predicts that if managers face the possibility of politically-imposed wealth transfers (e.g., taxes, price control, tariffs, import relief, etc.) they will choose accounting procedures that reduce the expected value of the transfer, through reducing its size (Cahan, 1992). Among political incentives we distinguish four categories: tax implications, import relief, insider trading relationship, and price control (see Figure 3.7).

Figure 3.7: Political incentives



Source: The author.

3.1.3.1. POLITICAL INCENTIVES: TAX IMPLICATIONS

The influence of taxes on companies has largely been considered within a framework where taxes are involuntary payments that influence financing and investment choices on the margin (Modigliani and Miller, 1958). The context of a tax-incentive scheme allows firms to pay taxes at a reduced rate for a limited period of time, or tax avoidance if certain requirements are secured. If managers attempt to maximize firm value by minimizing tax costs, the spread of tax rates in the periods surrounding the rate change may provide a substantial incentive for them to accelerate revenue and defer expenses. This is one possible hypothesis. Consistent with this hypothesis, empirical results indicate that firms report significantly higher discretionary accruals for the years before tax-rate increases (Desai and Dharmapala, 2005). Managers manage earnings upward to take advantage of lower tax rates that are available in certain years.

Moreover, we find that not only the activity to minimize the tax implications for the company by the managers, but we may find a wide range of studies which confirm that managers try to obtain tax avoidance. Yin (2003), for example, reports effective tax rate reductions in the S&P 500 from an average of 28.9% in 1995 to 24.2% in 2000 and GAO (2004) reports that 32.7% of large U.S. corporations reported no tax liability in 1995 and that percentage rose to 45.3% by 2000.

The activities of Enron are a famous example. A report by the Joint Committee on Taxation (hereafter JCT) of the US Congress (2003) provides a unique perspective on how central earning manipulation was to Enron's extensive use of tax shelters. In summary of various transactions, the JCT concluded that Enron's management set high financial accounting goals and realized quickly that tax-motivated transactions could generate sizable financial accounting benefits. Accordingly, Enron looked to its tax department to devise transactions that increased financial accounting income. In effect, the tax department was converted into an Enron business unit, complete with annual revenue targets. The tax department, in consultation with outside experts, then designed transactions to meet or approximate the technical requirements of tax provisions with the primary purpose of manufacturing financial statement income.

Another example comes from the evidence on Dynegy presented in Desai and Dharmapala (2005), or the samples of Tyco and Parmalat which also clearly show the

tax avoidance worldwide presented in Desai and Dharmapala (2005). These and other examples, raise a variety of important issues for investigators.

Basic questions are: has corporate tax avoidance become more common and if so why? How should shareholders and boards view efforts to reduce corporate tax obligations? Should managers be rewarded for such efforts?

As we may observe, defining corporate tax avoidance is non-trivial. Researchers suggest that corporate tax avoidance activities, or the use of corporate tax shelters, are widely employed by companies. Many corporate transactions, including the most elemental financing choice of whether to finance oneself with debt rather than equity, have important, but typically secondary, tax consequences. Such decisions are primarily motivated by an underlying business purpose. Even though, they may generate tax benefits.

Nowadays, the intuition for how to define corporate tax avoidance has become established in tax law. We may observe some "anti-avoidance" doctrines (for example, Weisbach, 2002). Such doctrines create exceptions to the otherwise applicable tax law in order to deny tax deductions generated by activities that are deemed to be purely or primarily motivated by tax avoidance.

3.1.3.2. POLITICAL INCENTIVES: IMPORT RELIEF

Import relief is defined as: "several measures taken by the government to temporarily restrict import of a product or goods to protect domestic products from competition" (Van der Boom and Ung, 2010). Protection can be in the form of providing subsidies, offering loans with low interest rates and providing tax exemption.

Jones (1991) is the first study which treats earnings management caused by import relief. She examines accruals by U.S. firms during import relief investigations by the U.S. International Trade Commission (ITC). The paper concludes that managers of companies who can benefit from import relief could act in their own self-interest. The companies reduce net income using discretionary accruals during import relief investigation by the ITC. These companies attempt to convince the government that their earnings were under pressure.

Phillips, Pincus and Rego (2003), for example, argue that in some cases managers use their discretion "to manage book income upward without also increasing taxable income" thus generating "temporary book-tax differences". In the same line of investigation, Holland and Jackson (2004) find that firms manage their earnings in order to avoid an earnings decline or a loss by means of under- or over-provision of deferred tax.

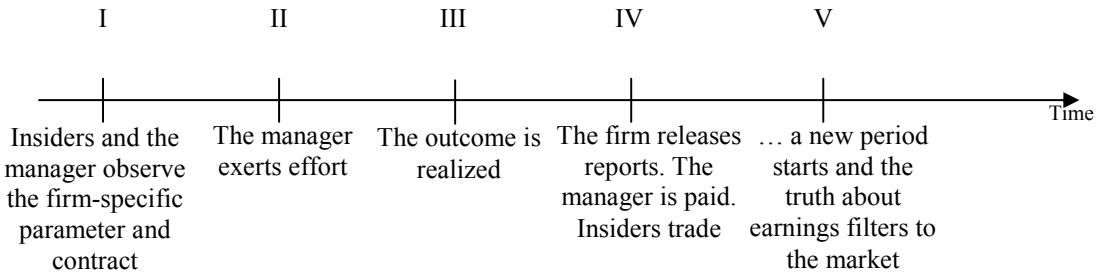
In this way, some firms might manage earnings downwards to give the impression that they are not doing well (Noronha, Zeng and Vinten, 2008), and to benefit from import relief and other state subsidies. Provisions of an import relief and other state subsidies will provide managers with an opportunity to increase the generosity of state subsidies for supposed harm done to national producers (Noronha, Zeng and Vinten, 2008).

3.1.3.3. POLITICAL INCENTIVES: INSIDER TRADING RELATIONSHIP

The accounting scandals (as we mentioned before, scandals and irregularities such as Enron, WorldCom, and Tico) brought into light the failure of corporate governance mechanisms to curbing earnings management. Contract designers are seen as lacking the financial expertise to correctly uncover the true outcome (Ronen, Tzur and Yaari, 2006). Ronen, Tzur and Yaari (2006) show that insiders induce earnings management and make trading gains by designing suboptimal incentives.

An insider trading relationship is willingness to benefit from private information and from other equity related incentives to manipulate the information by managers (see for example, Givoly and Palmon, 1985; Seyhun, 1986; Lakonishok, Shleifer and Vishny, 1994; Rozeff and Zaman, 1998; Ke, Huddart and Petroni, 2003). Insider trading has been connected to specific events, for example, announcements of share repurchases (Lee, Mikkelson and Partch, 1992) and dividend announcements (Karpoff and Lee, 1991). The process of the information of insider trading (insider trading is profitable) is presented in Figure 3.8.

Figure 3.8: A timeline of insider trading



Source: Ronen, Tzur and Yaari, 2006.

In Figure 3.8 we may clearly observe that the process of the insider trading relationship begins far before the publication of the reports. The insiders obtain the information from the managers about the firm-specific parameter and results (step I on the Figure 3.8). Then the managers' activities take place, outcome is obtained, means manipulation is prosecuted as was established, expected and determined with the insiders (step II and III). Then firms release the reports, the managers are paid, and the insiders trade (using the information obtained before) (step IV). A new period starts and the truth about earnings results emerge to the market.

In most cases, insider trading relationship and earnings management is discussed from the opportunism hypothesis, as we mentioned above, where insider trading is partly due to the willingness to benefit from private information. However, as pointed out by Beneish (1999) insider trading can be also informative about future earnings changes or management due to a specific event that may be for example price sensitive. Other study such as: Sloan (1996), Xie (2001), Penman and Zhang (2002), Richardson, Tuna and Wu (2002), Chan, Farrell and Lee (2007), among others, also suggest that insider trades are informative with buying and selling being followed by future price increases (decreases). There can be no doubt that insider trading motivates executives to influence future firm performance, and under this hypothesis, managerial accruals are focused on misleading outside investors and other stakeholders of the true nature of a company's earnings.

3.1.3.4. POLITICAL INCENTIVES: PRICE CONTROL

Based on the existing literature, we may find two types of firms existing on the market: firms in competitive industries (not price-regulated) and firms in non-competitive (price-regulated) industries. Within the price-regulated industries managers have incentives to use earnings manipulation, as a reason that regulated industries are subjected to regulatory constraints that managers may try to relax using earnings management mechanisms.

Watts and Zimmerman (1978, 1986) are the first who treat this political incentive for earnings management. They state that managers of firms in regulated sectors suffer acute pressure from antitrust authorities regarding price controls and market shares. Such pressure stimulates earnings management practices (Watts and Zimmerman, 1978). They suggest that managers in these price-regulated industries tend to report pessimistic earnings forecasts, since they do not want to appear overly profitable firms (Watts and Zimmerman, 1986).

Schipper (1998) suggests that obtaining favourable treatment from regulators is one of the conditions that give rise to earnings management. Healy and Wahlen (1999) argue similarly that there are incentives for firms in regulated industries to manage earnings in order to stay within regulatory constraints that are stated in terms of accounting numbers. Consistent with this argument, Petroni (1992) reports that firms in the regulated property-casualty insurance industry understate claim loss reserves in order to preempt attracting regulatory attention.

Cahan (1992) investigates firms that have been under investigation for anti-trust violations. He finds that discretionary accruals for firms that were under investigation were higher than those for the control sample (not under investigation). He concludes that managers in firms investigated for monopoly-related violations would have an incentive to use accounting procedures (e.g., accounting methods, accruals) that produce abnormally low levels of income. This is because the incentive to reduce income will increase as the threat of an unfavorable ruling becomes more imminent. Moreover, it is expected that managers will take additional steps to lower income while being actively investigated, compared with periods of non-investigation.

Key (1997) presents firms in the cable television industry that were under congressional investigation for breach of industry regulations. He finds that firms

manage earnings to diminish profitability when they are under investigation. Byard, Hossain and Mitra (2007) examine earnings management in US-based oil companies in the period immediately after the impact of hurricanes Katrina and Rita. They show that large petroleum refining firms – but not the smaller crude oil and natural gas production companies – recorded significant abnormal income-decreasing accruals in the fiscal quarter immediately after the impact of hurricanes Katrina and Rita (fourth quarter of 2005). These results are in concordance with the statement that oil companies that belong to regulated industries are more sensitive to political costs, and are engaged in earnings management.

Finally, Gill-de-Albornoz and Illueca (2005) affirm that when the government establishes a price increase for industries under price regulation, firms implement a conservative accounting policy in order to artificially reduce reported earnings (earnings management) and diminish their political visibility. In this way, they attempt to avoid claims for new price revisions from the public. In particular, Gill-de-Albornoz and Illueca (2005) investigate the Spanish electricity industry. The empirical evidence provided indicates that there is an inverse relationship between discretionary accruals and the annual change in the electricity price for all the models considered and at standard levels of significance. The electricity companies engage in conservative accounting policies when the government raises the prices. Hence, they reduce their political visibility and avoid social outcry and demands for a further decrease in charges. When the government reduces electricity prices, the political visibility of companies is lower, allowing them to disclose previously non-reported earnings.

3.1.4. OTHER INCENTIVES

Managers have different incentives to manage earnings, as presented in the previous sections. In the present section we centre on incentives not included previously, and which may also lead managers to earnings management.

Labor union contracts may be one of the incentives which are important to take into consideration if we talk about earnings management. As explained by Banning and Chiles (2007) there are differences between union firms and non-union firms because the unions alter the underlying employment relationship between employer and

employee. Different authors (see for example, Baldwin, 1983; Grout, 1984; Hilary, 2006; Matsa, 2010) describe unions as rent-seekers because they have incentives to use the threat of strike to extract quasi-rents from firms. As documented previously, managers facing strong labor unions tend to shelter firm resources to gain bargaining advantage over labor unions (see for example, Bronars and Deere, 1991; Klasa, Maxwell and Ortiz-Molina, 2009; Matsa 2010). Therefore, they are significantly concerned about their firms' performance deterioration because their job security is lower when their firms are not performing well. Unions are willing to exercise their bargaining power to reduce risky investment which may negatively affect firm performance in the future (Chen *et al.* 2008). Pagano and Volpin (2005) report that managers who do not have enough corporate controls tend to have favorable trade terms with workers. This implies that manager' incentives are better aligned with those of labor unions when managers have lower corporate ownership.

Proxy contests can be other motivation for earnings management. We may define a proxy contest as an event that may occur when a corporation's stockholders develop opposition to some aspect of the corporate governance, often focusing on directorial and management positions. DeAngelo (1988) finds that dissident stockholders who attempt to unseat management via a proxy contest typically cite poor accounting performance as evidence of managerial incompetence, and that managers respond by overstating earnings during an election campaign. As indicated, DeAngelo (1988) states that managers have incentives to overstate earnings during a proxy contest. Moreover, in a hostile takeover situation, management will employ all available defences in a proxy contest (Faleye, 2004), defences such as: repurchasing stock, acquiring a competitor of the bidder and filing private antitrust litigation, or turning around to acquire the suitor itself (Stulz, 1988; Bagwell, 1991), or earnings management to show a different image of the company.

Earnings management literature indicates also that ***contracts with regulatory authorities*** (this incentive easily could be also included in politics incentives) may also provide incentives to engage in earnings management to avoid regulatory intervention, see for example studies Key, 1997; Han and Wang, 1998. Studies on the Chinese regulatory regime (for example, Chen and Yuan, 2004; Haw, Qi, Wu and Wu, 2005; Cheng, Aerts and Jorissen, 2009) show that firms use earnings management to meet regulatory earnings thresholds and/or avoid regulatory delisting.

Of course, depending on the economic situation of the company, there may be, other motives, such as: earnings management motivated by simply ***high expectation of the executives*** to achieve good results. When they manage money or other assets within the company they want to makeup the result to hide their "crime". Managers sometimes have an excessively strong belief that they can "mask" what they have done and influence the company's earnings to show the company as profitable and beneficial. The temptation to deceive and mislead others is a human weakness that influences the way of presenting earnings and other performance metrics which are reported in the company.

3.2. FACTORS WHICH INFLUENCE ON EARNINGS MANAGEMENT

After presenting a wide range of incentives which may lead managers to earnings management, now we focus on circumstances which affect managers' decisions for earnings management. These circumstances or factors are certain conditions and characteristics of the environment which may influence on the managers' decisions related to the reported earnings.

These situations may contribute improving the managers' activities in manipulation earnings, or to restrict from the earnings management. We find different groups of factors:

- information asymmetry,
- characteristics of the accounting rules (boundaries of the regulation),
- corporate governance,
- characteristics of the firms,
- industry factor,
- economic cycle,
- audit,
- institutional factors.

3.2.1. INFORMATION ASYMMETRY

There is too much information available in the financial market. Within perfect, complete and efficient markets, there is no substantive role for financial disclosures since financial statements are completely relevant and completely reliable, and users of financial statements would not have conflict with managers over accounting judgments and thus no scope for accounting manipulation (see for example, Watts and Zimmerman 1979; Smith and Warner, 1979; Holthausen and Leftwich, 1983; Rodrigues and Teixeira, 2007). However, market imperfections exist, for example, information asymmetry, where managers may use these imperfections to apply earnings management. Following the study of Sun and Rath (2008) we may point out two major market imperfections: information asymmetry and agency costs, which are conditions for existence of earnings management. We have described agency costs in the previous sections, and here we focus on the information asymmetry.

Dye (1988) and Trueman and Titman (1988) demonstrate that the existence of information asymmetry between management and shareholders is a necessary condition for earnings management. Shareholders cannot perfectly observe a firm's performance and prospects in an environment in which they have less information than the manager. Precisely, due to the inherent advantage of asymmetric information and flexibility afforded to in reporting, wealth can be transferred from shareholders to managers (Sun and Rath, 2008).

Schipper (1989) highlights the condition for earnings management being the persistence of asymmetric information. In such an environment, management can use its flexibility to manage reported earnings. Furthermore, management's discretionary ability to manage earnings increases as the information asymmetry between management and shareholders increases. Richardson (1998) provides empirical evidence consistent with this line of reasoning. He finds that the extent of information asymmetry is positively related to the degree of earnings management.

In addition, managers of firms with greater information asymmetry are more likely to cheat investors and experience subsequent inferior stock performance of firms when the over-evaluation of the firm's earnings in the event year will be inversed. In contrast, for firms in a more transparently informational environment, earnings management is less likely to mislead investors by simply providing better or worse accounting numbers. That is, investors are more likely to "see-through" the manipulated

reported earnings, and thus the relationship of earnings management and subsequent stock performance should be much weaker (see for example, Dye, 1988; Trueman and Titman, 1988; Richardson, 1998, Lambert, 2006). Gaa (2007) presents two cases: decreasing information asymmetry and maintaining or increasing information asymmetry, see Figure 3.9.

Figure 3.9: Information asymmetry and motivation

	Pre-contract	***Post-contract***
Decrease information asymmetry (Transparency)	CASE A: To provide useful information to Stakeholders.	–
Increase information asymmetry (Secrecy)	CASE B: To issue financing; To engage in insider trading; To influence legal/ political issues, among others motivations.	CASE C: To maximize executive compensation; To avoid debt covenant violations.

Source: Gaa, 2007.

Gaa (2007) explains, there can be two types of information asymmetry: decreasing information asymmetry, as stakeholders are interested in transparency. They want information in order to evaluate the underlying economic performance of the company, and want to evaluate its ability to create earnings over the long run (Case A). The second group is referred to as the secrecy, which means increased information asymmetry. It comes from variability over time, the alteration resulting from the earnings management applied by the managers. Moreover, he points out two moments when it occurs: pre-contract and post-contract. When it is observed, there is alteration of the distribution of information for the purpose of either affecting stakeholders' evaluation of the underlying economic performance of the company. He calls it "pre-contract" (Case B). On the other hand, to influence contractual results that depend on reported accounting numbers, he calls this activity "post-contract" (Case C) (Gaa, 2007). As suggested by the author, information asymmetry can be observed in two moments, within the punctual moments of the company, such as publishing the annual reports, or during the ongoing process of the company, daily activities of the company.

Additionally, when information asymmetry is high, stakeholders do not have sufficient resources, incentives, or access to relevant information to monitor's actions, and this gives rise to the practice of earnings management (Warfield, Wild and Wild, 1995), or if the information asymmetry increases (as shown above) the earnings management increases.

3.2.2. CHARACTERISTICS OF ACCOUNTING RULES

The second group of factors that may influence on existence of earnings management refers to the characteristics of the accounting rules, which, to some extent allow firms to manipulate these rules without breaking them. Following Lainez and Callao (1999) we present the main aspects of the accounting rules which may facilitate the practice of earnings management:

- First, it must be pointed out, that the rules of different countries have ***different degrees of discretion*** in applying some of the accounting principles that guide the preparation of financial information.

The availability of discretion allows managers to make accounting choices appropriate to their businesses, so that reported earnings can convey information on economic earnings (Dye and Verrecchia, 1995). A reduction in discretion is predicted to lessen a manager's ability to communicate with shareholders (Healy and Wahlen, 1999; Schipper, 1989). Tan and Jamal (2006), for example, test the effect of accounting discretion on the ability of managers to manage earnings. Their results show that managers are more likely to engage in earnings management behaviour when there is significant discretion in accounting principles. To prevent managers from misrepresenting, standards setters may decide to limit the level of discretion left to prevent managers from engaging in earnings management. Consequently, Tan and Jamal (2006) show that when accounting discretion is reduced, managers are more likely to use operational variables for earnings management purposes.

Nelson (2003) also confirms the effect of accounting discretion on earnings manipulation. They categorize attempts by earnings-management approach and the financial-accounting area in which the attempt occurred. Demski (1998) also confirms

that when accounting standards allow for discretion, opportunistic managers can similarly report a decreased level of earnings, and this makes it difficult for investors to discern a firm's value from earnings patterns (Demski, 1998).

Thus, as an example of applying accounting discretion we may signalize the principle of prudence. The principle of prudence designates that the responsibility falls on the managers in the application of certain accounting rules. Generally Accepted Accounting Principles state that this principle aims at showing the reality "as is": one should not try to make things look prettier than they are (GAAP, 2008). Managers may consider different degrees of importance in applying some accounting choices, and their subjectivity of use in practice. For one company some principles can be non-risk and irrelevant application for they another can lead to important risk and may have significant relevance for the results of the company (Laínez and Callao, 1999).

As Hoogervorst (2012) highlights the principle of prudence is an inclusion of a degree of caution in the exercise of the judgements needed in making the estimates required under conditions of uncertainty.

- Another element of the characteristics of accounting rules is ***a prevalence of the fair view*** as a reference in elaboration of the accounting information.

It is expected that attainment of the fair view is a main objective to be pursued by the financial statements of the companies. As point out by Laínez and Callao (1999) thus, the performance of accounting practices is expected to fulfil the requirements of fair view but in practice, the real purpose of the managers could have been handled and hidden.

Adamek and Kaserer (2006) underline that giving a true picture of the current economic situation of a company is not an easy task and, even more importantly, cannot be done without leaving valuation judgements to the discretion of the management. This can be clearly seen in the context of the fair value accounting principle, which is a pillar of the true and fair view approach. Calculating a fair value is easy, as long as there is a market price. However, for many assets and liabilities fair value accounting is allowed although market values do not exist. It is evident that earnings management becomes an issue in these cases (Adamek and Kaserer, 2006).

More generally, one can say that the true and fair view principle makes economic judgement by people that are responsible for financial reporting much more

important. Guay and Verrecchia (2006) summarize that conservative accounting systems rely on easy-to-verify information, while true and fair view accounting systems rely on difficult-to-verify information. As a consequence, the latter are much more exposed to earnings manipulation than the former.

- Another key component of accounting characteristics is the necessity of the realization of the ***estimations and subjectivity*** which are involved in the application of certain criteria.

Some decisions in the accounting daily activities require the use of estimations by the managers. These estimations involve the subjectivity of managers and create uncertainty regarding the presented numbers.

Financial statement information in many situations is based on estimations. On the one hand, estimations of the accounting elements are potentially useful to investors because they are the primary source of information for managers to convey credibly forward-looking proprietary information to investors (Lev, Li and Sougiannis, 2005).

On the other hand, the numerous accounting estimates underlying financial information introduce a considerable and unknown degree of noise, and perhaps bias to financial information, clearly detracting from usefulness. Dechow, Sloan and Sweeney (1996) point out that the problem comes from the difficulties in generating reliable estimates, the expected and frequently documented susceptibility of accounting estimates to managerial manipulation, and the potential adverse impact of estimates on the usefulness of financial information. Given that it is very difficult to "settle up" with manipulators of estimates, even if an estimate turns out ex post to be far off the mark. It is virtually impossible to prove that ex ante the estimate was intentionally manipulated. There are no effective disincentives for managers to manipulate accounting estimates and thereby manage financial information (Lev, Li and Sougiannis, 2005). In this way, the impact of the numerous estimates and projections underlying accounting measurement and reporting rules on the usefulness of financial information is an open question. There is no doubt that estimations make possible the existence of earnings management.

Furthermore, managers exercise professional judgment in areas involving accounting estimates, uncertainties, and inherent subjectivity. An ample range of studies (see for example, Ewert and Wagenhofer, 2005; Cohen, Dey and Lys, 2008; Yu, 2008;

Lainez and Callao, 2009) show that accounting standards have an implication on earnings management behaviour, as a reason that a principle-based system creates and gives the preparer room to exercise professional judgment in areas involving accounting estimates, uncertainties, and inherent subjectivity. Just taking into consideration the Healy and Wahlen (1999) definition of earnings management, "*Earnings management occurs when management use judgment in financial reporting ...*", we may perceive that subjectivity and judgement of the managers' decisions related to use of accounting rules may easily lead to manipulation of earnings.

Manipulation appears, if management uses judgment in selecting accounting standards in order to mislead stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers. As noticed by Amor and Warner (2003), just simple accounting rules like "the lower of cost and net realisable value" are in practice a minefield of judgement (Amor and Warner, 2003). Given this subjectivity of accounting rules, a relatively high degree of earnings management may result as a consequence of the judgment of the managers' decisions. However, Baralexis (2004) states that detailed accounting regulation alone cannot solve the problem.

- In addition, ***the flexible nature of some accounting regulations*** may also facilitate the use of earnings management (Laínez and Callao, 1999). It comes from the situation that the higher degree of optionality of the rules, the greater the possibility for the company to make an accounting choice guided not by the importance of the fair view, which should be a goal of any company, but in order to obtain desired image of the company.

In the literature, there is an ongoing debate related to accounting rules and earnings management. Nelson (2003) explains that, for one side, tightening accounting standards reduces earnings management through judgments. Rigid and detailed accounting rules provide limited accounting options and restricting the scope for subjective judgments constrains the ability of managers to behave opportunistically (see also Watts and Zimmerman, 1990; Apellaniz and Labrador, 1995; Healy and Wahlen, 1999; Callao, Gasca and Jarne, 2008a; Chen *et al.*, 2010). However, at the same time, these rigid accounting norms leave accounting gaps. Not everything may be regulated.

On the other hand, Nelson (2003) also reviewed literature, including some experimental studies, and concludes that the aggressiveness of reporting decisions increases with an increase in flexibility in accounting standards. More flexible rules provide greater scope for choice and involving a higher degree of implicit subjectivity in the application of criteria allow managers a wide field to exercise their discretion (see also Jeanjean and Stolowy, 2008). Managers may do so in their own interest in the absence of effective control mechanisms.

Christie and Zimmerman (1994) distinguish between efficient accounting choice, which aims to improve decision-making and thus the value of the company, and opportunistic election, which is done in the interest of the company's management. Flexibility of accounting rules indeed favours opportunistic behaviour and may lead to the application of the accounting alternatives which they offer; and in consequence to opt for the options which benefits the managers (earnings management).

- The existence of ***accounting regulation's gaps*** is another phenomenon that enables companies to establish their own criteria and may lead to earnings management purposes.

The truth is that the complexity of some economic and financial operations is continually rising. Accounting standards cannot keep the pace in establishing accounting regulations. It leads that in certain situations there is a lack of applicable regulation that in consequence, enables companies to use earnings management.

According to the above debate, it is possible to deduce that in all countries, to some extent, exist accounting characteristics which may enhance earnings management. All companies may find incentives to develop such practices. As states Gray *et al.* (1997), although there is a collective desire to obtain a high level of accounting practices that conform to the accounting standards, in order to ensure better decision-making, it is almost impossible to achieve it.

3.2.3. CORPORATE GOVERNANCE

In recent years academic research is increasingly focusing on the relationship between corporate governance and earnings management, as a reason that the separation of ownership and control, which is inherent in the modern corporate form of organization, causes the agency problem between shareholders (the principals) and management (the agent). Sometimes the ownership structure of a company is highly dispersed, and shareholders generally hold more than one kind of security to diversify their risks. Therefore, no individual shareholder has enough incentives and resources to ensure that management is acting for the shareholders' interest Denis (2001).

Using the theoretical framework provided by agency theory, literature studied whether relevant governance control devices, such as the board of directors or the audit committee, are effective in reducing the earnings management (see for example, Francis and Wilson, 1988; Klein, 2002; Xie, Davidson and DaDalt, 2003; Cornett, Marcus and Tehranian, 2008; Jaggi, Leung and Gul, 2009). This emphasis is due in part to the prevalence of highly publicized and egregious financial reporting frauds such as Enron, WorldCom, Aldelphia, and Parmalat, an unprecedented number of earnings restatements (see papers of Loomis, 1999; Wu, 2002; Palmrose and Scholz, 2002; Larcker and Richardson, 2004) and claims of deliberate earnings manipulation by corporate management (Krugman 2002). Levitt (1999) stated in a speech to directors:

> *"the link between a company's directors and its financial reporting system has never been more crucial."*

We examine the role of the board of directors, the audit committee, and internal audit quality in preventing earnings management.

Among the set of corporate governance mechanisms, ***the board of directors*** is often considered the primary internal control mechanism to monitor top management, and protect shareholder interest. Fama (1980), for example, argues that the board of directors is a market-induced institution, the ultimate internal monitor of the set of contracts called a firm, whose most important role is to scrutinize the highest decision makers within the firm. Thus it is reasonable to hypothesize that an effective board of directors will help to limit earnings management.

There is a large literature examining the relationship between board monitoring and firm performance on various aspects such as stock return, operating performance and financial reporting quality (see for example, Weisbach, 1988; Brickley, Coles, and Terry, 1994; Dechow, Sloan and Sweeney, 1996; Beasley, 1996; Callao, Gasca and Jarne, 2008b). These papers confirm that the board of directors does affect firm performance. Even more, Ali Shah, Zafar and Durrani (2009) confirm that corporate governance practices have their main focus on improving the quality of financial reporting as well as on creating effective boards. Corporate governance codes all over the world chalk out the procedures for improving the quality and accuracy of financial statements.

Many studies show that the company board is a great source to control earnings manipulation and the quality of financial statements but the extent to which this control can be exerted depends on board characteristics. For example, the role of the board of directors has given special importance to restricting opportunistic earnings manipulation and conveying true information about firm operations as a result (Young, 2008). Different aspects and characteristics of various boards of directors have been studied in the literature.

The optimal size of a board is ensured by maintaining an adequate number of board members to perform the monitoring functions effectively. As Hermalin and Weisbach (2003) point out board size has been shown to be a significant part of the ability of boards to effectively monitor management and to work efficiently together to oversee the running of the business. Board size is an indicator of both its monitoring and advisory roles, both of which may contribute to its insight into management behavior (e.g., Anderson, Kadous and Koonce, 2004; Coles, Daniel and Naveen, 2008). The results from prior studies are mixed. The literature provides no consensus about the direction of the relationship between board size and effectiveness.

On the one hand, a larger board is less likely to function effectively and is easier for the CEO to control (Jensen 1993). Alonso, Palenzuela and Iturriaga (2000) confirm also that large boards exhibit poorer coordination and communication between members, and their results display a significant positive association between larger board size and earnings management. Chen (2010) examines the relationship between board characteristics and earnings management in Taiwan. He finds as well that large board size is related to a higher degree of earnings management. Rahman and Ali

(2006), also investigate the extent of the effectiveness of the board of directors, the audit committee and concentrated ownership in constraining earnings management among Malaysian listed firms over the period 2002-2003. Their study reveals that earnings management is positively related to the size of the board of directors. Klein (2002) also supports that the board's monitoring capacity increases as the size of board increases.

Nevertheless, larger boards are likely to provide more expertise and diversity and to increase the board's monitoring capacity (see for example, Pearce and Zahra, 1992 and John and Senbet, 1998). A larger board provides better environmental links and more expertise (Dalton *et al.,* 1999). Also Beasley (1996) finds a positive relationship between board size and the likelihood of earnings manipulation.

Xie, Davidson, and DaDalt (2003) argue that smaller boards are better able to make timely decisions than large boards (confirming the previous hypothesis). However, they state that larger boards with diverse knowledge are more effective for constraining earnings management than smaller boards. Xie, Davidson and DaDalt (2003) further contend that large boards with various experts are more likely to have a higher degree of independence than small boards. Similarly, Peasnell, Pope, and Young (2003) find that having a large board is better in reducing earnings management compared to smaller boards. Finally, Abbott, Parker and Peters (2000) find no relationship between the size of board of directors and earnings management. In this aspect of the board of directors no unanimity is found.

Other studies take into consideration the structure of the board of directors. They measure the proportion of independent and non-independent directors. Seamer (2004) and Peasnell, Pope and Young (2005) find that independent directors play more important monitoring roles than non-independent directors. Independent directors also have incentives to develop a reputation as experts in decision control and monitoring (Fama and Jensen 1983). Beasley (1996) finds a negative relation between the percentage of independent directors on the board and the likelihood of managing earnings.

Moreover, the perception and the effectiveness of the board of directors depends on the different environments where they operate. For example, in an Anglo-Saxon legal environment (UK and US studies) the authors identify that boards dominated by outsiders are arguably in a better position to monitor and control managers. Outside

directors are likely to be more independent of the firm's managers, and to bring a greater breadth of experience to the firm (Cornett, Marcus and Tehranian, 2008).

Other studies also confirm that effective governance and firm performance increase with board of director independence (see for example, see Brickley, Coles, and Terry, 1994; Byrd and Hickman, 1992; Weissbach, 1998). Moreover, the presence of an independent and competent board of directors should limit a manager's ability to manage earnings at his/her own discretion (Klein, 2002; Peasnell, Pope, and Young, 2003).

On the other hand, in different environment, such as the Spanish market, the authors point out completely different, opposite results. Osma and Noguer (2007), for example, show that reductions in the proportion of independent directors on the board are associated with a lower level of earnings management. They clarify the inefficiency of simply adding a large number of independent directors to the board for improving the quality of information and reduction of earnings management.

The second element of corporate governance is the ***audit committee***. The audit committee first appeared in the 1970s in the US, gaining prominence as a weapon against the financial scandals of the era (most notably thescandal involving the Equity Funding Corporation of America). Following these scandals the NYSE made Audit Committees a listing requirement in 1978 (Caput, Renz-Hotz and Golden, 2006).

Since then, governance codes have been launched in most developed countries, such as Cadbury and Smith report in the UK; Olivencia and Aldama report in Spain; Noerby reports in Denmark: or the King Committee in South Africa. Others have been proposed by international organizations such as the World Bank, the International Monetary Fund (IMF) and the Organization for Economic Co-operation and Development (OECD). In other countries, not only recommendation codes, but specific laws have been put into place.

In the US today, most public corporations are governed primarily according to the regulations contained in the Sarbanes Oxley Act, the Securities Exchange Commission (SEC) rules and the general principles of Delaware corporate law, the state where most of these companies are incorporated (Culp and Naskanen, 2003). The recommendations of such reports and codes follow current research in this area, and give the audit committee a very important role within the governance structure.

Research on this area strongly supports the idea that the existence of an audit committee constrains earnings management practices, particularly when the audit committee has a high proportion of independent members (DeFond and Jiambalvo, 1991; Klein, 2002; Xie, Davidson and DaDalt, 2003). Quick and Warming-Rasmussen (2009) as well stress the importance of the auditor independence. Again, these results are related to the environment.

A wide range of studies also explicitly considers the role of audit committees in earnings management (Klein, 2002; Xie, Davidson and DaDalt, 2003). They find that the level of earnings management is inversely related to the extent of audit committee independence. Klein (2002) studies US firms and finds that independent audit committees have a constraining effect on earnings manipulation particularly when a majority of directors are independent. Xie, Davidson and DaDalt (2003) find that more active rather than independent audit committees reduce the extent of earnings management.

Rather than the proportion of independent to non-independent audit committees it is better to stress following Xie, Davidson and DaDalt (2003) that an active, well-functioning, and well-structured audit committee may be able to prevent earnings management. Audit committee members with corporate and financial backgrounds should have the experience and training to understand earnings management.

Internal audit quality is the third element of the corporate governance mosaic. It is also one of the cornerstones of effective corporate governance (Institute of Internal Auditors, 2005). Internal auditing may play an important role in external financial reporting. Previous research shows that management's forecasts are more biased when it is relatively difficult to detect misrepresentation (Rogers and Stocken, 2005; Rodrigues, Castanheira and Craig, 2010), and management's communications are more likely to be biased when they are not verified by a third party means by audit (Rankin, Schwartz and Young 2002). Hence, high quality internal auditors might play an important role, as they can be seen as an additional third part of the company's structure (see Hermanson and Rittenberg, 2003; Stewart and Subramaniam, 2010).

Internal auditors are expected to "possess the knowledge, skills, and other competencies" needed to perform their individual responsibilities (Institute of Internal Auditors, 2005). The more competent the internal auditors, the more likely they are to

understand the factors leading to and the indicators of management bias in accounting accruals and how it can be moderated (e.g., see Anderson, Francis, and Stokes, 1993; Hermanson and Rittenberg, 2003; Stewart and Subramaniam, 2010).

As always, not everything is so clear. There are studies which do not confirm that internal auditors restrain from earnings management. Using a sample of 434 Australian companies, Davidson, Goodwin-Stewart, and Kent (2005) find no evidence that the presence (versus absence) of an internal audit quality is associated with a lower level of earnings management. Asare, Davidson, and Gramling (2003), as well, demonstrate that internal auditors are sensitive to management's incentive to misreport financial information and increase budgeted work hours when management has a high incentive to misreport. We may conclude, that the existence of internal audit quality will not secure the absence of earnings management, but that the existence of a high quality internal audit will decrease the probability of earnings management (Prawitt, Sharp, and Wood 2008).

3.2.4. CHARACTERISTICS OF FIRMS

Another factor which needs to be considered is related to the characteristics of the firms, and in particular the **size of the company**. Sun and Ruth (2009) examine earnings management behaviour and several characteristics of firms which may have an impact on the managers' behaviour. In particular they analyse Australian firms at the individual firm level through several characteristics known and associated with earnings management, including the size of the firms. The question is: if the size of the company has an impact on the existence of earnings management.

The literature is extensive and unanimous. It confirms that there is a correlation between the size of the company and the existence of earnings management; nevertheless the studies present different results. Bathke, Lorek and Willinger (1989), for example, document a relationship between firm size and earnings manipulation and their implication for the firm. Holland and Jackson (2004) also make a view on the firm size and the appearance of earnings management.

The review of related literature shows evidence of the causal relationships between firm size and earnings management. These relationships lead one to

hypothesize that firm size has an impact on earnings management. Within this impact, we may find two opposing views, as discussed below.

For one side, the larger the firm size, the less earnings management may be feasible. We may observe several arguments. As indicated by Burgstahler and Dichev (1997) larger companies may have more sophisticated internal control systems as compared to smaller companies, and in this way less possibility for earnings management. Beasley, *et al*. (2000) report that larger firms are more likely to design and maintain more effective internal control in comparison to smaller firms, reducing the likelihood of manipulating earnings by management.

Second, large firms take into consideration reputation costs when engaging in earnings management. Large firms have usually grown up with a long history during which they may have better appreciation of market environment, better control over their operations and better understanding of their businesses relative to small firms (Beasley, *et al*., 2000). The cost of engaging in earnings management will be higher for large firms than small firms. Therefore, their concern about reputations may prevent large firms from manipulating earnings (Beasley *et al.*, 2000).

In consideration of the above reasons we expect that larger firms tend to apply opportunistic earnings management less than smaller one. A study of Kim, Liu and Rhee (2003) confirms our statement. They find that small firms engage in more earnings management than large or medium-sized firms to avoid reporting losses. Also Lee and Choi (2002) find that small companies tend to more frequently manage earnings than do large companies.

On the other hand, other studies point out a completely contrary result. We may find a large body of studies which show that large and medium-sized firms exhibit more aggressive earnings management. Also here, we uncover different reasons to ground the statement. First, Barton and Simko (2002) indicate that large-sized firms face more pressures to meet or beat the analysts' expectations. More pressure means more inclination to earnings management.

Second, large-sized firms have greater bargaining power with auditors. The larger the firm size, the more bargaining power they have in negotiations with auditors. Nelson, Elliott and Tarpley (2002) document that auditors are more likely to waive earnings management attempts by large clients.

Third, large-sized firms have more space to handle having a wide range of accounting treatments available. They may have greater current assets, i.e. better ability, to do earnings management than small-sized firms (Kim, Liu and Rhee, 2003).

Fourth, large-sized firms have stronger management power. Even though strong internal control systems do exist, the management may override the internal control system to manipulate earnings to outrun the thresholds (Rangan, 1998; Dechow and Skinner, 2000).

These competing views and evidence raise a question as to whether large firms are more likely to manage earnings than small firms, or small firms are more likely to use earnings management than big ones. However, the literature remains without a clear response. Nevertheless, firm size is a variable that may influence on managers' decisions to manage earnings. The size of the company has an impact on the sensitivity of the presented financial reports (also see, Hagerman and Zmijewski, 1981; Bowen, Noreen and Lacey, 1981; Dhaliwal, 1988). Following Watts and Zimmerman (1978) we may conclude, that firm size is a factor for the determination of accounting numbers.

Another characteristic of firms is a control for the effects related to the holder of the company: **state-owned companies**, and **private hands companies**. The property rights of state-owned enterprises belong partly or entirely to the government (public), on the contrary to private hands companies, where the property belongs to the private owners. State-owned companies have a special relationship with the government; hence, they may gain more protection from the government. Moreover, generating profit is not the only goal of state-owned enterprises. State-owned enterprises undertake also various social responsibilities, such as maintaining social stability and providing employment (Chen *et al.*, 2011). Therefore, we observe significant differences between state-owned and non-state-owned companies (private hands companies). Literature on earnings management, as well finds differences in managing earnings by the state-owned companies and by the privately-owned companies which result from many different reasons.

First, state-owned companies gain more financial and political support from the government than non-state-owned companies (Qian, 1994). This is because the government can also gain a lot of resources to improve their political capital and

promotional opportunities from the success of state-owned companies (Li and Zhou, 2005). Besides, the possibility of principal-agent conflict exists in both state-owned companies and privately-owned companies; however, it is more difficult to address the agency problem in state-owned companies than in privately-owned companies. It is because in state-owned companies there is an extra agency relationship, as the controlling owner is the state/ government (Chen *et al*., 2011). Wang (2011) affirms that government intervention is the key reason for the inefficiency of state shareholdings from a political perspective. The interests of these de facto controllers are very likely to be different from those of minority shareholders, and those of the state that they represent. When the owners gain control of the companies, they will pursue their own interests at the expense of both minority shareholders and the state. This means that even when ownership concentration solves the agency problem between the controlling owner and minority shareholders, another agency conflict problem remains in state-owned companies.

Finally, in state-owned companies generating profit is not the only goal of state-owned enterprises. State-owned enterprises also undertake various social responsibilities, such as maintaining social stability and providing employment (Li and Zhou, 2005). By the special connection with the government, state-owned companies gain more financial and political support (Qian, 1994). This is because the government can also gain a lot of resources to improve their political capital and promotional opportunities from the success of state-owned companies (Li and Zhou, 2005). Faccio (2006) points out that firms can benefit financially through their political ties in the form of direct and indirect government subsidies.

Therefore, according to the prior observations, it is complicated to decide whether state-owned or private hand companies have more/less incentives to opt for earnings management, as they have completely different motivations and they work in different circumstances. Li, Liu, Eddie (2011), for example, find that state-owned companies, manage their earnings more since the empirical findings indicate that being state-owned cannot mitigate earnings management. State-owned companies are indirectly controlled by the government, so the control is weaker than in private companies (Watanabe, 2002).

On the other hand, Ding, Zhang, and Zhang (2007) argue that privately-owned companies tend to maximise accounting earnings more than state-owned companies.

Also privately owned firms may be in a weaker position because of specific political and historical factors (especially for Eastern European countries). Therefore, they are under pressure to report a better-than-real financial performance to reassure the market (Ding, Zhang, and Zhang, 2007).

3.2.5. INDUSTRY FACTOR

Many studies assume the industry factor as an important element to be considered in earnings management (see for example, Watts and Zimmerman, 1986; Godfrey and Koh, 2001; Kallunki and Martikainen, 1999; Feres de Almeida *et al.,* 2005; Lin, 2006; Lee, 2007; Jiao, Mertens and Roosenboom, 2007; Callao and Jarne, 2011; Datta, Iskandar-Datta, and Singh, 2013). A firm operating within one industry may be more tempted to manage accounting earnings than one operating in another. As Watts and Zimmerman (1986) confirm firm industry is seen as an important variable in determining accounting choices, because the proprietary costs vary according to industry.

The level of earnings management of the firm may depend on the level of earnings management of other firms operating in the same industry. Kallunki and Martikainen (1999) explain that it is because investors compare the economic conditions of firms within the industry. If the extent of earnings management differs considerably from the industry-wide average, investors and other stakeholders may regard it as a signal of the future success of the firm. In other words, the amount of earnings management of a firm cannot be expected to deviate too much from the industry-wide average in the long run (Kallunki and Martikainen, 1999). Jiao, Mertens and Roosenboom (2007) confirm that firms in the same industry face similar market conditions and (growth) prospects, therefore earnings management may be expected to be similar. Trueman (1990) explains that managers try to adjust their earnings to match industry results.

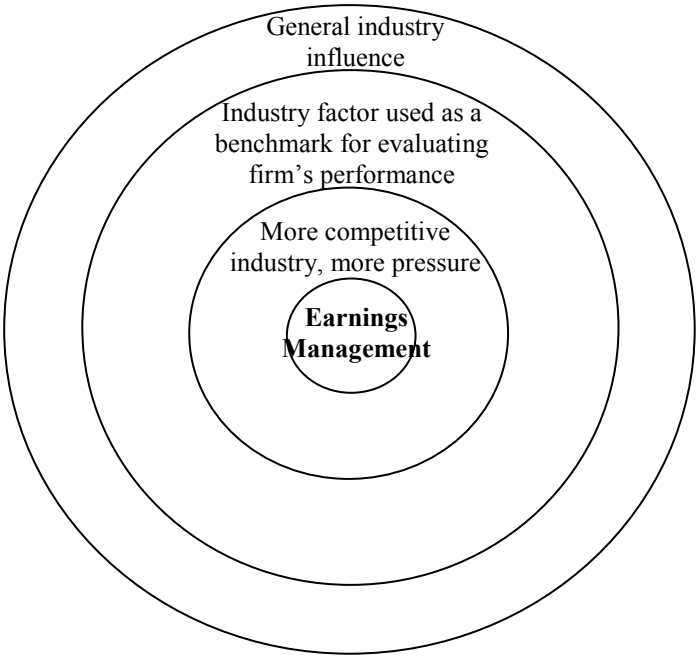
Member firms of an industry operate in similar business environments, perform similar operating activities, and follow similar accounting/reporting practices. As a result, their reported earnings are known to co-move greatly (Park and Ro, 2004). Watts and Zimmerman (1990) confirm as well, that companies in the same industry have

interests in producing the same level of disclosure as the other companies in the same industry in order to avoid being negatively appreciated by the market (competitive pressures).

Beneish (2001) adds that certain industries may provide more incentives to manipulate than others. It is associated not only with the fact that certain industry belongings may lead to higher incentives for increasing or decreasing earnings management, but also it is explained that in specific sectors different level of competition affect companies (Beneish, 2001). Additionally, Datta, Iskandar-Datta, and Singh (2013) show that more competitive industries are associated with greater earnings manipulation. Firms operating in a competitive industry show greater propensity to inflate earnings (Datta, Iskandar-Datta, and Singh, 2013). At the industry level, firms in more competitive industries are expected to resort to greater degree of increasing earnings management because they are less able to pass along an adverse cost shock to the consumers in that industry (Verrecchia, 1983). Moreover, it is predicted that firms in industries characterized by intense competition will opt to report less useful information (Gertner, Gibbons and Scharfstein, 1988; Verrecchia, 1983) due to the adverse impact from disclosure. Firms in industries characterized by intense product market competition prefer less informative disclosure policies to reduce predatory threats from rivals (Verrecchia, 1983).

Finally, the industry earnings performance may be as well used as a benchmark for evaluating member firms' performance (Antle and Smith, 1986) as was observed in the studies of Magee (1974), Holmstrom (1982), Antle and Smith (1986), Foster (1986), Gibbons and Murphy (1990), Pyo and Lustgarten (1990), Freeman and Tse (1992). Magee (1974), for example finds industry factors explaining 16.2% of a firm's earnings. Foster (1986) reports that industry factors explain as much as 36% of member firms' earnings, while economy-wide factors explain 17%. Due to the co-movement, one firm's earnings information affects other firms' earnings decisions via intra-industry earnings information transfer. Figure 3.10 explains pressures of industry factor.

Figure 3.10: Industry factor and its pressure on managers' decisions for earnings management



Source: The author.

3.2.6. ECONOMIC CYCLE

The economic cycle understood as a natural fluctuation of the economy between periods of expansion (growth) and recession may easily influence on executives' decisions[1]. Johnson (1999) and Chen (2010) state that firm's earnings volatility is correlated with economic cycles. Within the abundant studies of earnings management, the authors underline the influence the economic cycle has on the existence of earnings management. Based on the published papers we detect two main tendencies.

The first group of papers indicates that when the economy, as a whole, is performing well, managers will be under pressure to report increased earnings. Therefore, managers at firms that perform worse than their peers in "good times" will be penalized by the capital markets if their reported earnings fail to meet expectations. Alternatively, when the economy as a whole is not performing as well, the penalty for

[1] For definition of economic cycle, see for example, studies of: Ohn, Taylor and Pagan (2004), Lee, Lee and Mason (2006), Dustmann, Glitz and Vogel (2009), among others.

not reporting positive results might not be as severe as in "good times" (Cohen and Zarowin, 2007). This simple logic leads us to predict that managers' concerns and performance evaluation will provide incentives to manage reported earnings upwards in "good times" versus "bad times" (Cohen and Zarowin, 2007).

Similarly, Conrad, Cornell and Landsman (2002) stress that firms have a greater tendency to manage earnings upward during good times. Thus, firms face greater incentives to avoid poor earnings when the economy is up, so they are more prone to boost earnings at such times. Other authors, such as: Khurana *et al*. (2006) and Rajgopal, Shivakumar and Simpson (2007), confirm the above hypothesis that earnings management increases during good times, and the market's response to bad news is most severe during good times.

A recent study by Filip and Raffournier (2011) of the impact of the 2008-2009 financial crisis on earnings management was based on a sample of 16 European countries. They confirm that managers manage less earnings in the crisis years.

Finally, Cimini (2015a) confirms that after the burst of the financial crisis companies it is observed the reduction in earnings management. He analyzed an ample sample of non-financial entities listed in the 15 countries that belonged to the EU. He is reasonably confident about reduction in earnings management during the crisis because, on the one hand, the increase of conditional conservatism during the financial crisis should raise earnings quality and impair earnings management; on the other hand, the close monitoring activity of the auditor (most of the cases were represented by a Big 4 auditor) during the crisis contributes to an increase in the quality of financial reporting, which reduces earnings management, thanks to the scrutiny of the auditor.

A second group of studies show a contrary tendency, documenting that during periods of crisis one is likely to observe more earnings management, and in periods of prosperity less earnings manipulation. Ahmad-Zaluki, Campbell and Goodacre (2009), for example, provide evidence of earnings management in Malaysian IPOs during a period of economic stress. They show two main reasons explaining the results: firstly, in the crisis, companies cannot use subsidiaries as a financial buffer. And secondly, financial stability attracts more attention than financial reporting transparency.

Conrad, Cornell, and Landsman (2002) describe, as well, that during periods of crisis, managers manipulate more earnings to cover their financial gaps and fulfil the companies' objectives. Managers may try to smooth the effect of fluctuation of the

markets because, as explained by Baulkaran and Asem (2012), the market reacts more adversely to negative earnings news. The string of news is important in determining investors' reaction to earnings news when the market continues in the same state, while the effect of market transitions on investor overconfidence drives reactions during market transitions (Bhattacharya, 2001; Baulkaran and Asem, 2012). Hence, managers may mitigate the negative impact of the economic situation by manipulating earnings upwards.

Callao and Jarne (2011) also show that earnings-increasing discretionary accruals have increased during the crisis, confirming that crisis periods affect to financial reporting quality. This is not due to crisis as such, but the crisis has strengthened some incentives to manage earnings, such us the indebtedness.

3.2.7. EXTERNAL AUDIT

In the literature it has been debated what the role of the external auditor related to the companies and the possible existence of the manipulations should be. Its positions have varied over the time (Quick and Wolz, 1999; García-Benau and Martínez, 2003). Chandler, Yoshinori, and Werbel (1994) and Quick (2012) show that although the audit objectives have been changing. The public has always expected that auditors are detectors of manipulation. There is an ongoing debate on whether the primary role of the audit should be detection and prevention of the manipulations or express an opinion about the quality of financial statements. On one side, the external audit assesses the validity and reliability of publicly reported financial information; and the main objective in this way, is to express an opinion on whether statements comply with accounting standards (Larcker, 2011). On the other hand, various facts, especially business failures caused by financial manipulation, point out those auditors are the eyes and ears of the public. External auditors, besides accountants and internal auditors are an important mechanism to prevent reporting manipulation (Balkaran, 2008; García-Benau, Jaramillo, and Pérez, 2013; Quick and Aschauer, 2014). They may play an important role in moderating earnings management by minimizing managers' opportunities to manage earnings in the fourth quarter (Brown and Pinello 2007). Several studies examine the association between audit quality and earnings management, see for

example, Becker *et al.*, 1998; Davidson and Neu, 1993; DeFond and Subramanyam, 1998; Francis, Maydew and Sparks, 1999.

Earnings management studies examine whether auditors are sensitive to management's incentives to manage earnings (see for example, Hirst 1994; Anderson, Kadous, and Koonce, 2004; Dikolli, McCracken, and Walawski 2004). Hirst (1994) finds that auditor judgments of the probability that a material misstatement exists are sensitive to managers' buyout-induced incentives to make income decreasing accruals. However, when managers' incentives are instead associated with bonuses, auditors are not affected by whether unexpected financial statement fluctuations are driven by managers' compensation motives. Anderson, Kadous, and Koonce (2004) find that auditors view a client with high incentives to manage earnings as more likely to report aggressively and more likely to want to make the financial statements look good. This study shows additionally that auditors view a manager with high incentives to manage earnings as more likely to provide information that does not reflect his/her true beliefs, or the underlying facts. They are more likely to manipulate the accounting results. An important attribute of this experiment is that management incentives are operationalized with corporate risk factors such as client tenure, public versus private company, debt covenant status, etc.

Dikolli, McCracken, and Walawski (2004) present the impact of different types of employee-client compensation contracts on auditors' planning judgments. One of the main findings of this study is that the type of compensation contract used to reward managers (i.e., contracts based on financial measures, non-financial measures, or fixed-salary-only) impacts audit planning judgments. The findings also suggest that auditors perceive contracts based on financial measures as having greater audit risk than contracts based on non-financial measures. Therefore, risk again appears to be a key mediating variable in assessing auditor judgments of manager's incentives to manage earnings. All of these studies show the effectiveness of external audit operations. However, accounting scandals of high profile companies (e.g. Enron, WorldCom, Global Crossing) have questioned the effectiveness of the credibility of audit functions.

The post-Enron era has witnessed a growing concern with issues of external auditor quality. For example, the mandatory rotation of audit firms after a fixed period of tenure has again been suggested as an important way by which auditor independence could be enhanced (Catanach and Walker, 1999). In light of the changing situation the

role the external auditor transforms into the key factor which may have significant influence on the existence and scope of earnings manipulation (García-Benau and Martínez, 2003). In other words, at present the auditor is considered as a factor to prevent or limit managers' ability to manipulate, but that alone is not enough and not necessarily always true.

As García-Benau and Martínez (2003) suggest, within the audit two aspects must be considered: the capacity of the manipulation detection, and the independence of the auditors. The first one points out the aspect of continued training and preparation of the auditors, which clearly affects the quality of the audit provided. In this regard, proper training on the techniques and procedures used in execution is a key factor in determining the ability to detect manipulations. For example, in the professional audit report of fifteen European Union countries it is found that theoretical and practical training requirements and ongoing training requirements are different. They affect the level of technical ability to detect earnings manipulation (Buijink *et al.* 1996).

The second aspect is related to the independence of external auditors. Given a certain level of technical competence, objectivity of auditor is needed. However, there is also great diversity in such regulations under the European Union (García-Benau and Martínez, 2003). In this situation the lack of auditor independence to audited entity may lead to two types of problems: first, an operational problem, as the auditor will tend to avoid the audit part of companies that can lead to problems, which later it would have to report. The second problem is associated with the formation of professional judgment issued in the report. An auditor tends to not report serious problems that have been detected in the course of their work (García-Benau and Martínez, 2003). The conclusion is clear, external auditors try to constrain managers from managing earnings of their companies.

3.2.8. INSTITUTIONAL FACTORS

Academic literature provides papers on the impact of institutional investors' ownership on the level of discretionary accruals. Shleifer and Vishny (1997) and La Porta *et al.* (2000) identify investor protection as a key institutional factor affecting corporate policy choices. However, following earnings management literature and

research on motivations for earnings management, we may observe that within the institutional factors, besides the investor protection, we find investor protection, ownership concentration, and legal enforcement. Though all of these elements are connected.

Investor protection: It can be seen as an important element of earnings management (Leuz, Nanda and Wysocki, 2003), as mentioned. Managers can have motivations to conceal the performance of their entity by manipulating earnings presented to stakeholders. Those stakeholders, and in particular shareholders and creditors, are protected by legal provisions of a country, which are laws and regulations concerning the withholding of information by firms or the provision of misleading information to stakeholders (Vries, 2012).

According La Porta *et al.* (1998) there are significant differences across countries in the degree of investor protection. Their empirical evidence indicates that investor protection is stronger in common-law countries (the United Kingdom) than in civil-law countries (France and Germany). Countries with a common-law origin tend to have more extensive disclosure requirements, stronger private and public enforcement of securities regulation, stronger shareholders and creditor rights (La Porta *et al.*, 1998; La Porta *et al.*, 2006). Within civil-law countries, France and Germany are distinct from each other in terms of investor protection. La Porta *et al.* (1998) relates for France more extensive outside investor protection than for Germany. Thus, regarding investor protection, France is in the middle of the United Kingdom and Germany.

Leuz, Nanda and Wysocki (2003) argue that, in countries that have weak investor protections, controlling family insiders may have a desire to mask true firm performance and to conceal their private control benefits from outsiders. On the other hand, in countries with weak investor protections and less developed financial markets, the controlling families are more likely to expropriate minority shareholders and increase overall agency problems because of a sharp conflict between the controlling family and minority investors.

Ownership: The ownership structure of a firm is considered an important institutional factor and monitoring mechanism. In consequence, it may have a monitoring role in constraining the existence of earnings management. Extent literature suggests two different views in relation to the expectation for firms in terms of ownership concentration.

Ownership concentration is positively related to earnings management. It states that higher ownership concentration improves the quality of managerial decisions. This is because the presence of a small number of holders leads to closer monitoring of management, implying less opportunity for earnings manipulation. Managers of firms that are highly concentrated stand the chance to be highly monitored (see for example, Ramsey and Blair, 1993; Dempsey, Hunt and Schroeder, 1993; Warfield, Wild and Wild, 1995; Dechow, Sloan and Sweeney, 1996; Jiambalvo, 1996, Yeo *et al.*, 2002; Jiambalvo, Rajgopal and Venkatachalam, 2002). Ali, Salleh and Hassan (2008) extend the conclusions. Managerial ownership is found to be an effective monitoring mechanism, particularly in small firms. This result may suggest that managerial ownership should be encouraged in small firms so that it can substitute for the weakness of other corporate governance mechanisms.

However, other studies document evidence suggesting that ownership concentration actually may induce to earnings management (lower ownership concentration representing in higher number of shareholders) (e.g Morck, Scheifer, and Vishny, 1988; McConnell and Servaes, 1990; Aharony, Lee and Wong, 2000; Wang Xu and Zhu, 2001; Abdoli, 2011; Halioui and Jerbi, 2012). The argument here is that, large shareholders have the capacity to pressure the managers to improve earnings so that their market value may improve. Due to this excessive pressure, the managers will have to resort to earnings management.

Legal enforcement: Legal enforcement is closely connected with the previous aspects of investor protection and ownership concentration. Legal enforcement protects investors by conferring them rights to discipline insiders (in other words, to replace managers), as well as by enforcing contracts designed to limit insiders' private control benefits (see for example, La Porta *et al.*, 1998; Nenova, 2000; Claessens *et al.,* 2002; Dyck and Zingales, 2002). As a result, legal systems that effectively protect outside investors reduce insiders' need to conceal their activities. Leuz, Nanda and Wysocki (2003), for example, make an analysis based on financial accounting data from 1990 to 1999 from 31 countries. They prepare a country cluster analysis by grouping countries with similar legal and institutional characteristics. Three distinct country clusters are identified:

(1) outsider economies with large stock markets, dispersed ownership, strong investor rights, and strong legal enforcement (for example, United Kingdom and United States);

(2) insider economies with less-developed stock markets, concentrated ownership, weak investor rights, but strong legal enforcement (for example, Germany and Sweden); and,

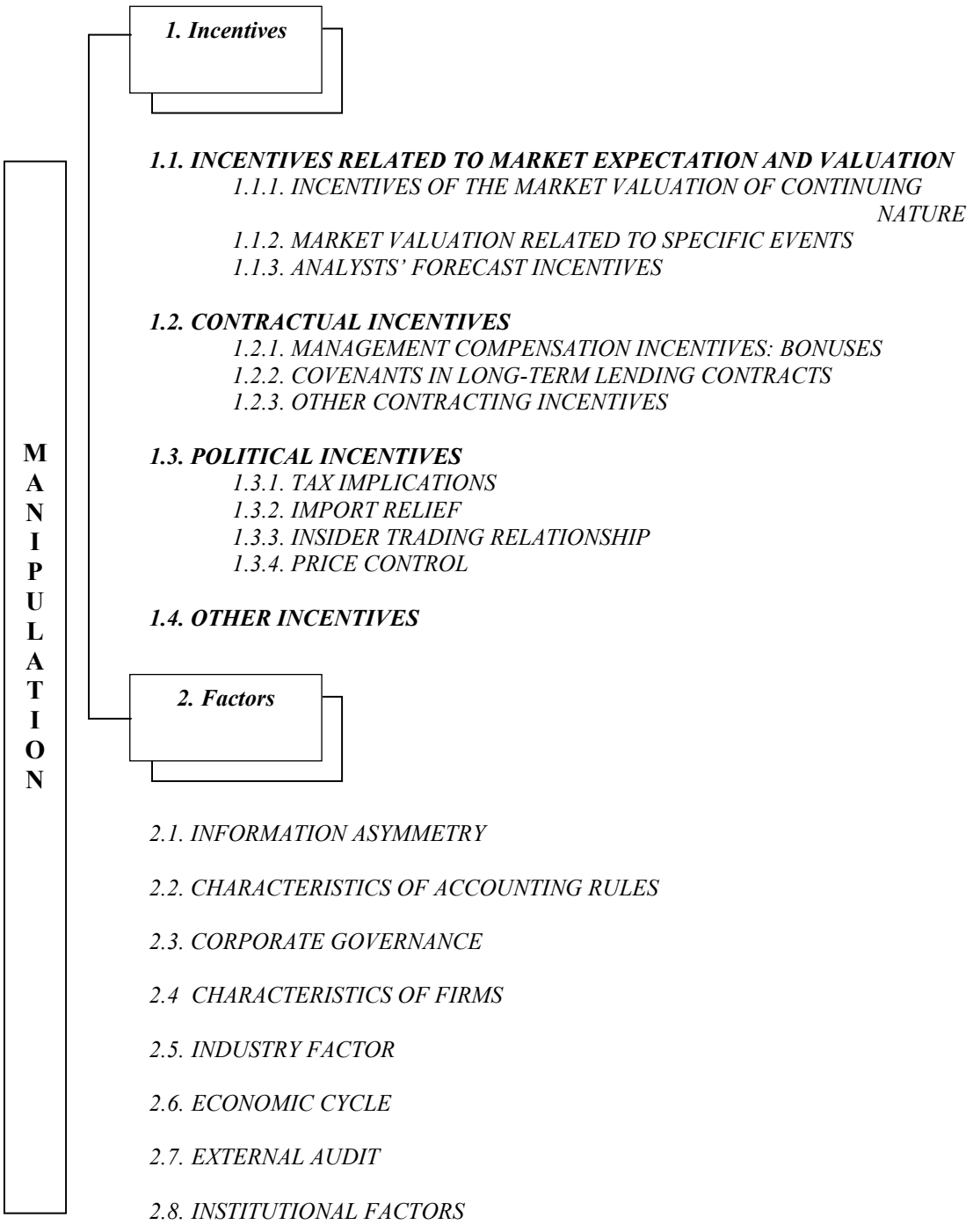
(3) insider economies with weak legal enforcement (for example, Italy and India).

They find significant differences in earnings management across these three institutional clusters. Outsider economies with strong enforcement display the lowest level of earnings management and insider economies with weak enforcement the highest level of earnings management. That is, earnings management appears to be lower in economies with strong legal enforcement.

3.3. CONCLUSION

Earnings management literature attempts to understand why managers manipulate earnings, and if manipulation exists, authors try to find circumstances which may influence managers' decisions. Accounting research tries to examine different incentives and factors that affect the earnings management behaviour of managers. Incentives include actions which affect managers' behaviour in terms of pressures, or related to ambiguous situations, or the desire of managers to undertake special goals and objectives marked by executives. On the other hand, managers' manipulation depends additionally on some factors which influence on environment where companies operate. Managers may be faced with circumstances of environment. These circumstances have a direct impact on level of earnings management, as more favorable conditions facilitate manipulation, more strict characteristics of the business environment, preserve from manipulation. Figure 3.11 outlines incentives and factors for earnings management.

Figure 3.11: Reasons for the manipulation of the earnings



Source: The author

In the next chapter we centre on the particularities and circumstances of Eastern European countries, as we perceive that legal, economic, cultural and political situations in Eastern European countries are different than they are in Western European

countries. Leuz, Nanda and Wysocki (2003) find a relationship between institutional factors, such as legal enforcement, investor protection, etc., and earnings management. So it makes us think that earnings management in these countries can be different than it is in Western Europe.

Furthermore, the Eastern Europe market is a post-communist market. These countries are in transition to democratic politics and market economies (access to the European Union). Old regimes collapsed and the development of new ones adapted to democratic and market-oriented societies to create a combination of weak and inconsistent legal frameworks and lack of controls, in combination with the persistence of the culture of state intervention, and facilitated by the emergence of corruption as one of the key governance problems of this region. In addition, the incentives to manipulate may be different. These countries entered into the European Union (EU) a few years ago. This fact leads changes in the institutional, technological and economic environment raising new challenges for the firms. One of these challenges is to be competitive in a global and wide market.

Moreover, entrance into the European market brings the necessity to reduce the possibilities of managing results. Candidate states under the political pressure of the European Commission and incentivized by the benefits to be derived from EU membership, implemented numerous legislative anti-corruption measures. During transition countries with EU access were the most active in reviewing and amending key legislation for corruption prevention. These changes were probably perceived by the companies to reduce earnings management.

Finally, it is also perceived that economic situation is different than in Western European countries: different economic growth, the level of corruption, national gross product per person, among others. Therefore, it can be other possible source of reasons for earnings management in these countries.

According to the above arguments we may identify some differences between Eastern and Western European countries. In this way, we may also expect that reasons for earnings management may be different. As a consequence, in the following chapter, we describe the markets of Eastern European countries. We focus on the possible incentives which managers from the East of Europe may have. We will also investigate which factors may lead to create the space for manipulation for managers, or other sets of factors which may limit their activities.

CHAPTER 4

CHARACTERISTICS OF EASTERN EUROPEAN MARKETS. REASONS FOR THE SELECTION OF EMERGING EASTERN EUROPEAN COUNTRIES

We observe that earnings management has received considerable attention in accounting and financial literature. Nevertheless, growing markets like the Polish market, Hungarian market, the Czech Republic market, or Slovakian market are still unexplored. It is certain that, the process of globalization and deep economic changes have taken place, not only in the Western European countries, but also in less developed and developing countries, like Poland, Hungary, Slovakia or the Czech Republic. Consequently, investigation on Eastern European countries is needed.

The main purpose of this chapter is to explain the economic, cultural, political circumstances, accounting regulation, among others, of Eastern European markets, to give reasons why this market may be interesting form the point of view of investigating earnings management. By providing direct evidence from the Eastern European markets we try to fill in the gap of earnings management investigation, focusing on the markets until now not explored related to earnings management (or barely explored). We find only few studies based on Eastern European sample (only on Polish sample); hence, this study represents one of the first comprehensive attempts to examine earnings management in Eastern European markets.

The remainder of this chapter is organized in the following manner. The first section discusses a panoramic view on Eastern European markets. We show key elements of the Eastern countries, milestones of the transformations of this market, and some economic data and implications for the necessity of information. The second section focuses on sample selection. Finally, in the third section we take a view on the characteristics of selected countries via different dimensions, such as, legal tradition, accounting rules, investor protection, audit quality, level of transparency, etc. This part describes shortly the situation of each selected country, according to the possible incentives for earnings management and factors which may influence that practice.

4.1. PERSPECTIVE ON EASTERN EUROPEAN MARKETS

Historians will likely conclude that one of the most significant events of the late 1980s and early 1990s was the unexpected upheaval and revolution in Eastern European countries. Little, if any, economic reform planning took place in anticipation of transforming centrally run economies into market driven societies (Brouthers and Lamb,

1995). Robert M. Solow, former Nobel Memorial Prize winner in Economic Science, noted that "Western economists, don't know how the Eastern bloc institutions and state enterprises work or how to model an economy that is half market driven and half controlled by bureaucrats" (Solow, 1990) referring to an unknown tendency of Eastern European markets. Uchitelle (1989) affirms in relation to Eastern European countries, that "if you are the head of a Russian economics institution, the status thing to do is have some American economists as consultants".

The Eastern European market increasingly gets importance within Europe. Until the 1980's this market was forgotten, as a result of the political situation (the bloc of communist countries and their separation from Europe). It is necessary to consider a set of questions when investigating Eastern European countries. Fischer and Frenkel (1992) for example point out that those countries from the Eastern bloc communists countries have being developing over the years since the communist regimes collapsed. Their strategy contains the following components:

1. Macroeconomic stabilization, requiring both a budget that is close to being balanced and tight controls over credit.
2. Liberalization of the prices of most goods.
3. Current account convertibility of the currency.
4. A social safety net.
5. Privatization of state property.
6. Laws to accommodate and facilitate the development of a market economy.

Each of these components is a monumental task.

Lipton and Sachs (1991) on the other hand, focus only on the "privatization" factor. They stress that privatization stands out as the most difficult because of the enormous challenges in converting state-owned property into private property in a manner that is rapid, equitable, and fiscally sound. The task of reforming economies is politically and practically complex.

Lodge (1990a) observing the environment of Eastern European countries notes that economic policies vary from country to country because different countries have different national ideologies. Lodge further suggests that these differing national ideologies emerge from each country's unique history. A nation's strategy – its goals and policies– do not operate in a vacuum. It is the product of that nation's historical context, the social, political, cultural, and ideological foundation of the institutional roles and

relationships that shape that strategy (Lodge, 1990b). Therefore, it is very important to take into consideration the background of each of the country, especially if we are investigating Eastern European countries with their complex history.

Finally, observing the last twenty years of the developing of Eastern European countries, there is no doubt that Eastern European countries are growing. Their companies are already among the fastest-growing companies in the Europe. They have large potential to be tapped for further output expansion. For growing Eastern European markets, the literature offers different ways to settle and emerges into the global market. Brouthers and Lamb (1995) state that Eastern European countries should transform into market economies as rapidly as possible. They propose an approach to economic reform for Eastern European countries that is based on three assumptions:

(1) Three capitalist economy types exist: market, production, and industrial. Each one represents a different combination of freedom or regulation of labor and capital markets based on a country's national ideology, history, and citizens' preferences (Brouthers and Lamb, 1995).

(2) Each of the three capitalist economy types (production, industrial and market economy) produces its own global champions and losers. Thus, there is no one best capitalist economy type (Porter, 1985).

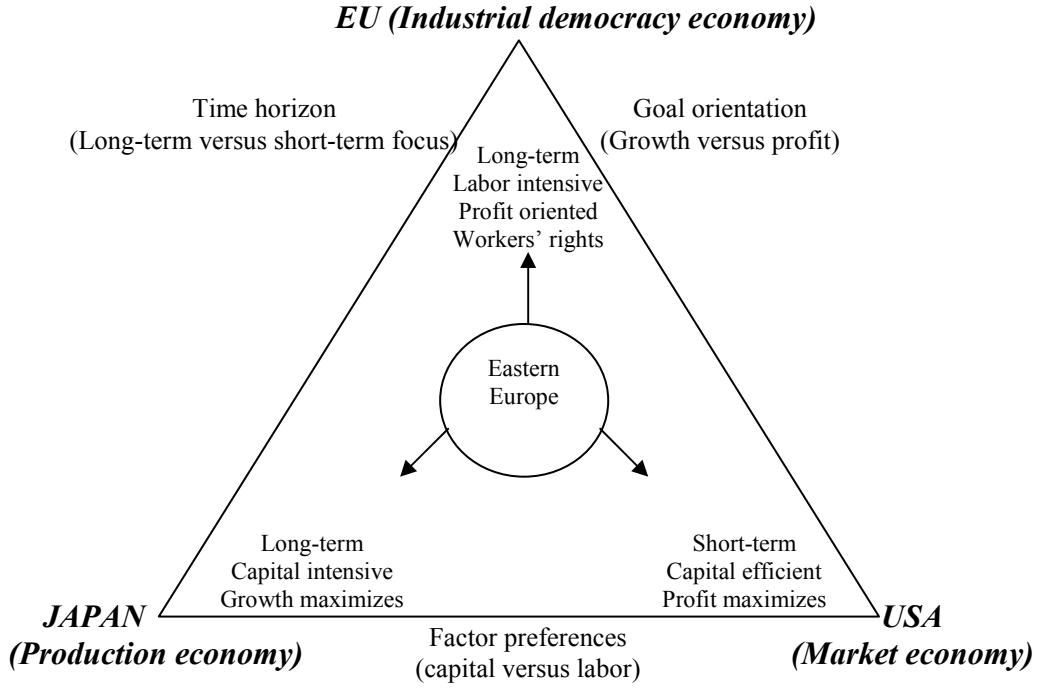
(3) Eastern European countries should adopt the capitalist economy model that best matches their capital and labor market structures; which is most consistent with their national history; and which is best matches their economic development goals (Brouthers and Lamb, 1995). In this statement, new developed Eastern European markets can follow these three possible ways, see Figure 4.1.

Market Economy

In a market economy, both capital and labor flow toward opportunities presenting the greatest anticipated return. In a competitive environment, laborers and capitalists seek opportunities that increase their returns by reallocating their labor and/or capital. This environment produces a short-term profit orientation on the part of business, and a focus on increasing labor productivity. One way to increase labor productivity is to substitute capital for labor. However, substituting capital for labor often reduces short-term profits. This leads to capital investments that produce short-term profits and postponement of capital investments that enhance profits in the long

term. This short-term profit orientation leads to chronic under-investment in market economies (Hill, Hitt and Hiskisson, 1988).

Figure 4.1: Economic alternatives for Eastern Europe



Source: Brouthers and Lamb (1995)

Production Economy

Key aspects of production-oriented economies are: (1) regulation of capital markets to encourage business to adopt a long-term growth and market-share orientation; (2) the availability of inexpensive capital for long-term investment; (3) policies that encourage and facilitate investment in research and development with long-term potential payoff; and (4) protection from acquisition for firms experiencing short-term stock price declines resulting from pursuing long-range growth goals (Thurow, 1992). Firms in production economies frequently measure success by sales or market-share growth. Profits are seen as the result of long-term sales and market share growth rather than as a primary goal (Cochran and Kleiner, 1992).

Industrial Democracy Economy

Industrial democracy economies are characterized by free capital markets but government-regulated labor markets. Key aspects of industrial democracy economies

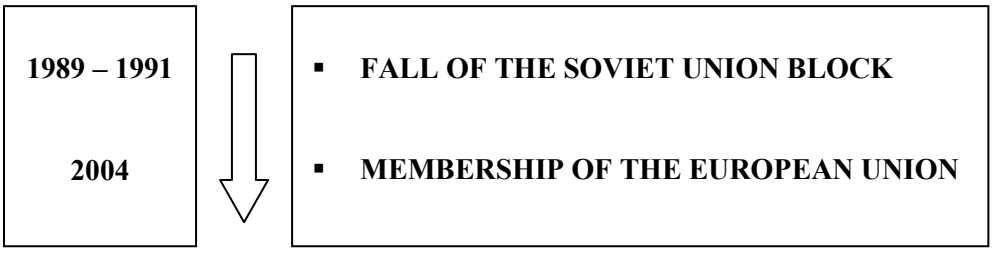
are: (1) high taxes on business to support extensive social welfare programs such as national health care and pensions; (2) extensive regulations to protect workers' rights; and (3) policies that encourage full employment. This orientation typically produces expensive worker entitlement programs that inhibit managers from reacting to short-term fluctuations in labor needs. The costs of doing business in the industrial democracies of Western European countries are the highest in the industrialized world (Lane, 1988).

In addition, the best economy type for one nation may not be the best for another country, even a neighboring nation. Nevertheless, it seems that the Western European economic alternative is the best approach for the economic development of Eastern European countries. It best meets their needs for three reasons. First, it is the capitalist economy type most similar to the command economy, minimizing the degree of change required in the economic structure of the nation. Second, most Eastern European countries are more like Western European countries. They are less like the United States or Japan in terms of way of doing business, etc. Third, Eastern and Western European countries tend to have common cultures, traditions, and historical linkages (Kaczmarczyk and Okólski, 2005).

4.2. MILESTONES IN THE DEVELOPMENT OF EASTERN EUROPEAN MARKETS

In the transition of the Eastern European countries two crucial moments can be marked: first, the end of the 1980s and the beginning of the 1990s, the collapse of communism. The fall of the Soviet Union block initiated deep political and economic changes in Eastern European countries, and it promoted the program of reforms into the transition towards a market economy (Roland, 1993a). The second moment is the membership of the European Union, achieved on May of the 2004, see Figure 4.2.

Figure 4.2: Two important moments in the transition and progress of Eastern European countries



Source: The author.

4.2.1. FALL OF THE SOVIET UNION BLOCK

Benácek (2008) illustrates a paradox of the communist system:

1) Everyone is employed – but no one works.

2) No one works – but the output target is always fulfilled.

3) The output target is always fulfilled – but there is nothing in the shops.

4) There is nothing in the shops – but people have everything they need.

5) People have everything they need – but they curse the regime.

6) They all curse the regime – but in the elections they all vote for the communists, as an obligation.

The communist system of social organization was indeed a system irreconcilably different from every stream of capitalism (Kornai, 1992). These transformations ensured that the Eastern European countries experienced an unprecedented degree of economic, political, legal, and social transformation. Until the fall of communism, firms in the region operated within the dictates of each nation state's version of a command economy (Lascu *et al.,* 2006). National economic policies varied. There was an emphasis on production, and, in particular, on achieving efficiency through economies of scale at the manufacturing and distribution levels (Lascu *et al.*, 2006). The only market of special concern to state planners was the international market, which provided much needed hard currency in exchange. Local business clients, distributors, and final consumers were important only inasmuch as they helped the state-owned enterprise achieve its mandated quotas. Overall, there was little motivation and concern for the acquisition and development of a market orientation (Lascu *et al.,* 2006). Since the demise of communism, the process of transition to a market economy,

as evidenced by the degree of privatization, reform, deregulation, and foreign direct investment, has succeeded to various degrees in this region (Roger, Ghauri and George, 2005).

4.2.2. MEMBERSHIP OF THE EUROPEAN UNION

The European Union (EU) with its 27 members (ten new members acceded on 1 May 2004, Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, the Slovak Republic and Slovenia)[1] has changed the European markets. This enlargement of the EU was the largest in its history and brought profound changes to Europe. The EU population has grown by 28 percent, with arable land increasing by nearly 40 percent. The total area of the 10 candidate countries is 16 million hectares in 2000, equal to nearly half of the area in the current EU-15 (Cochrane and Seeley, 2004).

Access into the European market drove many changes in the new member countries. First of all, the entrance process is not a one year process but many years' worth of preparations and transformations. It was an important effort made by the countries. The economies of Eastern European countries were induced and they still are in steady growth, much more dynamically than those of current member states (Batory, 2003).

Membership also opened and liberalized bilateral trade under the European agreements. National legislation of the internal market of Eastern European countries has already been approximated to EU legislation. All the procedures for company start-ups remain slow but company registration has become more efficient. The implementation of acquisition becomes hindered by bureaucratic structures inherited from the communist regimes as well as by shortage of funds (Batory, 2003).

Banking privatization is largely complete. Also acquisition of residential and industrial property is possible subject to certain technicalities. Moreover, full liberalization of land markets is only a medium- or long-term prospect following accession. National competition authorities are regarded as independent organizations with appropriate powers to oversee markets and sanction against anti-competitive

[1] In 2014 Croatia acceded as well into the European Union. Nevertheless, our work covers the period until 2013, hence, we do not include Croatia in the number of EU members.

behavior. And finally, corruption is seen as a problem but it is no worse than it is in some current member states (Batory, 2003).

Additionally, the overall effects of transition to a market economy in terms of aggregate economic growth have been most pronounced in the countries that joined the European Union in recent years. Such success is documented in the literature, for example, for Poland and the Czech Republic, where markets are undergoing a process of rapid deregulation and where inward investment is encouraged (Roger, Ghauri and George, 2005). Since 2004, the European Commission has undergone what are probably the most significant reforms since its inception. The entry of ten new Member States in particular has created additional pressures and demands. At the same time, it also provides new opportunities to review and revise the workings of the Commission to enable it to adapt to an enlarged Union. It looks at the ongoing processes and their impact surely is significant for not just new joined countries, but for all European Union countries.

4.3. SITUATION OF EASTERN EUROPEAN MARKETS AFTER FALL OF SOVIET UNION REGIME AND AFTER THE ENTRANCE INTO THE EUROPEAN UNION

Eastern European countries have been in transition over the past decade, and remain making great strides to overcome the drag exerted by their communist heritage. They have attempted to accelerate the creation of a free market system through privatization, by reforming the financial system, attracting large inflows of foreign capital, and by working towards the European Union candidacy and membership mentioned (see Mickiewicz and Radosevic, 2001; Havas, 2002).

The circumstances and condition of the environment, political situation, economic changes, technology changes, cultural situation, changes in financial information, etc. mark the evolution and transition of these developing economies. Following, we focus on some of the different aspects which determine the growth and development of the Eastern European countries, taking into consideration these two important events: the fall of communism, and the joining of the European Union.

Political changes

Eastern European transitional countries experienced enormous economic and political changes during the 1990s. They introduced and established market-oriented economies. The orderly political transitions in many of these countries following intensely contested elections held during economically difficult periods of extensive job destruction attest to the success of the political reforms (Mach and Jackson, 2006). These successful but complicated transitions refute the predictions of some political scientists and economists that the trauma and difficulties associated with the economic transition would create such an anti-reform backlash that an open political system might not be able to resist efforts to return parts of the old regimes. In fact, where the economic reforms are most successful, political parties begin to compete for the constituents arising from the new enterprises and in the process even the former Communists became more liberal in their policies (Grzymaya-Busse, 2002).

Moreover, transition raises questions of political economy, such as which groups will benefit and which will be disadvantaged (Roland, 1993a). Political constraints rather than economic considerations only, have to be taken into account in the design of politically feasible reform packages (Roland, 1993b).

Economic changes, market oriented economy

The Eastern European countries have faced a daunting array of economic challenges in the transition to a market economy. Among these, fiscal policy has posed some of the most formidable problems (Andor *et al.*, 2014). Under central planning, the state controlled most aspects of economic life, and consequently the public finances were all-encompassing. In practice, this led to a maze of discretionary interventions in the economy involving complex revenue and expenditure arrangements. It has been characterized by 'soft' budget constraints. Enterprises did not feel constrained by considerations of efficiency or profit; because they believed that the state would underwrite any financial deficits arising within the context of the plan (Green, Holmes and Kowalski, 2001). The move to a market economy involved nothing less than a complete redefinition of the public sector and of the role of government. Dabrowski (1996) has argued that the state of the public finances usually serves as a litmus test of the progress achieved and the degree of internal consistency and far-sightedness of the transformation policy.

At the beginning of the reform process, fiscal policymakers in the transition economies faced a mixture of short-term macroeconomic problems and longer-term structural problems. In the early stages of transition, there was a sharp cut in subsidies, as price controls were abolished and assistance to state enterprises phased out. Thus, in the immediate aftermath of the jump to a market economy, the fiscal balance in most transition economies improved, sometimes dramatically (Portes, 1994).

However, historical factors going back to the prolonged rule of central planning and the dominant role of the government (Chadam and Pastuszak, 2005) continue to obstruct efforts to develop a market-oriented mind set: under socialist state planning, production and distribution have, for decades, been highly centralized and directed by planning offices at ministerial and state-owned enterprise top-management levels. Since research suggests that centralization is inversely related to interdepartmental coordination (Matsuno, Mentzer and Ozsomer, 2002) and thus inconsistent with a market orientation, a legacy of communism would be a corporate culture where interdepartmental coordination is encouraged to a lesser degree than in mature market economies.

Furthermore, the planning process under communism stressed production goals, rather than market performance, and resource allocation and reward systems reflected this emphasis. Studies suggest that, two decades after the fall of communism, few companies have in fact adopted Western-style management systems that focus on market performance (DeDee and Frederickson, 2004). Consequently, yet another legacy of communism may be an environment where firms are dominated by the production and engineering departments, and where the marketing department has considerably less influence across other functional domains than in firms operating in mature market economies.

Technological changes

The fact that science and technology were given great priority and received relatively lavish treatment in resources during communist times has proven to be a mixed blessing in countries caught up in the cross currents of globalization (Radosevic, 2002). The focus of research efforts in the erstwhile communist bloc was on select areas of physics and chemistry. While the work was generally of a high caliber, much of it was pursued within the ambit of the Academies of Sciences and universities. Nearly

all of the research was government sponsored and theoretical, with hardly any market linkage (Nauwelaers and Reid, 2002). Technology during the communist era had worked itself, so to speak, into a high-level trap. That is, through a continuing and additive process of technology push it had reached a relatively advanced level in areas that did not require market validation. Though much has changed since 1991, the mind-set of research organizations, indeed the culture of research is proving difficult to change. In general, technological capabilities have decayed (Arogyaswamy and Koziol, 2005).

Labor and capital changes

In a market economy, both capital and labor flow toward opportunities presenting the greatest anticipated return. In a competitive environment, laborers and capitalists seek opportunities that increase their returns by reallocating their labor and/or capital. This environment produces a short-term profit orientation on the part of business, and a focus on increasing labor productivity. One way to increase labor productivity is to substitute capital for labor. However, substituting capital for labor often reduces short-term profits. This leads to capital investments that produce short-term profits and postponement of capital investments that enhance profits in the long term. This short-term profit orientation leads to chronic under-investment in market economies (Hill, Hitt and Hiskisson, 1988). This is an illustration of the market economy working in the "right" direction.

Subsequently, as state enterprises shed labor, output declined and unemployment rose, and there was a sharp rise in expenditures on state benefits. As a result, the budget lurched into deficit, with little prospect of improvement until an upturn in economic activity took place (Kopits and Offerdal, 1994). This is a situation, which occurred after the phase of transformation, three/ four years of high unemployment in the Eastern European countries, as a result of the high competitive environments, aggressive struggling on the market.

Information adaptation of key areas of the companies

Moreover, transition economies have had to adapt to a completely new environment for information. The abolition of the plan destroyed the main information of whatever quality that governments possessed about the economy. This had to be

replaced, partly by other methods of gathering information, and partly by devising more incentive-compatible systems of revenue collection and subsidies. Individuals in the former, centrally planned economies were largely unaware of the scale of the taxes they paid through the turnover and payroll systems. In the new environment, tax rates had to be set at acceptable levels to avoid creating a culture of evasion (Tanzi, 1999).

Also, a number of studies have addressed the key role that the interaction between functional areas plays in the process of reaching marketing and overall firm objectives. Organization theory research stresses the importance of integration in accomplishing organizational tasks: high integration, defined as the process of achieving unity of effort among subsystems in an organization in accomplishing key organizational tasks leads to better performance than low integration (Lawrence and Lorsch, 1967). More recently, Srivastava *et al.,* (1998) highlight the importance of improving the interface between the marketing and the finance departments to better justify the allocation of resources for marketing initiatives.

Moreover, in the context of the Eastern European process of transition to a market economy, the development of marketing capabilities and the adoption of a market orientation are of utmost importance for firm success, and coordination between departments in order to achieve company objectives is essential (Lascu *et al.,* 2006).

Changes in financial information

Within the markets of Eastern European countries we may detect and observe gradual changes in financial information. First of all, the transformation from the communist system to a system based and oriented on markets. It has a strong and significant impact on financial information. Now companies are not driven by the communism system paradox (as we explained in the previous section, for example: “everyone is employed, no one works, the output targets is always fulfilled, etc) but by the capitalism and market system which is characterised by competition and effectiveness. In this way appears the necessity that financial information must supply effective and significant information. There is a need for useful and relevant information in order to shape the managerial and decision-making process (Nobes and Parker, 2008).

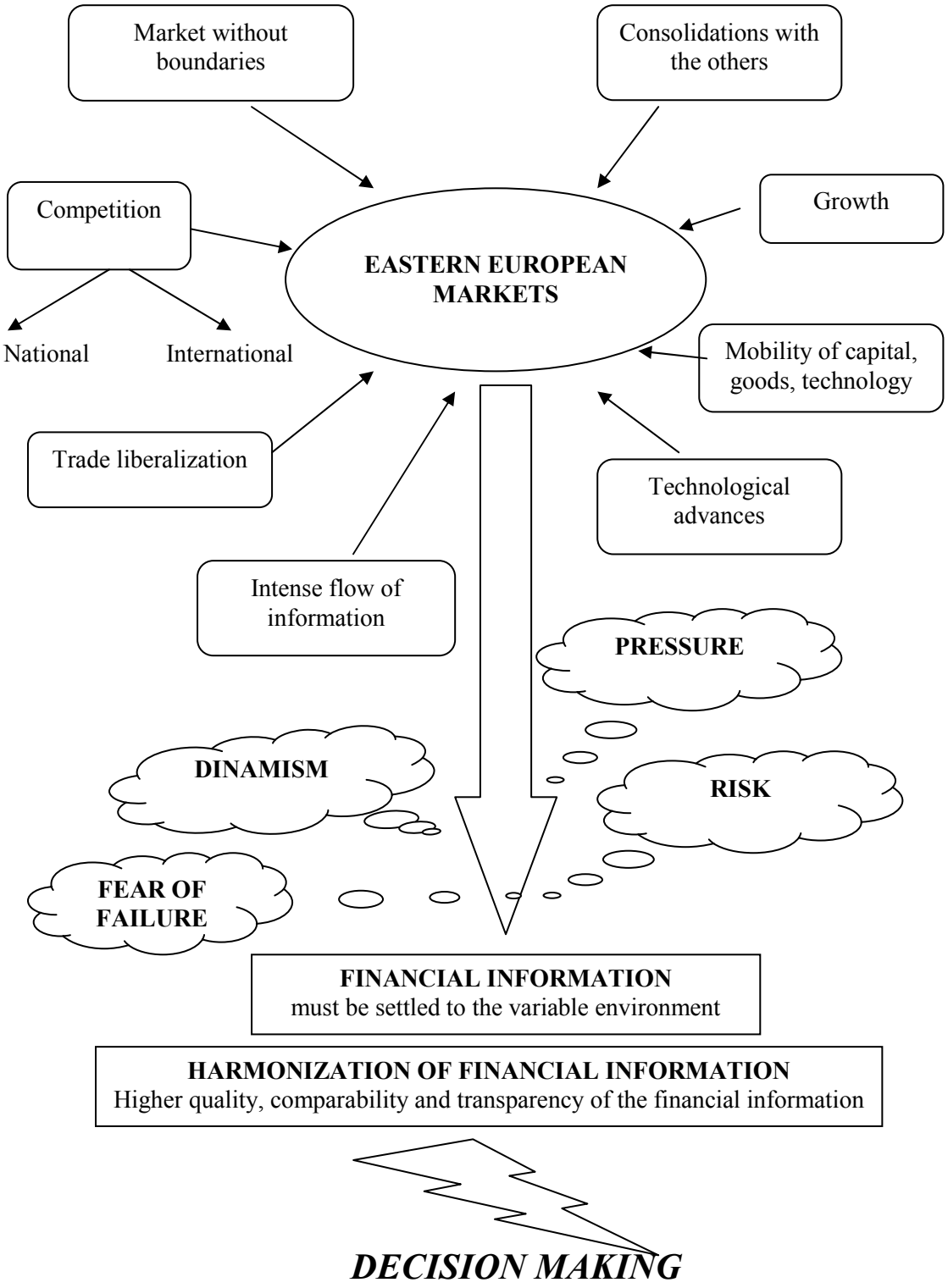
Therefore, the transparency of financial presentation information has changed significantly. Now the fair, comparable and real image of the companies is required to

be presented. As Wang (2011) points out financial statement comparability has been recognized as an important characteristic of financial reporting, improving the usefulness of accounting information. Economic decision-making compares alternatives and accounting textbooks and emphasizes that financial and accounting results cannot be evaluated in isolation. Libby, Libby and Short (2009) confirm that "analysing accounting data without a basis for comparison is impossible".

In addition, the entrance into the new market-oriented economy and integration into the EU require companies from Eastern European countries to harmonize accounting standards. This new accounting environment sets the Eastern European markets into the ongoing process of convergence towards International Financial Reporting Standards (IFRS). Harmonization of accounting standards is now a requirement in the open and global European market. It is developed in the context of the intended comparability of financial statements within the Europe (see studies of Callao, Jarne and Lainez, 2007; Jarne and Callao, 2010; Alexander and Albu, 2011). It also improves the quality of financial information.

Figure 4.3 summarizes the main factors which may have influence on financial information and managers' decisions after the fall of communism and after the entrance into the European Union by Eastern European countries. Consequently, we show some economic data to understand in all profundity the Eastern European markets.

Figure 4.3: Eastern European markets: effect of the fall of Communism and the membership of the European Union



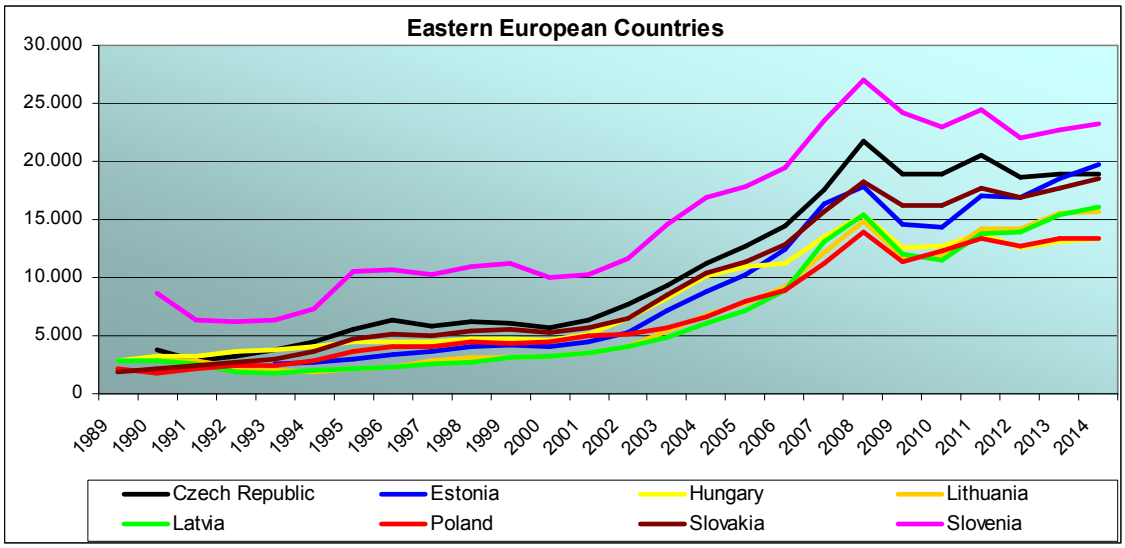
Source: the author.

4.4. ECONOMIC DATA: DESCRIPTION OF EASTERN EUROPEAN MARKETS

We present some examples of the main economic statistics on the Eastern European countries for two reasons: to evaluate the markets of Eastern European countries, and to be able to characterize the Eastern European countries we also compare them with well-developed Western European markets. Literature suggests different macroeconomic variables: Gross Domestic Product, interest rate, inflation, unemployment rate, hourly labor costs, and minimum wages, as example of the variables which are most commonly used in the literature.

Figure 4.4 shows the evolution of ***Gross Domestic Product (GDP)*** in Eastern European countries, where Figure 4.5 presents the Gross Domestic product for Western European countries[2]. We take into consideration Eastern European countries which entered into the European Union in May 2004. Within the Western European countries we select eight representative countries to observe the changes of different economic data[3].

Figure 4.4: Evolution of Gross Domestic Product per capita (PPS) of Eastern European countries



Source: The author based on Eurostat (2015)[4], World Bank data base (2015)[5], and World Economic Outlook Database (2015)[6].

[2] Gross domestic product (GDP) is a measure for the economic activity. It is defined as the value of all goods and services produced less the value of any goods or services used in their creation. GDP per capita is gross domestic product divided by midyear population (source Eurostat and Worldbank).

[3] Different data base emphasises these countries as example of developed and representative Western European markets, see for example, Eurostat, Worldbank, Trading economics, Transparency International, Consensus Economics data bases.

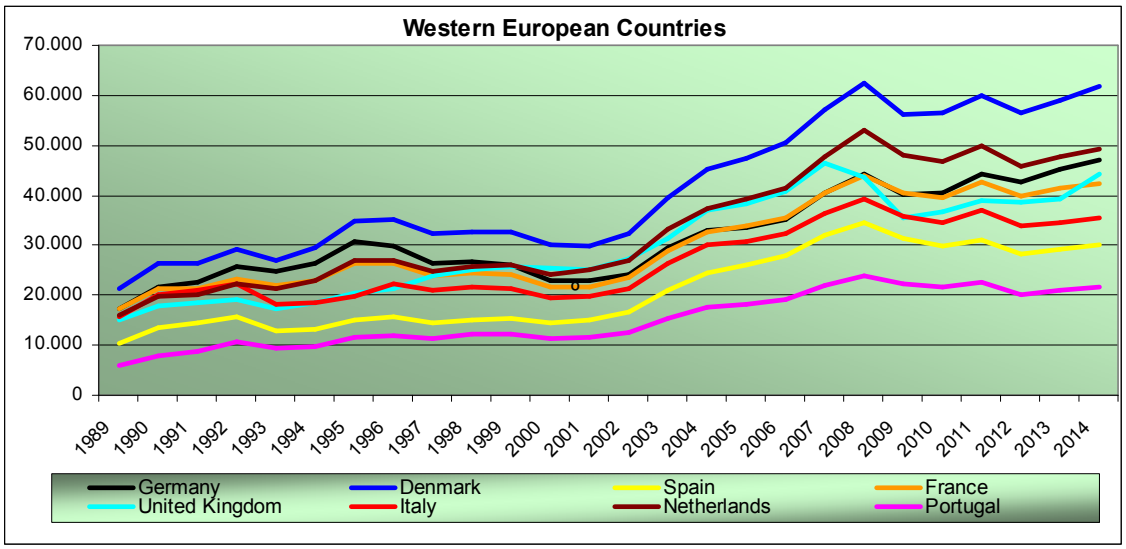
[4] http://epp.eurostat.ec.europa.eu

[5] http://data.worldbank.org

We may observe that Gross Domestic Product is increasing over time. Especially, in a period just before European Union membership and in the period posterior to the accession, we observe an important increase in GDP. We may observe that the highest GDP within the Eastern European countries is in Slovenia, followed by the Czech Republic, and Slovakia.

We detect as well that in a period just after the fall of communism (1989/1990), there is almost no change in Gross Domestic Product over the following five/ six years. Then, the Eastern European economies started to develop and expand.

Figure 4.5: Evolution of Gross Domestic Product per capita (PPS) of Western European countries



Source: The author based on Eurostat (2015), World Bank data base (2015), and World Economic Outlook Database (2015).

In Western European countries we observe a tendency of steady, slight but constant growth of Gross Domestic Product over time (until 2008). Nevertheless, in the period between 2008 and 2012 we may detect important fluctuations in economic data (perhaps influenced by the world economic crisis). Then, again the data starts to grow slightly.

Therefore, comparing both markets, we may observe that GDP per capita in Eastern European countries is still significantly lower than in Western European countries. The Gross Domestic Product of Western European countries is still triple or even five times higher than in Eastern European countries, see for example, the GDPs of Denmark, Netherlands or UK. Moreover, we also confirm that Western European

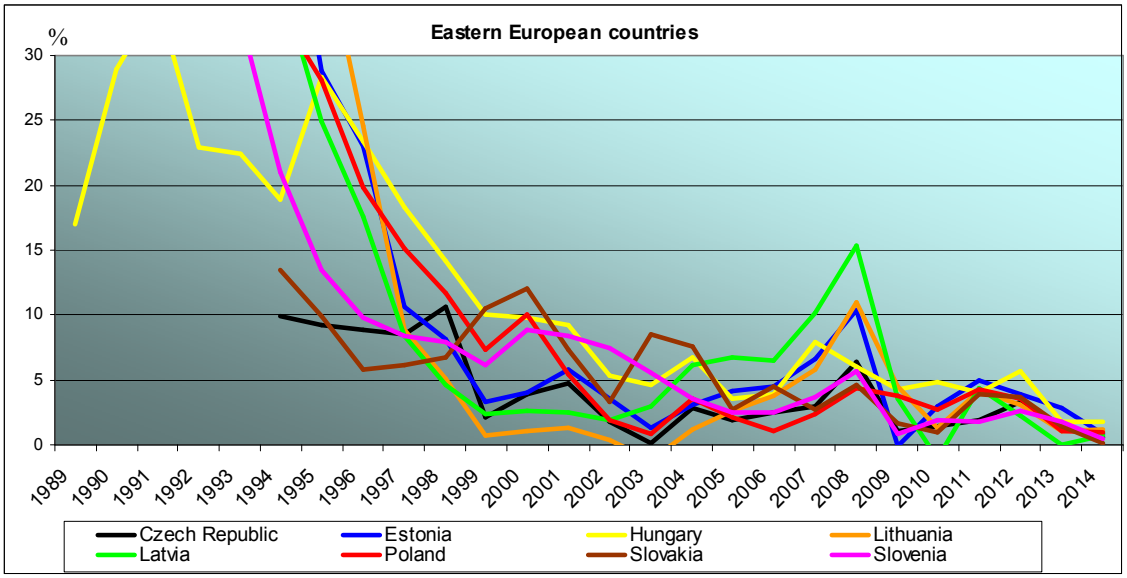
[6] http://www.imf.org

countries show a steady, slow increase in GDP till 2008. On the other hand, Eastern European countries at the beginning show almost no difference between the values of GDP, to then progressively grow in the final 10-12 years of the period.

Figures 4.6 and 4.7 present the evolution of ***inflation rate (%)*** by country over time. We can not provide full data as between 1989 and 1994 in some Eastern European countries the inflation rate was not released. We observe a very high inflation rate between 1989 and 2000. In some cases the percentage of inflation rate exceeded even 30%. Then, steady development towards Western European markets helps to decrease the rate of inflation. Additionally, access to the open European market helps the Eastern European countries cope with the very high inflation rate and reach almost the same level of inflation as in the Western European countries, as we may perceive in the graphics.

At the same time, Western European countries show a relatively constant level of inflation over the years. We may observe slight fluctuations over analyzing years, but never exceeding 7-8% (with the exception of Portugal, which between 1989 and 1992 had inflation rate superior of 10%).

Figure 4.6: Evolution of Inflation* rate in Eastern European countries (%)

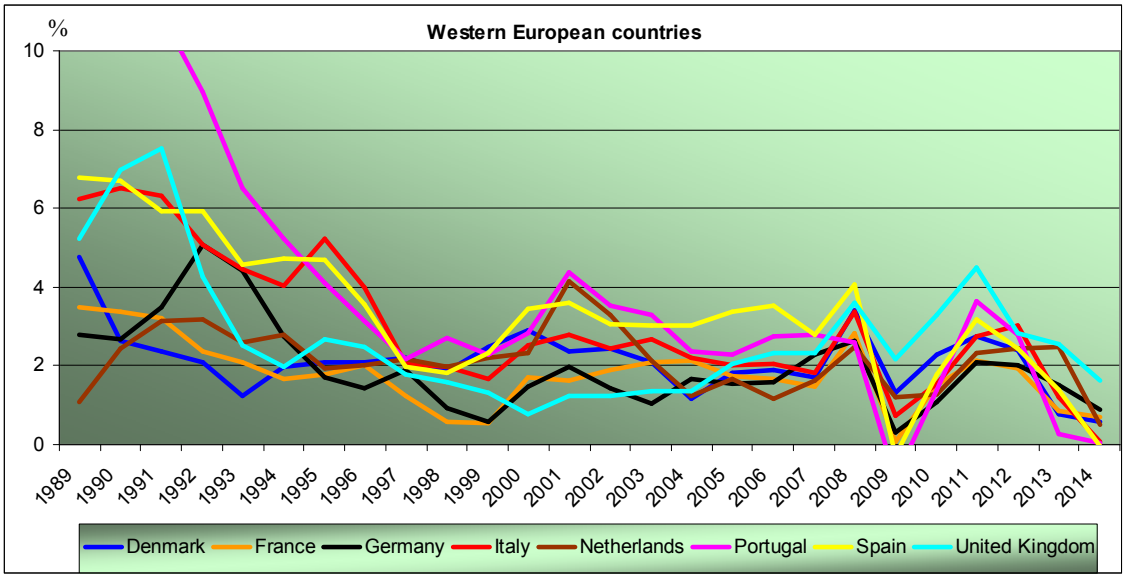


*Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly.
Between 1989 and 1994 in some Eastern European countries inflation rate was not released.
Source: The author based on Eurostat (2015), World Bank data base (2015), World Economic Outlook Database (2015).

In Eastern European countries in the nineties the inflation rate fluctuated from 10 to even 28 points, where in the same time, in Western European countries the inflation rate ranged from 2% to 7%. However constant transformation and development of the countries from the former Soviet Block helps to reduce the inflation. Between 2000 and 2012 the inflation rate in Eastern European countries was enclosed between 2 and 15%. At the same time, in Western European countries the inflation rate was much lower, in some cases slightly exceeding 4 or 5% (in general between 1-3%).

At present, in most of Eastern European countries the inflation rate is almost at the same level as in Western European countries (at present, 2013/ 2014 is ranging within 1% - 4%). Nevertheless, we still may observe that Eastern European countries have still a slightly higher level of inflation (one/ two points) over Western European countries.

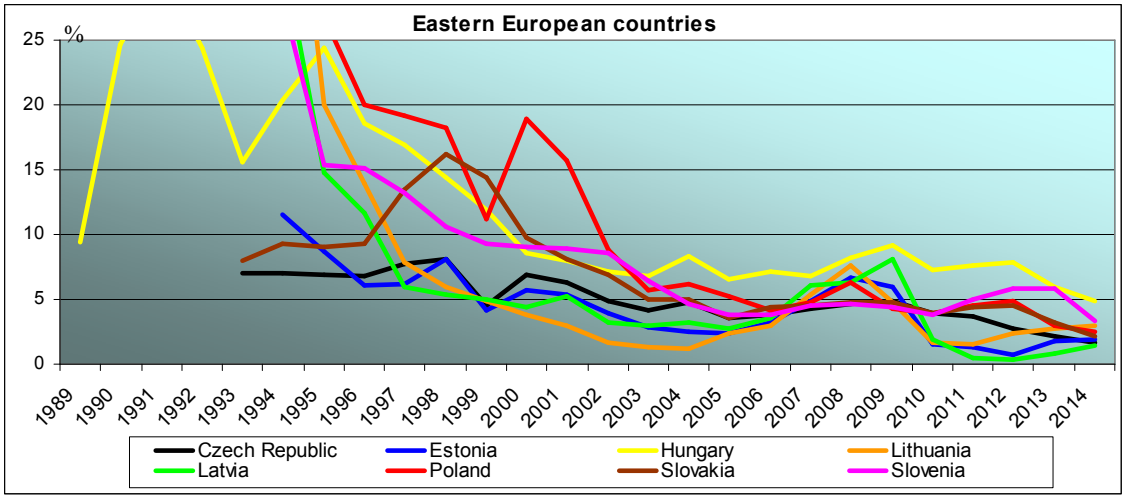
Figure 4.7: Evolution of Inflation rate in Western European countries (%)



Source: The author based on Eurostat (2015), World Bank data base (2015), World Economic Outlook Database (2015).

We present next macroeconomic statistics. On Figures 4.8 and 4.9 we may observe the ***interest rate*** for Eastern and Western European countries. Interest rates are decreasing over time. Within the period of 1989 and 2002 the interest rate in Eastern European countries reached even the values over 20-25%; where at the same time, in Western European countries the interest rates did not exceed 10 percentage points (with the exception of Portugal).

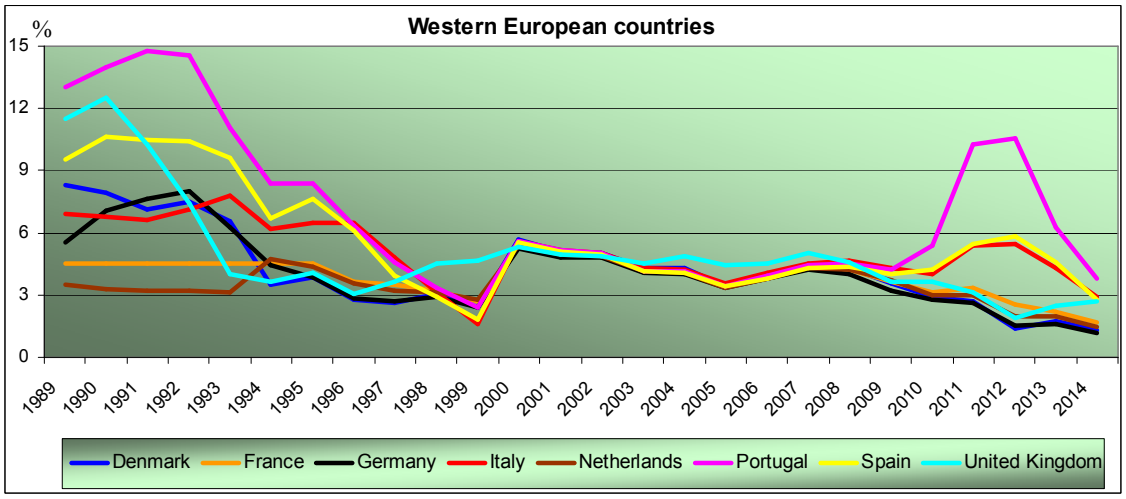
Figure 4.8: Evolution of Interest rate in Eastern European countries (%)



Between 1989 and 1994 in some Eastern European countries interest rate was not released.
Source: The author based on Eurostat (2015), World Bank data base (2015), World Economic Outlook Database (2015).

After 2002 the interest rate in Eastern European countries has been stabilized and settled at 4-10 percentage points, following Western European market trends. Nevertheless, we may still observe that it is still higher than the interest rate in Western European countries.

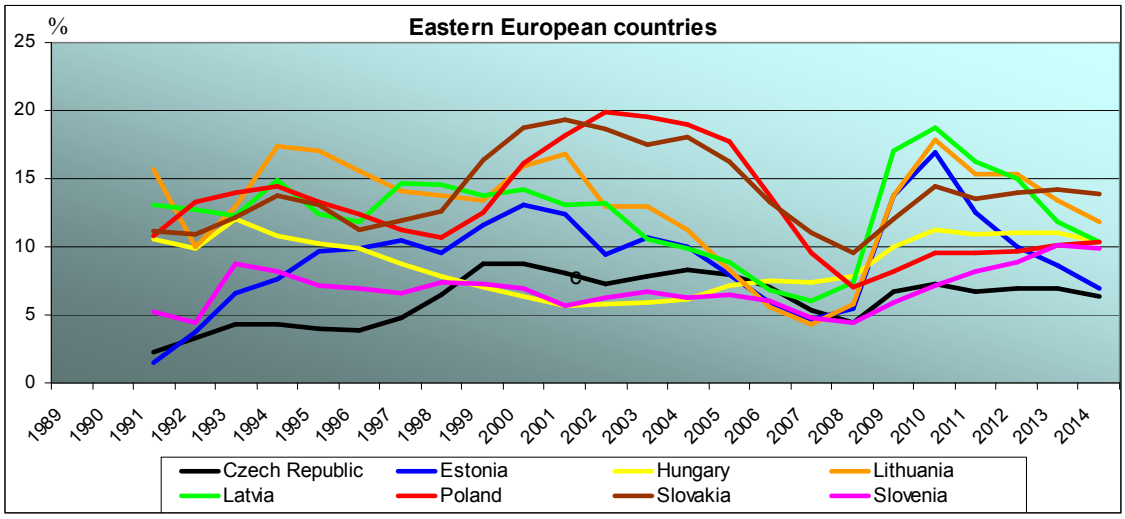
Figure 4.9: Evolution of Interest rate in Western European countries (%)



Source: The author based on Eurostat (2015), World Bank data base (2015), World Economic Outlook Database (2015).

Next we present the ***unemployment index***. Figure 4.10 shows the unemployment rate for Eastern European countries, and Figure 4.11 for Western European countries. Eastern European countries still present higher level of unemployment than Western European countries.

Figure 4.10: Long-term unemployment rate* in Eastern European countries (%)

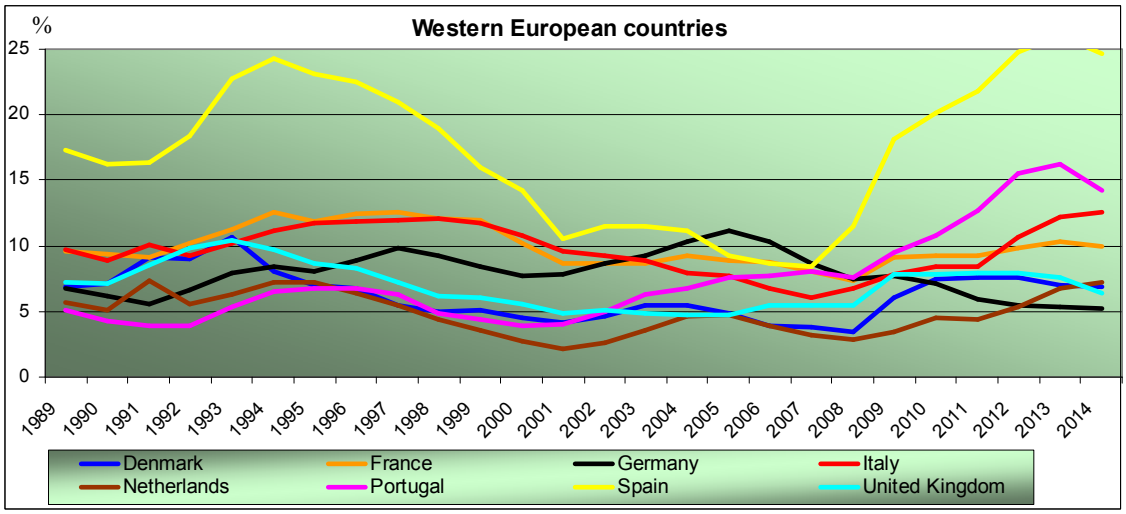


*Long-term unemployment refers to the number of people with continuous periods of unemployment extending for a year or longer, expressed as a percentage of the total unemployed.
Between 1989 and 1992 in Eastern European countries unemployment percentage rate was not released.

Source: The author based on Eurostat (2015), World Bank data base (2015), World Economic Outlook Database (2015).

The unemployment rate ranges at an average of 10-20%. Nevertheless it is progressively decreasing over time, reaching even the same unemployment rates in recent years as that observed in Western European countries, around 5-12%.

Figure 4.11: Long-term unemployment rate in Western European countries (%)



Source: The author based on Eurostat (2015), World Bank data base (2015), World Economic Outlook Database (2015).

Western European countries show a similarly low level of unemployment, between 3% to 11%, with the exception of Spain, where we may observe much higher

levels of joblessness. It indicates that Western European countries present stable development over time, and that therefore almost no fluctuation of unemployment is observed. At the same time, Eastern European countries are progressively reaching the level of Western European countries.

Finally, Tables 4.1 and 4.2 show two more macroeconomic statistics on the European countries: hourly labor costs, and minimum wages.

Within the ***hourly labor cost*** (in euro) data, Table 4.1, we again may observe a significant difference between Western and Eastern European countries. The discrepancy between Western and Eastern European countries is very significant. Germany, for example, has values rounding between 25 to 31.4 euro per hour, France between 24 to 34.6; or United Kingdom from 20 to 26.39. On the other hand, in Poland hourly labor costs are between 4.48 in 2000 to 8.40 in 2014 (the highest charge in Poland). Similarly, in the Czech Republic hourly labor costs are rounding between 3.86 to 10.50; or in Hungary between 3.63 and 7.80. All these differences show the significant gap between the Eastern and Western European countries.

However, we may observe, that the level of hourly labour costs increases gradually in Eastern Europe. It indicates a positive symptom of the development of Eastern European markets. We detect that the level of hourly labour costs was considerably below 5 euro per hour until 2003 for all Eastern European countries, with the exception of Slovenia. In Slovakia the standard of salaries was higher than in other Eastern European countries. Hourly labour costs were reaching the values rounding 8.98 to 10.09 euro.

Then, for all Eastern European countries the level of labour costs was increasing, to reach the level of 6 to 8 euro for almost all Eastern European countries. Only the Czech Republic and Slovenia reached values above 10 euro. Nevertheless, as we mentioned, the level of labour costs is still substantially below the average of Western European countries, where the median is above 25 euro in almost all Western European countries (with the exception of Spain and Portugal). Nonetheless, again we gradually detect the development and growth of Eastern European countries over recent years.

Table 4.1: Hourly labour costs in euro

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Eastern European Countries															
Czech R.	3.86	4.64	5.39	5.47	5.85	6.63	7.14	7.88	9.20	9.80	10.50	10.50	10.00	9.80	9.40
Estonia	2.85	3.22	3.67	4.01	4.24	4.67	5.50	6.60	7.80	7.60	7.90	8.40	8.60	9.20	9.80
Latvia	2.22	2.29	2.39	2.37	2.52	2.77	3.41	4.41	5.90	5.50	5.70	6.00	5.90	6.20	6.60
Lithuania	2.63	2.76	2.90	3.10	3.22	3.56	4.21	5.09	5.90	5.40	5.50	5.80	5.90	6.20	6.50
Hungary	3.63	4.04	4.91	5.10	5.54	6.14	6.34	7.13	7.80	7.00	7.30	7.50	7.40	7.40	7.30
Poland	4.48	5.30	5.27	4.70	4.74	5.55	6.03	6.78	7.60	7.20	7.30	7.40	7.90	8.10	8.40
Slovenia	8.98	9.51	10.09	10.54	10.41	10.76	11.37	12.09	13.90	14.60	14.90	14.90	15.60	15.30	15.60
Slovakia	3.07	3.26	3.59	4.02	4.41	4.80	5.33	6.41	7.30	7.70	8.00	8.30	8.90	9.20	9.70
Western European Countries															
Denmark	31.70	32.00	32.40	33.00	33.20	33.40	33.80	34.00	34.40	36.70	37.30	38.00	39.40	39.90	40.30
France	24.84	26.00	27.04	27.68	28.46	29.13	30.08	31.06	31.20	32.60	33.60	34.30	34.30	34.30	34.60
Germany	25.00	25.60	26.20	26.80	26.90	27.10	27.60	27.80	27.90	28.80	29.60	30.50	30.50	31.00	31.40
Italy	22.00	22.30	23.00	23.20	23.50	24.00	24.60	25.10	25.20	26.80	27.20	27.60	27.70	28.10	28.30
Netherlands	25.30	25.70	26.00	26.40	26.70	27.00	28.40	28.70	29.80	31.10	31.60	32.30	32.50	33.50	34.00
Portugal	10.10	10.90	11.20	11.60	12.00	12.10	12.10	12.20	12.20	12.60	12.60	11.60	13.30	13.20	13.10
Spain	14.22	13.07	13.63	14.21	14.76	15.22	15.77	16.39	19.40	20.70	21.20	21.00	21.10	21.20	21.30
UK	23.71	24.51	25.24	23.56	24.71	24.47	25.51	26.39	20.90	20.00	20.10	21.60	21.70	20.90	22.30

Source: Eurostat (2015) and World Bank data base (2015).

Finally, analyzing the ***minimum wages*** in European countries, once more we observe a significant gap between both markets, see Table 4.2.

Table 4.2: Minimum wages in Europe

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Panel A: Eastern European countries													
Czech R.	178.34	196.35	206.73	235.85	261.03	291.07	300.44	297.67	302.19	319.22	310.23	308.30	309.62
Estonia	118.24	138.05	158.50	171.92	191.73	230.08	278.02	278.02	278.02	278.02	290.00	320.00	355.00
Latvia	107.86	114.01	118.96	114.63	129.27	172.12	229.75	254.13	253.77	281.93	285.92	284.74	320.00
Lithuania	122.06	124.55	130.34	144.81	159.29	173.77	231.70	231.70	231.70	231.70	231.70	289.62	289.62
Hungary	203.93	211.60	201.90	231.74	247.16	260.16	271.94	268.09	271.80	280.63	295.63	332.37	328.16
Poland	217.43	198.96	175.25	207.86	232.90	244.32	313.34	307.21	320.87	348.68	336.47	368.87	404.16
Slovenia	432.63	450.31	470.99	490.07	511.90	521.80	538.53	589.19	597.43	748.10	763.06	783.66	789.15
Slovakia	115.01	134.21	147.68	167.76	182.15	220.71	241.19	295.50	307.70	317.00	327.00	337.70	352.00
Panel B: Western European countries													
Denmark*	-	-	-	-	-	-	-	-	-	-	-	-	-
Germany*	-	-	-	-	-	-	-	-	-	-	-	-	-
Spain	515.90	526.40	537.25	598.50	631.05	665.70	700.00	728.00	738.85	748.30	748.30	752.85	752.85
France	1,127.23	1,154.27	1,215.11	1,286.09	1,217.88	1,254.28	1,280.07	1,321.02	1,343.77	1,365.00	1,398.37	1,430.22	1,445.38
Italy*	-	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	1,206.60	1,249.20	1,264.80	1,264.80	1,272.60	1,300.80	1,335.00	1,381.20	1,407.60	1,424.40	1,446.60	1,477.80	1,495.20
Portugal	406.01	416.03	425.95	437.15	449.98	470.17	497.00	525.00	554.17	565.83	565.83	565.83	565.83
UK	1,109.29	1,063.80	1,054.20	1,134.67	1,212.61	1,314.97	1,242.24	995.28	1,076.46	1,136.22	1,201.96	1,189.92	1,301.31

*Denmark, Germany and Italy do not have a minimum wage.

Source: Eurostat (2015)

In Poland, for example, the minimum wage over years rounds to 220 to 404 euro per months in the Czech Republic to between 180 to 320 euro, while in Hungary the minimum wage barely reached 330 euro in the last two years. On the other hand, in France the minimum wage rounds from 1,127 euro in 2002 to more than 1,400 euro in recent years. The United Kingdom shows values between 995 to 1,315 euro, in Spain the lowest value is 515 euro, which is still double than in Eastern European countries, and reached 752.85 in 2014. Therefore, we are detecting important and essential differences between the markets of Western and Eastern European countries.

Concluding, we may observe an important gap between the markets of Eastern and Western European countries. Almost all macroeconomic statistics show significant differences between both markets. However, we may also observe that markets of Eastern European countries are enjoying steady and continuous progress, development and improvement.

4.5. EASTERN EUROPEAN COUNTRIES: SAMPLE SELECTION AND ANALYSIS PERIOD

SAMPLE SELECTION

Our decision to focus the study on emerging Eastern European countries comes from a different range of factors. First, taking into consideration the sample selection used by the authors, there is almost no investigation on the issue of earnings management in the Eastern European countries.

We find only some studies based on a sample from Eastern European countries, and most of them are theoretical or based on Polish sample. It is obvious that the process of transformation, the process of globalization and fundamental changes in the economic and societal structures have taken place not only in Western European countries, but also in less developed and still developing countries, like Poland, Hungary, or other Eastern European countries. As we may observe in the Chapter 1, earnings management is a well investigated phenomenon. A large literature has addressed the issue of earnings management. There have been explored different aspects of earnings management. However, most of the studies in this area have been

concentrated on the US, some taking samples from the Oriental countries. Other investigations were based on Western European countries. Almost no studies on developing Eastern European countries can be found, see Table 4.3.

Table 4.3: Country of earnings management investigation

Country of investigation	Nº of studies
US	99
China	17
Spain	11
Malaysia	5
Japan	4
Taiwan	4
Finland	4
UK	4
Poland	4
Germany	3
Korea	3
Brazil	3
Belgium	3
Hong Kong	2
Australia	2
Netherlands	2
France	2
Pakistan	1
Indonesia	1
Iran	1
Bangladesh	1
Greece	1
Canada	1
Italy	1
Rumania	1
	180*

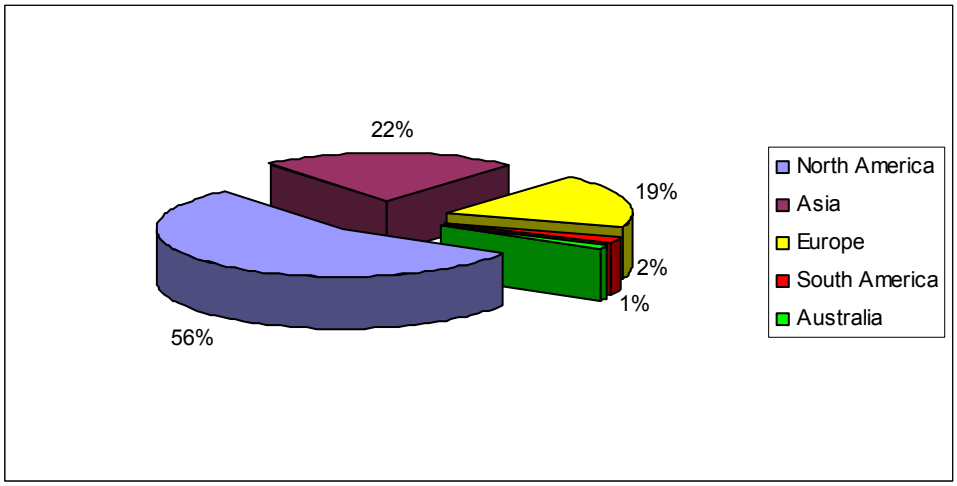
* We are not included the multi-country studies. In our statistics we took into the consideration the studies with sample from one country. We have investigated 207 studies; however, there are 11 theoretical studies without sample, and 16 studies with multi-country sample. In this way we have 180 studies.

Source: The author.

We may clearly observe the extension of investigations of earnings management based on the sample from the US within the total of the papers on earnings management (99 studies which equates to 56% of all the samples in the papers of earnings management). 39 papers carry their studies on the sample from the oriental markets such as: China, Japan, Korea, Taiwan, Hong Kong, which is 22% of the total. The studies from European countries cover 19% of the total of studies (26 studies). They are mostly based on the samples from Western European countries, such as: France, Germany, Spain, Italy, UK, etc. Some studies are based on samples from the north of

Europe (Finland and Sweden), and a few papers take samples from the South of Europe, for example, Greece, Romania. We also find four studies (research studies) based on a sample from an Eastern European country (all four studies based on Polish sample firms or banks). In this context, it seems clear, that our study tries to fill in the gap on the issue of earnings management, as we focus on the sample from developing Eastern European countries. Figure 4.12 shows the percentage of the samples of studies on earnings management related to the continents.

Figure 4.12: Percentage of the samples of the studies on earnings management related to continents



Source: The author.

Literature defines emerging market as a country that has some characteristics of a developed market, but does not meet standards to be a developed market (MSCI, 2012). Among the largest and developing economies Brazil, China, India, Russia, followed by Indonesia, Mexico, Korea, Malaysia, Bangladesh are mentioned as examples of emerging economies in the world. In Europe, the Czech Republic, Estonia, Greece, Hungary, Poland, Romania, Slovakia, Slovenia represent mainly emerging countries. Table 4.4 presents country origin, the objectives and obtained results of key studies on earnings management based on the sample from developing countries around the world.

Table 4.4: Studies on earnings management in worldwide emerging countries

Author (year)	Country	Companies number	Objective of the study	Obtained results
PANEL A: ASIAN STUDIES				
Razzaque, Rahman and Salat (2006)	Bangladesh	14	They evaluate the earnings management in the textile sector	They found significant discretionary accruals in more than 35% of firms.
Lee and Xue (2004)	China	329	They examine the earnings management by loss-firms during 1995-2000.	They found that, before the loss year, firms increase the discretionary accrual to defer the occurrence of losses.
Lau (2004)	China	736	They assess whether the use of average earning per share (EPS) to set the Initial Public Offering (IPO) price may be an incentive for earnings management.	They showed that using past three-year average EPS to set the IPO price may be an additional incentive for earnings management.
Yu, Du and Sun (2006)	China	5,921 observations	They examine whether Chinese firms manipulate their earnings to meet the regulatory requirements	Their empirical findings indicated that Chinese firms changed their behavior in response to changes in regulatory requirements.
Lin (2006)	China	112	He investigates the companies behavior in response to tax-rate changes	The firms showed significant higher discretionary accruals for the years before tax-rate increases. So, they take advantage of lower tax rates that are available for certain years.
Liu, Lu and Wang (2007)	China	5,977 firm-year observations	They examine the relationship between earnings management and corporate governance.	They found that agency conflicts between controlling shareholders and minority investors account for a significant portion of earnings management in China's listed firms.
Chen, Lee and Li (2008)	China	4,437 firm-year observations	They study how local governments in China help listed firms to circumvent central government regulation	They found that local governments provide subsidies to help firms boost their earnings above the regulatory threshold of rights offering and delisting.
Shen, Coakley and Instefjord (2008)	China	506	He analyzes the earnings management related to initial public offerings during 1998-2003.	They found that discretionary accruals in the IPO year are positively related to under-pricing but negatively related to long-term stock performance.
Kao, Wu and Yang (2009)	China	366	They examine whether government initiatives involving initial public offerings may have contributed to opportunistic behaviors by the issuers	They evidenced that IPO firms that report higher pricing-period accounting performance, had engaged in more income-increasing earnings management. Hence, pricing regulations may have induced IPO firms to inflate pricing-period earnings and affect the post-IPO performance negatively.
Lo, Wong and Firth (2010)	China	266	They investigate whether the governance structures help constrain management opportunistic behavior (in the form of transfer pricing manipulations).	The findings revealed that the quality of corporate governance (higher percentage of independent directors, lower percentage of "parent" directors, different people occupying the chair and CEO positions, financial experts on audit committees) is important in deterring the use of manipulated transfer prices.
Aharony, Wang and Yuan (2010)	China	185	They investigate a sample of Chinese IPO firms listed on the Shanghai Stock Exchange during the period 1999–2001	They showed that related-party sales of goods and services could be used opportunistically to manage earnings upwards in the pre-IPO period. They also

			providing evidence of opportunistic behavior.	provided evidence that, in the post-IPO period, that objective of managers is to use economic resources from minority shareholders for the benefit of the parent company.
Yoon and Miller (2002)	Korea	663	They explore the relationship between the operating performance of industrial firms and discretionary accruals.	The results evidence that when operating performance is poor, the firms tend to choose income-increasing strategies. In addition, when operating performance is extremely poor, some firms tend to take a big bath, while some of the exceptionally well-performing firms tend to select income-decreasing strategies.
Kim and Yi (2005)	Korea	63,386 firm-year observations	They analyze the effects of some factors (control from ownership, business group affiliation and listing status) on earnings management.	They found, that controlling shareholders tend to engage more in opportunistic earnings. Second, the magnitude of discretionary accruals is greater for group affiliated firms than for non-affiliated firms. Finally, the magnitude of discretionary accruals is greater for publicly traded firms than for non listed firms.
Johl, Jubb and Houghton (2003)	Malaysia	596 firm observations	They analyze the relationship between audit quality and earnings management, over different macroeconomic periods.	Audit quality was found to be associated with abnormal accruals, and this association varies depending on the macroeconomic period.
Saleh, Iskandar and Rahmat (2005)	Malaysia	559	They assess the effectiveness of some board characteristics to monitor management behavior with respect to their incentives to manage earnings.	The result showed multiple board characteristics are negatively related to earnings management, but only in firms with negative unmanaged earnings.
Rahman, Dowds and Cahan (2005)	Malaysia	99	They study the differences between the earnings management practices by the Muslim-managed firms and the non-Muslim-managed firms listed on the Kuala Lumpur Stock Exchange in Malaysia.	The study found no significant differences between Muslim-managed firms and the non-Muslim-managed.
Ahmad-Zaluki (2008)	Malaysia	254	They investigate the operating performance and the existence of earnings management around the IPO year.	The study found strong evidence of declining performance in the IPO year and up to three years following IPOs relative to the pre-IPO period. The results also confirmed that the decline in post-IPO operating performance is due to the existence of earnings manipulation by the IPO manager at the time of going public.
Bukit and Iskandar (2009)	Malaysia	155	They examine whether high surplus free cash flow is related to earnings management.	The study showed that companies with high surplus free cash flow reduce income increasing earnings management practices.

PANEL B: EUROPEAN STUDIES				
Caramanis and Lennox (2008)	Greece	633	They test the effect of audit efforts on earnings management based on the hours worked by auditors.	The study concluded that low audit effort increases the extent to which managers are able to report aggressively high earnings.

Swiderski, Goncharov and Bissessur, (2010)	Czech Republic, Hungary and Poland	94 firms from Czech Republic, 121 from Hungary and 2,136 from Poland	He investigates whether public and private firms in three Central and Eastern European countries engage in opportunistic earnings management.	Public and private firms engage in earnings management. Private firms reduce tax expenses and public firms to be better rated by capital markets.
Prusak (2003)	Poland	Theoretical research	He exposes the problem of financial statements distortion, explaining the occurrence of accounting scandals and the role of the investor and the board in order to control.	Theoretical research
Tokarski and Tokarski (2007)	Poland	Theoretical research	They prepared a debate on the topic of creative accounting.	Theoretical research
Wiercińska (2008)	Poland	Theoretical research	She studies the differences between terms connected with accounting scandals, such as creative accounting or aggressive and fraudulent accounting.	Theoretical research.
Brzeszczyński, Gajdka and Schabek (2011)	Poland	359	The paper presented results based on the companies listed on the Polish stock market.	The study indicates asymmetric distribution of earnings around the zero threshold along with the relative deterioration of earnings in the year following the period when the companies were suspected to conduct earnings management practices.
Welc (2011)	Poland	2,016 firm-year observations	The study investigates the listed companies of the Warsaw Stock Exchange.	The research finds that there is unusually low number of observations with the net margin between -1,5% and 0% and unusually high number of observations with the net margin between 0% and 2%, which suggests that companies with unmanaged earnings just below zero boost those earnings to the levels just above zero.
Strojek-Filus and Piosik (2013)	Poland	82 questionnaires were received (study was based on surveys)	Data collection was based on surveys of the reporting entities and capital groups in Poland.	The conducted analysis shows that the most effective instrument influencing the desired level of results presented in a financial statement is carrying out transactions under conditions which ensure the achievement of a reported goal.
Jackowicz and Kozłowski (2010)	11 different countries in Central and Eastern Europe	382 banks	They examine the importance of profitability thresholds in the operation of commercial banks from the Central and Eastern Europe.	The results evidenced discontinuities in profitability distributions around the threshold.
Matis (2010)	Romania	101	He investigates earnings management in listed Romanian companies. He measures it using three econometric models: Jones (1991), Dechow, Sloan and Sweeney (1995) and Kasznik (1999).	Jones (1991) model was found to be more significant for Romanian economic environment than Dechow, Sloan and Sweeney (1995) and Kasznik (1999) models.

PANEL C: SOUTH AMERICAN STUDIES				
Martinez (2005)	Brazil	Theoretical	She presents empirical evidence that Brazilian public companies practice earnings management as a response to capital market incentives.	Brazilian listed companies managed their earnings to avoid reporting losses and sustain recent performance. It can fool the market in the short run, but in the long run the investors realize the procedure, and their stocks will underperform the market.
Feres de Almeida *et al.* (2005)	Brazil	156	They investigate the role of industrial organization on earnings management by Brazilian firms.	The results did not confirm that industrial organization influences earnings management.
Lopes, Tukamoto and Galdi (2006)	Brazil	1,026 observations	They investigate the impact of cross listing and adjustments to US GAAP on the earnings management.	They found evidence that neither cross listing nor adjustments to US GAAP have a significant impact on earnings management.

Source: The author.

We may observe that within the emerging countries, there is a intensification of studies based on samples from China and form other Asian countries. Nevertheless, earnings management in emerging European countries is still ongoing. We find only some of the studies based on samples from developing countries, and most of them are theoretical studies.

Since this gap in research on earnings management in European developing countries needs to be filled, we have focused on these unexplored markets. In particular we focus on four Eastern European countries: Poland, Hungry, Slovakia and the Czech Republic. Following, we explain the reasons for the choice of these four countries.

Secondly, macroeconomic statistics show that developing Eastern European countries are still not at the same economic level as Western European countries. They continue to adapt to the EU model, through constant transformation and development. Given the above economic circumstances, it could be expected that there are also possible differences in earnings management between Eastern and Western European countries. This leads us to the conclusion of the necessity and importance of investigating earnings management in Eastern European countries because the Eastern and Western European countries are so different; hence, earnings management can be also different.

Third, Eastern European markets represent the growing markets. The fall of communism, and the involvement of the European Union have accelerated the process of development of these countries. The Eastern European countries are still economically improving; however, they have not yet reached the level of Western markets, as mentioned previously. We have confirmed that there is still an important

gap between both markets. Nevertheless, the transition process of Eastern European countries to a market economy, by privatization, reforms, deregulations, foreign investments have led to rapid transformation and the expansion and improvement of Eastern European markets. In these circumstances, managers may also be motivated to manage, mask or mislead earnings to obtain additional gains. Consequently, the investigation of earnings management in these growing markets is needed (Fischer, 1991; Sobańska and Christauskas, 2004).

Moreover, from the point of view of the investigation, it is important to explore the scope of earnings management taking into account the whole European Community and not only the Western part of the European Union. Incorporating Eastern European countries into the investigation of earnings management may permit us to analyze correctly the impact of this "phenomenon" on all of Europe and its consequences (Balcerowicz, 1994; Jaruga and Ho, 2002).

In particular, we examine a sample of four Eastern European countries: ***Poland, Hungry, Slovakia and the Czech Republic.*** We selected these countries for several reasons.

Firstly, taking into consideration the communist countries in Europe, see Table 4.5, we centre our study on the former Soviet-Union bloc countries (not countries which became independent when the Soviet Union (USSR) collapsed in 1991; neither Balkan communist countries). These countries experienced dramatic change when they found themselves within the communist bloc from 1945 to 1989. It caused changes in political, cultural, economic and social life. In 1989, a wave of revolutions in the communist bloc countries dissolved the existing political regime and all our selected four countries became countries with a democratic system. Following, they started the process of transition to a market economy (Fujita and Dinnie, 2009).

Table 4.5: Communist Countries in Europe (in past and some countries at present)

Formerly part of the Soviet Union:	Belarus, Estonia, Latvia, Lithuania, Moldava, Russia, Ukraine.
Soviet-controlled Eastern bloc countries:	Czech Republic, Germany (East), Hungary, Poland, Romania, Slovakia.
The Balkans:	Albania, Bosnia and Herzegovina, Croatia, rep. of Macedonia, Montenegro, Serbia, Slovenia.

See, for example, Bukharin and Preobrazhensky (1985) and Furtak (1986).

Second, it can be very interesting to investigate the effect of European Union accession and the scope of earnings management. Therefore, we limit our sample to countries which joined the European Union at the same time. We select the countries that jointed EU in 2004 (Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia). As a result, we will be able to evaluate the EU membership and managers' activities having different Eastern European countries' samples. Taking into consideration these two "variables" (key moments: collapse of communism regime and EU membership) our sample countries are limited to four countries: the Czech Republic, Poland, Hungary and Slovakia, as mentioned at the beginning.

Additionally, another set of reasons may be pointed out to confirm our sample selection, such as, for example, historical ones. Historical relations between these four countries have long existed, as pointed out by Fujita and Dinnie (2009). From 1867-1918 the Czech Republic, Slovak Republic and Hungary were all together within the Austro-Hungarian Empire. At the end of World War I the Austro-Hungarian Empire collapsed, which gave birth to the new individual states. The Hungarian Democratic Republic was established, whilst Czechs and Slovaks were from 1918 to 1993 joined in one country, Czechoslovakia. Also as a result of World War I, Poland regained its independence in 1918. Being in the same region geographically and politically makes all four countries share a similar historical and socio-cultural background (Fujita and Dinnie, 2009). We think that historical heritage may have some influence on the managers' behaviour in companies, if they opt for managing earnings.

Moreover, all our four countries are members of the Visegrad Group (also known as the "Visegrad Four" or simply "V4"), which reflects the efforts of the countries of the Central European region to work together in a number of fields of common interest within the all-European integration. In February 1991, Czechoslovakia (the Czech Republic and Slovakia), Hungary and Poland met in the city of Visegrad (Hungary) and agreed on a "Declaration of Cooperation on the Road to European Integration", which represented the first attempt to establish a common platform in order to discuss their future in Europe[7]. The Czech Republic, Hungary, Poland and Slovakia have always been part of a single civilization sharing cultural and intellectual

[7] see http://www.visegradgroup.eu/

values and common roots in diverse religious traditions, which they wish to preserve and further strengthen.

Besides, we may point out other reasons taking into consideration the geographic proximity of our sample countries. Finally, these four countries also have been widely used as sample Eastern European countries for different investigations[8], see authors, Nam and Parsche (2001); Steblez (2001); Nagy (2005); Cerami (2009); Fujita and Dinnie (2009); Rezessy (2010); Brough (2011); Hunya and Richter (2011); Mysíková (2012); Zvijáková *et al.* (2012); Kalan (2013); Jambor (2013), among others. Figure 4.13 summarizes the reasons for sample selection.

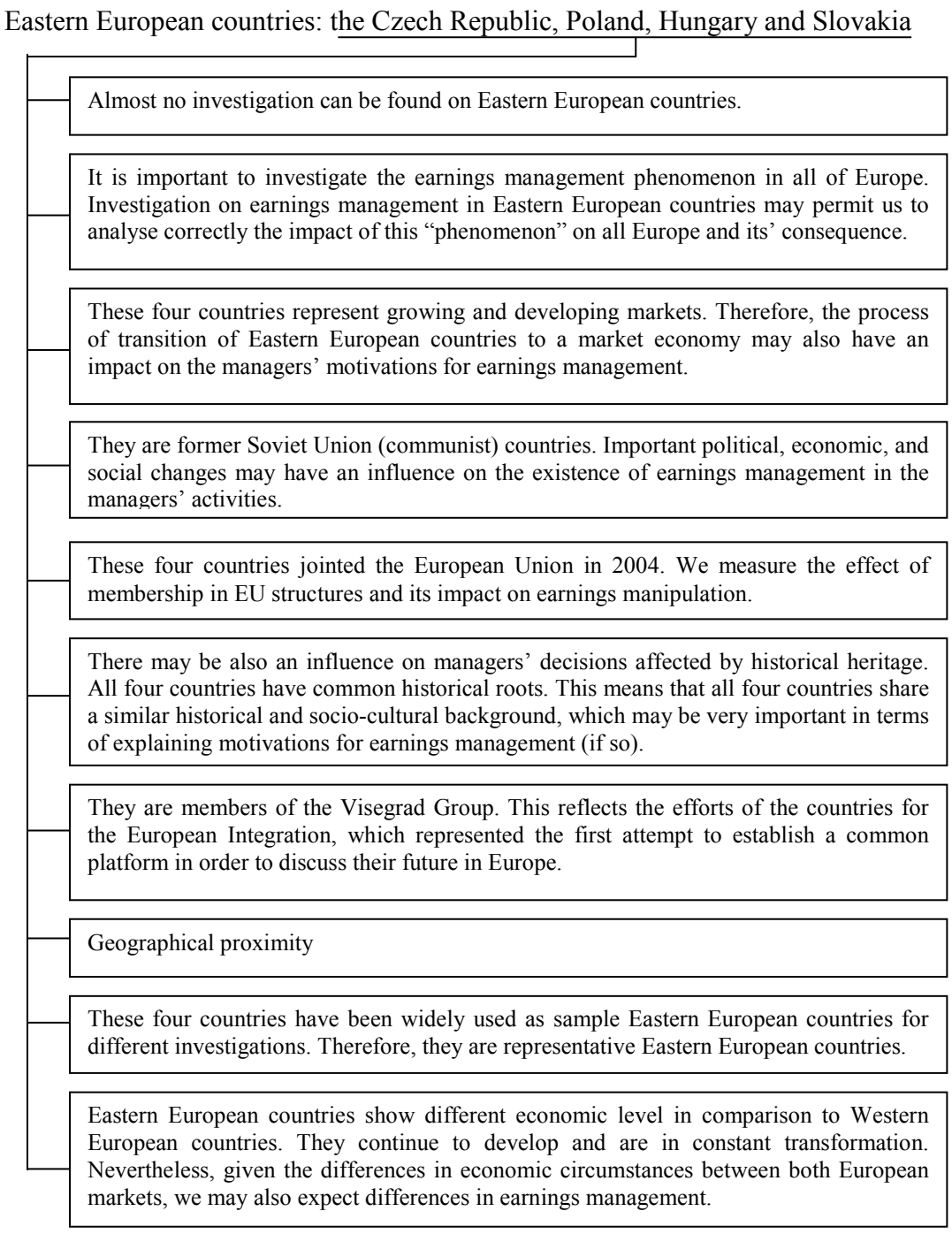
ANALYSIS PERIOD

The Amadeus database supplied by Bureau van Dijk is our source of financial data. Amadeus provides standardized financial statement data for a vast set of European private and public companies; this is the main advantage of the database. But it also has limitations. The database covers a range of ten years. We centre our analysis in a period of 2002 to 2011 for three basic reasons.

Firstly, we are interested in evaluating the managers' activity in terms of earnings management just before the European Union membership, the period of 2002-2004. Within that period Eastern European companies were developing, growing and making the transformation over more than 10 years after the collapse of communism. It may be interesting to see the effect of these transformations on the existence of earnings management in these countries. The Czech Republic, Hungary, Poland and Slovakia moved from central planning towards a market economy. We want to measure the effect of the Eastern European countries' transformation and the existence of earnings management.

[8] For example, study on Social Security Reforms; Environmental impact; The mineral industries; Gender wage gap; The nation branding; Analysing currency risk premia; Aid Transparency, among others.

Figure 4.13: Reasons for sample selection



Source: The author.

Secondly, in May of 2004 our four Eastern European countries acceded to the European Union. The membership moment (year 2004) and its direct initial impact (2005-2007) on these developing economies may be very important in terms of the

existence and if so, scope of earnings management, and the reasons for earnings management.

Finally, we are interested in evaluating the managers' activity in a period affected by world financial crisis, and whether within that period, managers manipulate more/less their earnings (if they do). The period of 2008-2009 determines the first impact of world financial crisis.

We had to discard financial data from 2010 to 2011 which are unavailable for many of our variables over our large earnings management analyses of Eastern European countries[9].

4.6. INSTITUTIONAL FACTORS AND CHARACTERISTICS OF THE COMPANIES OF THE SELECTED EASTERN EUROPEAN MARKETS

Different motivations to manage earnings may come from the different institutional market characteristics, and different companies' characteristics. Environmental conditions have a significant impact on the financial reports and affect the managers' actions (Zeff, 1978). Cimini and Mechelli (2014b) confirm the importance of considering the country characteristics when facing different issues of accounting studies. Markarian and Santalo (2010) add that incentives to engage in earnings management are the effect of product market competition and crucially depend on the level of visibility of the firm, and on the market characteristics, among other factors.

Taking into consideration the changing environment and specific circumstances of Eastern European companies, various variables must be included to be able to describe the economic, social and politic conditions and understand the Eastern European countries' situations. It seems that the environmental impact has a significant effect on financial reports, and in consequence, it may explain the conditions (factors) and incentives why managers may decide to opt for earnings management. Therefore, we may observe two groups of components that must be considered: institutional factors of the Eastern European countries, and specific characteristics of Eastern European companies. Within the ***institutional factors*** we centre on the following aspects:

- *Legal tradition,*

[9] Our investigation starts in 2012; hence, data from two previous years was incomplete.

- *Investor protection,*
- *Effect of privatization,*
- *Level of transparency,*
- *Audit quality,*
- *Accounting rules,*
- *Tax issue.*

In terms of the characteristics of the Eastern European companies we may distinguish the following elements:

- *Size of the companies,*
- *Listed/ unlisted company,*
- *Industry structure.*

4.6.1. LEGAL TRADITION

There is an important and significant impact of legal tradition on the economic development and performance of companies (García and Garrido, 1995; Shirley, 2003). Lee (2004), for example, points out two components: firstly, a significant impact on the effective protection of private property rights such as the enforcement of private contract agreement and investor protection; secondly, the protection of private property rights contributes towards financial development. Essentially, the protection of private property rights provides confidence to savers, lenders and investors to participate in the financial markets. It may be also pointed out, that the legal tradition has influence on the scope of the manipulation of earnings (see for example, Yoon and Miller, 2002; Maijoor and Vanstraelen, 2006; Arnedo, Lizarraga and Sánchez, 2007).

David and Brierley (1985) list at least three types of major legal tradition, namely, the Romano-Germanic (Civil) law, Common law and Socialist law. There are some differences within some legal traditions that require further reclassification. Some authors, for example, within the Romano-Germanic legal tradition distinguish between the French, German and Nordic (Scandinavian) Civil law traditions. French civil law is regarded to be more distrustful of judges (the Napoleonic code) and hence put more emphasis on judicial formalism compared to German civil law (Lee, 2004). Therefore, the World Bank database elaborates a classification of countries in terms of the legal

traditions. Within the different classifications they point out five major legal traditions in the world, namely: English (Common Law), French (Civil Law), German (Civil Law), Nordic and Socialist. The list is based on the origin of the Company Law or Commercial Code in each country, see Table 4.6.

Additionally, the process of globalization leads to the constant convergence of different legal traditions in terms of looking for common aspects. In consequence, two major legal traditions can be mentioned: the ***civil law*** of the continental countries and the ***common law*** of England, Wales and Ireland (Markesinis, 1993). Hence, most of the authors centre their attention on the characteristics of these two legal traditions (see for example, Pain, 1978; Walton, 1980; David and Brierley, 1985; Zimmermann, 1991; Markesinis, 1993; Evans-Jones, 1998; Messitte, 1999; Tetley, 1999; Pejovic, 2001; Baker, Collins and Reitenga, 2003; Moss, 2007; Picker, 2008, among others). Main characteristics and differences are matched in Table 4.7.

Our four sample countries: the Czech Republic, Poland, Hungary and Slovakia, derive their legal systems from the Civil/ Code Law. Its impact on financial information is perceived. The role of code law is not limited to its influence on accounting standards. It also affects the corporate governance model that has evolved simultaneously with accounting standards and disclosure systems (Ball, Kothari, and Robin, 2000). Moreover, this code law creates the asymmetry problem. It typically arises because of the superior knowledge of managers' vis-à-vis other claimholders (shareholders).

Table 4.6: Countries and Legal Traditions

English (Common Law)	French (Civil Law)		German (Civil Law)	Socialist Law	Nordic Law
Australia	Albania	Lithuania	Austria	Armenia	Denmark
Bangladesh	Algeria	Madagascar	Bosnia and Herzeg.	Azerbaijan	Finland
Botswana	Angola	Mali	Bulgaria	Belarus	Norway
Canada	Argentina	Mauritania	China	Georgia	Sweden
Ethiopia	Belgium	Mexico	Croatia	Kazakhstan	
Ghana	Benin	Morocco	**Czech Rep.**	Kyrgyz Republic	
Hong Kong	Bolivia	Mozambique	Germany	Moldova	
India	Brazil	Netherlands	**Hungary**	Mongolia	
Iran	Burkina Faso	Nicaragua	Japan	Russian Federation	
Ireland	Burundi	Niger	Korea, Rep.	Ukraine	
Israel	Cambodia	Oman	Latvia	Uzbekistan	
Jamaica	Cameroon	Panama	Macedonia		
Kenya	Central African Rep.	Paraguay	**Poland**		
Lesotho	Chad	Peru	Serbia		
Malawi	Chile	Philippines	Montenegro		
Malaysia	Colombia	Portugal	**Slovakia**		
Namibia	Congo, Dem. Rep.	Puerto Rico	Slovenia		
Nepal	Congo, Rep.	Romania	Switzerland		
New Zealand	Costa Rica	Rwanda	Taiwan		
Nigeria	Cote d'Ivoire	Senegal			
Pakistan	Dominican Republic	Spain			
Papua New Guinea	Ecuador	Syrian Arab Republic			
Saudi Arabia	Egypt, Arab Rep.	Togo			
Sierra Leone	El Salvador	Tunisia			
Singapore	France	Turkey			
South Africa	Greece	Uruguay			
Sri Lanka	Guatemala	Venezuela			
Tanzania	Guinea	Vietnam			
Thailand	Haiti				
Uganda	Honduras				
United Arab Emirates	Indonesia				
United Kingdom	Italy				
United States	Jordan				
Yemen	Kuwait				
Zambia	Lao PDR				
Zimbabwe	Lebanon				

In bold we mark our four Eastern European countries.
Source: World Bank (2004).

While the demand for public disclosure is reduced. Financial statement numbers in a stakeholder governance system are likely influenced by the preferences of the agents for labour, capital, and government. In particular, greater earnings smoothing and earnings management can be expected (Kothari, 2000).

Table 4.7: Comparison of Common law versus Civil law system: major aspects

SYSTEM FEATURES	COMMON LAW SYSTEMS	CIVIL LAW SYSTEMS
Continuity of Legal system	Evolutionary	Arbitrary
Major Source of Law	Custom & Practice	Legislative Statutes
Reliance on precedent	Yes (Strong)	No (Weak)
Judicial role in law-making	Active & Creative	Passive and Technical
Role of Legal Scholarship	Secondary and Peripheral	Extensive and Influential
Judicial Review of Statutes and Executive Actions	Yes	No
Use of Argument & Debate	Extensive & fundamental	Modest & restricted
Style of Legal Reasoning	Inductive	Deductive
Evidentiary Rules	Formal and restrictive (exclusionary rule)	None (all evidence considered)

Source: Based on: Evans-Jones, 1998; Messitte, 1999; Tetley, 1999; Pejovic, 2001; Baker, Collins and Reitenga, 2003; Moss, 2007; Picker, 2008.

All our Eastern European countries adopted the civil code after the Second World War. Poland's Civil Code was adopted in 1964, during the communist era; the Czech Republic's later, as the country was established in 1993 upon the peaceful and negotiated dissolution of the Czechoslovakia. The Czechoslovakia was in turn created following the break-down of Austria-Hungary in 1918. In effect the Czech legal system is a "continental" legal system, more specifically, due to common historical roots. Hungary adopted its civil code around 1949, where it has also had written a constitution. Before that year, Hungary had no charter-like constitution. Finally, Slovakia, was a part of Hungary until 1918/1919, and always was dominated by Hungarian influence, and indeed the civil code. However, official commercial laws were codified in 1975, as substantial parts of civil-law matters (Hamza, 2006).

Within the socio-political transformations of Eastern European countries' legal tradition we may perceive different stages. Firstly, it was observed a decrease of trust under the communist system in the public sphere (the communist party, regime and ruling elite). At the same time, the trust was shifted into the private domain (family,

friends, and neighbors). Secondly, the awakening of nationalism and Catholicism was observed as a traditional resource of communal bonds, interpersonal solidarity and national pride (Kostelecky, 2004; Wojnicki, 2005; Sobańska and Nowak, 2009). Third, the imposition of martial law impacted a total disintegration of trust in Eastern European countries (December 1981). Fourth, a brief period of revolutionary elation, solidarity and trust was observed following the collapse of the communist regime (particularly in Poland). Finally, post-revolutionary period and the collapse of trust during the early 1990s, was articulated in multiple ways: growing awareness of corruption and nepotism among the ruling elites, disillusionment with perceived lack of international support, distrust in public institutions and politicians and the future, increasing desire to turn one's back on the country and emigrate, electoral abstention, and collective protest (Kostelecky, 2004; Wojnicki, 2005; Sobańska and Nowak, 2009).

4.6.2. INVESTOR PROTECTION

When investors finance firms, they typically obtain certain rights or powers that are generally protected through the enforcement of regulations and laws. Some of these rights include disclosure and accounting rules, which provide investors with the information they need to exercise other rights. Protected shareholder rights include those to receive dividends on pro-rata terms, to vote for directors, to participate in shareholders' meetings, to subscribe to new issues of securities on the same terms as the insiders, to sue directors or the majority for suspected expropriation, to call extraordinary shareholders' meetings, etc. (La Porta *et al.,* 2000).

In different jurisdictions, rules protecting investors come from different sources (we described previously different legal traditions), including company, security, bankruptcy, takeover, and competition laws, but also from stock exchange regulations and accounting standards. Enforcement of laws is as crucial as their contents (La Porta *et al.,* 2000). La Porta *et al.* (1998) analyze different elements of investor protection (shareholders protection, creditor protection, enforcement) in terms of different legal origin, as different legal traditions have influence on the level of investor protection, see Table 4.8. Details show that we may observe significant differences among countries with different legal traditions. Therefore, legal tradition turns out to be a crucial element

in terms of describing investor protection. We point out that our four sample countries are in German civil law, which has implications for investor protection.

Table 4.8: Legal origin and investors rights

Variables	Common law (18 countries)	French civil law (21 countries)	German civil law (6 countries)	Scandinavian civil law (4 countries)	World average (49 countries)
Panel A: Measures of shareholder protection					
Antidirector rights index	4,00	2,33	2,33	3,00	3,00
Proxy by mail	39%	5%	0%	25%	18%
Shares not blocked before meeting	100%	57%	17%	100%	71%
Cumulative voting/proportional represent's	28%	29%	33%	0%	27%
Oppressed minority	94%	29%	50%	0%	53%
Preemptive right to new issues	44%	62%	33%	75%	53%
% Share of capital to call and ESM ≤10%	94%	52%	0%	0%	78%
Panel B: Measures of creditor protection					
Creditor rights index	3,11	1,58	2,33	2,00	2,30
No automatic stay on secured assets	72%	26%	67%	25%	49%
Secured creditors first	89%	65%	100%	100%	81%
Paid restrictions for going into reorganization	72%	42%	33%	75%	55%
Management does not stay in reorganization	78%	26%	33%	0%	45%
Panel C: Measures of enforcement					
Efficiency of the judicial system	8,15	6,56	8,54	10,00	7,67
Corruption	7,06	5,84	8,03	10,00	6,90
Accounting standards	69,92	51,17	62,67	74,00	60,93

Source: La Porta *et al.* (1998).

Another study made by the World Bank Group Doing Business database[10] (2011) constructed the index to measure investor protection. They focused on the following elements to indicate the level of investor protection: extent of disclosure index, extent of director liability index, ease of shareholder suits index, extent of conflict of interest regulation index, extent of shareholder rights index, strength of governance structure index, extent of corporate transparency index, extent of shareholder governance index, strength of minority investor protection index (Doing

[10] The Doing Business Project provides objective measures of business regulations and their enforcement across 183 economies and selected cities at the sub-national and regional level. The Doing Business Project, launched in 2002, looks at domestic small and medium-size companies and measures the regulations applying to them through their life cycle. Doing Business offers detailed sub-national reports, which exhaustively cover business regulation and reform in different cities and regions within a nation. These reports provide data on the ease of doing business, rank each location, for details see www.doingbusiness.org

Business, 2012). All the indices range from 0 to 10. Higher values indicate greater disclosure, greater liability of directors, greater powers of shareholders to challenge the transaction, stronger regulation of conflicts of interest, etc. Then the Doing Business database presents a global rank of the countries in terms of the obtained rank, see Table 4.9.

Table 4.9: Investor protection: a global rank of countries

Country	Ranking
New Zealand	1
United Kingdom	4
France	17
Spain	30
Poland	35
Czech Republic	83
Slovakia	100
Hungary	110
Afghanistan*	189

* Last ranking country.
Source: Doing Business (2012).

We may observe that Poland is ranked 35 overall for protecting investors (within 189 countries), the Czech Republic is on the 83 place, Slovakia 100 and Hungary is ranked 110. As we may notice New Zealand has the best rank with the highest ability to protect the investors, and on the other hand, Afghanistan with the worst results, occupies last place (189^{th}). Analyzing the results, we think that strong investor protection may be a particularly important manifestation of the greater security of property rights against political interference in some countries, (Afghanistan is not a secure country, and New Zealand shows high level of stability). Therefore, it may have an important effect on managers' decisions in terms of opting for earnings management.

Eastern European countries are transitional economies, introducing tough securities laws focused on shareholder protection, but still the level of protection of the investor is rather below the European average. Some authors even point out that in Eastern European countries there is a relatively low quality of investors' protection that poorly protects minority shareholders. In addition, there is little separation between managers and stockholder, making a backlash against minority protection very likely (Claessens, Djankov and Klingebiel, 2000; Desai and Moel, 2004; Hanousek and Podpiera, 2004; Mathernova and Rencko, 2006).

On the other hand, the development of the stock exchange and the growing share of foreign investors have enhanced the improvement of corporate governance standards. Berglöf and Pajuste (2003) in the classification of countries in terms of their approach to enforcement of investor protection and securities markets' regulations, point out those Eastern countries, especially Poland, are within the countries which have chosen the strictest regulatory mechanisms aimed at investor protection from management and large block holder fraud.

4.6.3. EFFECTS OF PRIVATIZATION

The fall of the Soviet Union block initiated the program of reforms to promote the transition to a market economy (Roland, 1993a) and in effect it started a process of privatization of state-owned companies into the private hands, at the same time creating an opportunity for the existence of incentives for earnings manipulation for managers. As Fudenberg and Tirole (1995) point out the transfer of most state industrial property into private ownership is likely to be the most difficult element of the large-scale institutional and policy reform in Eastern European countries.

The transformation of the Eastern European economies into market economies required comprehensive action on three fronts: macroeconomic stabilization, liberalization of economic activity, and privatization of state-owned enterprises (Lipton and Sachs, 1991). Each of these was a monumental task as pointed out by the authors. Nonetheless, privatization stood out as the most difficult and novel of the three, both conceptually and politically (Lipton and Sachs, 1991). There were enormous challenges in transferring state-owned property, which constituted around 90 percent of industrial capital in Eastern European countries, into private hands.

Privatization involved nothing less than the complete redefinition of property rights for literally thousands of enterprises. Privatization meant creating a new the basic institutions of a market financial system, including corporate governance of managers, equity ownership, stock exchanges, and a variety of financial intermediaries, such as pension funds, mutual funds, and investment trusts (Milanovic, 1990; Kornai, 1992).

The scale of the transformation was enormous. Sutela (1998) describes that some 6,800 enterprises were privatized in the non-transition economies of the world

between 1980 and 1991. In contrast, more than 45,300 large- and medium-sized firms were divested in the transition countries of Central and Eastern European and the former Soviet Union by the end of 1994. As can be seen in Table 4.10, the proportion of enterprise capital in state hands in Poland, Czechoslovakia, Hungary and the rest of Eastern Europe was immensely higher than the proportion in Western European countries. Nowhere in Western European countries did the share of state ownership exceed 20 percent.

Table 4.10: Share of state sector in value added

Country (year)	***Share of the state sector (%)***
Czechoslovakia (1986)	97.0
East Germany (1982)	96.5
USSR (1985)	96.0
Poland (1985)	81.7
China (1984)	73.6
Hungary (1984)	65.2
…….	…….
France (1982)	16.5
Italy (1982)	14.0
West Germany (1982)	10.7
United Kingdom (1983)	10.7
Portugal (1976)	9.7
Denmark (1974)	6.3
Spain (1979)	4.1
Netherlands (1971-1973)	3.6
United States (1983)	1.3

Source: Milanovic (1990)

The privatization process itself was conducted either directly by the state (ministries) and special agencies established for this purpose (for instance State Property Agency in Hungary) or indirectly, by the help of numerous agencies to whom the ownership rights were conferred until they managed to sell the state owned enterprises (Lorant, 1991). Privatization was facilitated by different institutions: schemes that helped managers and employees to buy the privatized enterprises, special investment funds for buying up the vouchers and property agencies who actually undertook the tasks of the owner. Naturally the methods were dependent on the size of the state enterprise (Lorant, 1991), methods such as: direct sales, initial public offerings, self privatization, public tender, auction, voucher privatization, restitution, national

investment funds, liquidation, and banking settlement procedure, among others (for details, see Lorant, 1991).

The scope of the privatized companies, the complex process of privatization, and the possible existence of different incentives for managers apart from the transformation of the state-owned companies confirm the importance of process of the privatization in the "landscape" of Eastern European countries. Moreover, the importance of the effect of the privatization is that it was not a practice of a few years, but long-term process (Nellis, 1996).

With hindsight as regards the finished process of privatization, the experience of privatization in almost all developing countries has been disappointing: the loss of patronage and political rents attendant on privatization reduce its attractiveness to the political system. This experience, along with the high level of bribery and corruption, to obtain benefits from the transformation of the companies, led also to negative experiences with privatization. This drastic change in the ownership structure of former state-owned enterprises was accompanied by severe information asymmetry problems (Denis and McConnell, 2003; Dyck, 2001).

4.6.4. LEVEL OF TRANSPARENCY

It is widely acknowledged, as well as supported by numerous studies, that a lack of transparency has a negative impact on economy and society. Lack of transparency is a deep-rooted and omnipresent aspect of everyday life in socialist countries. Their inhabitants know it well from their personal experience. They take part in corrupt practices, or at least they witness them in their workplaces, offices, shops, schools, and so on. It is not only an element of everyday life, but it is also an integral part of the political and economic system. It is closely intertwined with the institutional fabric of society (Tarkowski, 1988).

The economic and social transformation in Central and Eastern European countries inevitably created and enhanced opportunities where lack of transparency could easily flourish. Lack of transparency or even corruption in the transition countries has become more severe as these countries increase their openness and involvement in international communities and organizations (Lízal and Kocenda, 2001). Lack of transparency may significantly influence on managers' decisions about earnings

management. A lack of concern for presenting clear and reliable financial information could additionally lead to manipulation of a company's earnings.

Eastern European countries along with the growing prominence of the business transparency, kept on introducing regulations and extending the scope and scale of the high quality of the information over the years. Additionally, European Union membership influenced significantly in the development and adoption of more transparent regulations and control (see for example, Olson, 1992; Schopflin, 1994; Svendsen, 2003; Knack and Kisunko, 2011). Nevertheless, the period before the EU membership may be characterized by as a transitional period (less control, less detailed norms, among others) and still Eastern European countries are below the Western European countries in terms of transparency, see Table 4.11. We may observe that all Eastern European countries are ranked significantly lower than important Western European countries, such as Germany, the United Kingdom, or France.

The transparency index shows that Poland occupied 41st position at the beginning of our sample period, and over the next 5 years, the transparency slightly decreased. Then we may observe a significant improvement in transparency. Hungary occupies 54th position, and the index almost did not change over years. A slight increase can be observed from 4.9 in 2002 to 5.4 in 2014, indicating higher level of transparency. The Czech Republic improves its level of transparency over the last 12 years, from 3.7 to 5.1. Finally, Slovakia as well improves transparency, and now can boast a score of 5.0.

Table 4.11: Worldwide Transparency. Perceptions ranking of countries

Ranking	Country	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
1	New Zealand	9.4	9.5	9.5	9.6	9.6	9.4	9.3	9.4	9.3	9.5	9.0	9.1	9.1
2	Denmark	9.5	9.5	9.5	9.5	9.5	9.4	9.3	9.3	9.3	9.4	9.0	9.1	9.2
14	Germany	7.4	7.3	7.7	8.2	8.0	7.8	7.9	8.0	7.9	8.0	7.9	7.8	7.9
16	United Kingdom	8.3	8.7	8.6	8.6	8.6	8.4	7.7	7.7	7.6	7.8	7.4	7.6	7.8
25	France	6.7	6.3	6.9	7.5	7.4	7.3	6.9	6.9	6.8	7.0	7.1	7.1	6.9
31	Spain	7.0	7.1	6.9	7.0	6.8	6.7	6.5	6.1	6.1	6.2	6.5	5.9	6.0
36	Italy	6.7	6.7	6.4	6.5	6.2	6.0	5.8	6.4	6.2	6.2	4.2	4.3	4.3
41	Poland	4.0	3.6	3.5	3.4	3.7	4.2	4.6	5.0	5.3	5.5	5.8	6.0	6.1
54	Hungary	4.9	4.8	4.8	5.0	5.2	5.3	5.1	5.1	4.7	4.6	5.5	5.4	5.4
57	Czech Republic	3.7	3.9	4.2	4.3	4.8	5.2	5.2	4.9	4.6	4.4	4.9	4.8	5.1
66	Slovakia	3.7	3.7	4.0	4.3	4.7	4.9	5.0	4.5	4.3	4.0	4.6	4.7	5.0

*Ranks between 0-10, where 10 indicates the highest level of transparency.
Rankings show the starting point within our analysis period (2002).
Source: Transparency International, 2012.

4.6.5. AUDIT QUALITY

There are ample sets of studies which examine the association between audit quality and earnings management. Most studies confirm that the audit function should serve to mitigate earnings management, see for example, Becker *et al.* (1998), Davidson and Neu (1993), DeFond and Subramanyam (1998), Francis, Maydew and Sparks (1999), Bartov, Gul and Tsui (2001), Ebrahim (2001), Maijoor and Vanstraelen (2002), Xie, Davidson and DaDalt (2002), Klein (2002), Krishnan (2003), Caramanis and Lennox (2008), Gul, Fung and Jaggi (2009), Bukit and Iskandar (2009), Karagnanetnam, Lim and Lobo (2010), Xian, Tian and Jiaotong (2012), among others. Therefore, it is important to take into consideration the audit factor in terms of Eastern European countries.

As explained by various authors (see for example, Becker *et al*., 1998; Quick *et al.,* 1998; Francis, Maydew and Sparks, 1999) the audit environments of European countries vary strongly in terms of independence rules, auditor education and auditor liability. Hence, it can be expected that the restrictions imposed by audit regulation in each country on earnings management vary.

The history of audit services in Eastern European countries is highly influenced by the existence of nondemocratic and centrally planned political and economic systems over 40 years during the 20th century (Pekná, 2011). Sucher and Zelenka (1998) describe clearly the development of state control of Communist regime. Prior to 1989 and the Velvet Revolution, there was no established profession of independent auditors or even an association of auditors. However, there was some form of auditing, in the sense of some control over enterprise performance. There were three strands to this auditing:

- control,
- revision,
- verification.

Communist regimes were characterized by the overall state control over society. The formal aspect of this state control was overseen by the Ministry of for Supreme State Control. These state controllers checked that all forms of controls were working in an organization. Revision was a form of specialized economic control covering the audit

of internal controls and conformance with the plan and any relevant legislation (Pekná, 2011; Sobańska and Turzyński, 2011). Sucher and Zelenka (1998) describe that the revision was carried out by the management within the enterprise supervising the next lowest level of management.

To understand the system of controls in a Communist regime, it is crucial to identify the fact that fulfillment of the yearly plan was the main objective for the employees and the management and that their bonuses highly depended on this fact.

Perception of the financial audit dramatically changed with the shift from a state-driven regime to the market-driven regime. With the change into the market-oriented economy beginning in 1989 were introduced the stated conditions under which a person could become an auditor (Pekná, 2011), and then the influence of the market drives the present situation of the existence of the auditors. Early development after 1989 was also highly influenced by voucher privatization, which was a kind of permission (vouchers) to purchase shares in the enterprises that were being privatized. This has created a large number of investors, especially in the Czech Republic and Slovakia, within our sample countries. However, there appeared some problems, such as: lower transparency and tax legislation regarding supervision of the capital markets and the rights of minority shareholders which led to the problems of large insider trading. It led to the problem of information asymmetries both between management and owners and minority and majority shareholders. Both of them were, to a large extent, driven by a lack of transparency requirements (Pekná, 2011).

In the recent past, Eastern European countries have taken steps in reducing the gap between national regulations and international auditing standards. In particular, ***in Poland*** there are no Polish Auditing Standards for one-third of the areas covered by International Standards on Auditing. Also, most of the existing Polish Auditing Standards need updating in line with these international standards. Practicing auditors generally comply with the strict wording of written Polish Auditing Standards, however the lack of detailed standards and shortage of practical-oriented implementation guidelines seem to constrain the application of high quality audit methodology. Although the education and training arrangements appear to be of high quality, there is a shortage of well-trained accounting and auditing instructors in many institutions of higher learning (Rahman, Hegarty and Warzecha, 2002).

In the Czech Republic, in 1992, the Act on Auditors was approved by the Czech National Council. In a nutshell, it stipulates the nature of the audit, to whom the audit report should be handed, who can become an auditor, the setting up of a Chamber of Auditors, its constituent elements and how auditors are to be regulated. This act also states basic rules of auditor's independence (Seal, Sucher and Zelenka, 1996). Seal, Sucher and Zelenka (1996) point out that many of the institutional shareholders in big Czech companies seem to want Big-N auditors for their companies as they do not have much faith in Czech auditor firms composed of accountants trained under the old system of accounting and auditing. This lack of faith is partly because the new accounting law separates the financial accounts from the tax accounts and decrees that the financial statements should present a "true and fair" view of the financial accounts.

The assessment of accounting and auditing practices ***in Hungary*** is part of a joint initiative of the World Bank and the International Monetary Fund (IMF) to prepare Reports on the Observance of Standards and Codes (ROSCs). The assessment focused on the strengths and weaknesses of the accounting and auditing environment that influence the quality of corporate financial reporting. International Financial Reporting Standards (IFRS) and International Standards on Auditing (ISA) have served as benchmarks for the assessment, which involved a review of both mandatory and actual practice (World Bank Report, 2004). In the area of auditing requirements, Hungary now complies with the Eighth EU Company Law Directive and with ISA. The Chamber of Auditors has full and sole responsibility for the development and issuance of national auditing standards, the audit profession's code of ethics, and quality control (World Bank Report, 2004).

Finally, ***in Slovakia*** in recent years, audit regulation was subject to substantial changes. The Directive on Statutory Audit (2006/43/EC) was adopted in 2006 and implemented in the Slovak regulations (Act no. 540/2007 on Statutory Audit) in 2007 with effect from 1 January 2008. At present, approximately 810 statutory auditors – sole proprietors – and approximately 210 audit firms are associated in the Slovak Chamber of Auditors. In addition there are about 850 audit assistants registered in Slovakia. Since 2004, application of ISAs is mandatory for all audits in the Slovak Republic (European Commission Audit Policy, 2010).

In conclusion, we think that investigation of the audit factor may be important as the audit connection and better transparency, and lower level of manipulation, among

others are widely confirmed by the authors. Moreover, the reputation of the audit companies in European countries seems to be important, as the authors demonstrate that incentives are weaker where auditors are commonly known, as they avoid being associated with the scandals (DeAngelo, 1981; Caramanis and Lennox, 2008). In effect, a large body of empirical research documents that higher audit quality is associated with the Big 4 auditors[11]. The Big 4 auditors have greater expertise, resources, and more importantly, higher levels of independence, mitigating the risk of litigation and protecting their reputation capital to constrain the tendency of their audit clients to engage in aggressive reporting (see for example, Becker *et al.* 1998, García-Benau *et al.* 1999[12], Maijoor and Vanstraelen 2002, Gul, Fung and Jaggi 2009, Bukit and Iskandar 2009, Kanagaretnam, Lim and Lobo 2010). Consequently, it can be interesting to observe the effect of audits on Eastern European countries. Nevertheless, in Eastern European markets there still may be observed various problems, such as: a lack of transparency, strong tax legislation, rights of minority, still high level of corruption, among others.

4.6.6. ACCOUNTING RULES

The beginning of the accounting systems in Eastern European countries was driven by the economic and political conditions. In 1989 changes from central planning to a market economy were initiated. These transformations also required a change in both character and role of the accounting systems in Eastern Europe. We may observe that all new accounting system regulations of Eastern European countries were established slightly after 1990 as a response to the necessity in accounting for the varying environment and panorama of the "new" Europe. Jaruga, Walinska and Baniewicz (1996) point out that these new market-oriented circumstances require the presentation of comparable financial reporting.

Within the accounting rules and regulations of the Eastern European countries, we may observe two main elements. On one side there are ***national accounting rules***. Companies must follow the national standards and law. The new global and market-

[11] Big 4 auditors: Deloitte & Touche, Ernst & Young, KPMG, and Pricewaterhouse Coopers.
[12] The authors stress the importance of the greatest auditors firms; nevertheless, they pointed out instead of 4 Big auditors companies, 6 companies: Deloitte & Touche, Ernst & Young, KPMG, Pricewaterhouse Coopers, Arthur Andersen, and Coopers & Lybrand).

oriented market requires the presentation of comparable financial reporting in order to be competitive; however, national and local regulation seems to have still the main effect on companies (Jaruga, Walinska and Baniewicz, 1996).

Secondly, entrance into this global market and European Union membership obliges companies to start a process of ***accounting harmonization of accounting rules***. As Giner and Mora (2001) point out it seems that accounting practice and national regulations of countries should help the formal harmonization process and explain the diversity of standards and companies' practices. Regulation by the European Union enhances the harmonization of official national accounting standards towards convergence and implementation of ***IFRS*** (International Financial Reporting Standards). The body of research indicates that, while over time national accounting standards are gradually converging with IFRS, a number of significant differences remain to be addressed before convergence is achieved (see for example, Eilifsen, 1996; Hoogendoorn, 1996; Holeckova, 1996; Jaruga, Walinska and Baniewicz, 1996; Gasca, Callao and Jarne, 1997; Lamb, Nobes, and Roberts, 1998; Eberhartinger, 1999; Haller, 2002; Street and Larson, 2004; Meek and Thomas, 2004; Rodrigues, Silva Guerreiro and Craig, 2012). Nevertheless, it gives an impression that there is still a lot to improve, and that the proper companies are taking an active role in the harmonization process by putting pressure on institutions (Giner and Mora, 2001).

- ***National accounting rules***

POLAND

Accounting in Poland is regulated by the Accounting Act of 29 September 1994 (called "the Act"). The Accounting Act of 29 September 1994 determines the basic rules regarding in particular: maintaining books of accounts; preparation of financial statements; auditing and publication of the financial statements, among others (Michniewicz, 2012). In Polish law also there exist regulations and announcements given by the Minister of Finance; resolutions of the Accounting Standards Committee in the form of National Accounting Standards; they are applied along with International Accounting Standards.

Generally the regulations of the Act apply to entities whose registered office or place of executive management is located on the territory of Poland. In the case of not

covering certain issues by the Act, parties may apply National Accounting Standards issued by the Accounting Standards Committee (Michniewicz, 2012).

The Act specifies entities which are obliged to maintain books of account. They include in particular: commercial partnerships and companies (including organizations) and civil partnerships, natural person, civil partnerships established by a natural person, general partnerships established by a natural person and professional partnerships, if their net revenue from the sales of goods for resale, finished goods and financial transactions for the prior financial year amounted to at least EUR 1,200,000 (in Polish zloty), foreign person, branches of a company, foreign entrepreneurs representation (in the meaning of The Freedom of Economic Activity Act provisions) (The Act, 1994).

CZECH REPUBLIC

The accounting framework in the Czech Republic is based on the Act. no. 563/1992 Coll. on Accounting. The Czech Accounting Act was adopted in 1992 and since then has been changed 15 times (Svoboda, 2007). Within the particularity of the Czech Accounting Act, the Czech normative is a "target user" of the financial statements with approach to the tax authority, not the investor or owner. As Mackevicius, Strouhal and Zverovich (2008) point out there is a strong influence of tax rules on financial reporting.

In the Czech normative there are also sets of decrees on the implementation of the Accounting Act, which determine the basic accounting rules for recognition of the items of a financial statement, for example: Entrepreneurs (No. 500/2002 Coll.); Financial institutions (No. 501/2002 Coll.); Commercial insurance companies (No. 502/2002 Coll.); Health insurance companies (No. 503/2002 Coll.); Non-profit organizations (No. 504/2002 Coll.); Governmental – public units (No. 410/2009 Coll.), among others (Malíková, 2013).

HUNGARY

In Hungary, accounting requirements have been regulated by law since 1991. This Act contains accounting rules which are in harmony with the relevant directives of the European Communities and with international accounting principles. Moreover, for the operation of the market economy objective information is based on past data on the financial and earnings position of undertakings, non-profit organizations and other types

of economic organizations, in order for market participants to be able to make well-founded decisions based on the information made accessible (Beke, 2010).

Furthermore, in Hungary, legislation governs accounting principles. Hungarian professionals generally regard the ministry responsible for finance matters as the final arbiter on issues not clearly provided for by the law (Beke, 2010).

Another act, the Act on Accounting (Act C of 2000), which came into effect on January 1, 2001, has been framed to bring Hungarian financial reporting practices closer to the International Financial Reporting Standard (IFRS) and in line with the EU 4th and 7th Directives. The Act applies to all entities, from civil law associations to building groups, as well as to the Hungarian commercial representative offices of foreign-registered companies (except for private entrepreneurs, even if registered as a sole proprietorship by the court of registration) (Ecovis, 2012). Additional accounting and financial reporting requirements for government agencies, municipalities, financial institutions, insurance companies, pension funds, investment funds and brokerage companies are laid down in other acts and government decrees (Ecovis, 2012).

SLOVAKIA

The new accounting system in Slovakia became reality in 1991, Act no. 563/1991 on Accounting, became effective on January 1 1993. This Act has been amended five times since. The goal of these revisions was to harmonize the basic accounting system with that of the European Union (Suhanyiova and Gal, 2008).

In 2003 the Slovak Republic prepared a new act: Act No. 431/2003 on Accounting, which harmonized Slovak accounting with the directives of the EU. This Act has been effective since January 1, 2003 and cancelled a previous Act from 1991 (McGee, 2009). However, this Act on Accounting still remains a general juridical norm rather than a specific one. The basic philosophy of the act "a truthful and an accurate representation" - has not changed. The Act defines all subjects that have to keep accounts and generate accounting reports (McGee, 2009).

- ***Implementation of IFRS***

Our Eastern European countries became EU Member States in 2004; thus, the Czech Republic, Polish, Hungarian and Slovakian companies must take into consideration the IFRS. The IFRS are required for consolidated financial statements of listed companies for all four Eastern European countries. In Slovakian companies for

consolidated financial statements of unlisted companies IFRS is as well required. Nevertheless, for the other three Eastern European countries consolidated financial statements of unlisted companies' IFRS are not required, but are permitted (Hungarian companies). In terms of the Czech Republic companies IFRS is as well permitted but the company must be a subsidiary or parent company of groups that for consolidated financial statements use IFRS as adopted by the EU. For Polish consolidated financial statements of unlisted companies, IFRS is permitted if the entity is a subsidiary (direct or indirect) of a parent preparing its consolidated financial statements in accordance with IFRS as adopted by the EU, or a branch of a foreign enterprise preparing its financial statements in accordance with IFRS as adopted by the EU (very similar to the case for Czech companies).

For standalone/separate financial statements each of the Eastern European countries follow their own local normative. For example, in terms of Poland, IFRS for standalone/separate financial statements is not required but permitted. Listed companies with a seat in foreign countries other than the EU must prepare its financial statements in accordance with local GAAP, IFRS or other accepted GAAP, etc[13]. Finally, IFRS for SMEs is prohibited in all four Eastern European countries.

4.6.7. TAX ISSUE

The influence of taxes on companies has largely been considered within a framework where taxes are involuntary payments that influence financing and investment choices on the margin (Modigliani and Miller, 1958). Companies in the ex-centrally planned economies (Eastern European countries) were largely unaware of the scale of the taxes they paid through the turnover and payroll systems. Moreover, at the end of the 1980s there was some establishment of small businesses. State property was not privatized, and it was allowed to be used by private persons for moonlighting. Setting up of small businesses was permitted; however, the upper limit of employment was fixed: private ventures were not allowed to grow into medium size brackets. The development of private business was also hampered by tax regulations.

[13] For details see report of PricewaterhouseCoopers, 2012, www.pwc.com.

Newly created private companies had few, if any, shareholders besides the owners themselves, and they could a therefore fill financial statements with unnecessary expenses to reduce their tax liability. This practice of reducing profits (earnings management) has been decreasing along with tax obligations, making it hard to measure the company's profitability. Even though these discretionary expenses could be added back to create a more accurate depiction of the company's performance, they still negatively affected the value of the company (Skarda, 2010).

Additionally, in all of our four countries: Poland, the Czech Republic, Hungary or Slovakia, the tax and financial reporting systems are closely connected, as a consequence of the strong influence of taxation on accounting. It comes from the historic development of the relationship between taxation and accounting during many decades and is characterized by a long absence of specific accounting legislation until the 1990s, as mentioned. In previous circumstances, tax law arbitrated without regard to either accounting theory or existing accounting practices (Fortin, 1991; Frydlender and Pham, 1996). As a consequence of the strong influence of taxation on accounting, many of the tax rules are being used for financial-reporting purposes, and the persistent influence conservatism has on accounting practice. Accounting rules are conservative as long as managers have the incentive and ability to inflate transaction characteristics (Gao, 2012). As Mackevicius, Strouhal and Zverovich (2008) point out there is a strong influence of tax rules on financial reporting.

However, as pointed out in the literature, we may find differences within the Eastern European countries. Vellam (2004) provides an analysis of the difficulties in a transition economy for companies. The study confirms that Polish companies, used to the legalistic and formal structure of Polish accounting rules, faced relevant challenges in applying the "investor oriented" directives. Sucher and Jindrichovska (2004) present a similar observation for the Czech companies. Both countries, despite the tax-driven nature of accounting requirements, show a much closer convergence with the accounting systems of Western European countries, which means less tax oriented decisions. Literature explains that Poland and the Czech Republic represent countries with a perspective focused more on "investor oriented" directives (see studies, Jaruga, Walinska and Baniewicz, 1996; Vellam, 2004; Sucher and Jindrichovska, 2004; Mackevicius, Strouhal and Zverovich, 2008). On the other hand, Slovakia and Hungary

are much more orientated onto the connection towards the accounting and taxation system.

Finally, within the particularities of Eastern European countries we may consider some ***characteristics of the Eastern European firms***. Among the different characteristics we centre particularly on three of them: firm size, listed/ unlisted companies, and the industry factor.

4.6.8. SIZE OF THE COMPANIES

In Eastern European countries the transformation of the political system led to radical changes in the structure of the companies created under the conditions of a centrally managed economy (see for example, Stryjakiewicz 1998; Ziolo, 2009). The size structure of economic entities underwent a particular transformation.

From the Second War World to 1989 Poland, the Czech Republic, Hungary and Slovakia were a part of "socialist block" and its industry was orientated towards its needs. There were preferred great state enterprises with an overbearing orientation towards heavy industry, especially mines, smelting works, machine industries and chemistry. A significant part of the Czech Republic's economy was created armament industry. Small and medium-sized entrepreneurship was practical liquidated (Vanek, 2002).

At the end of 1989 there was some establishment of small businesses. Moreover, state property was not privatized, and it was allowed to be used by private persons for moonlighting. Setting up of small businesses was permitted; however, the upper limit of employment was fixed: private ventures were not allowed to grow into medium size brackets. The development of private business was also hampered by tax regulations and by bureaucracy. This mixture of private and public within the centrally planned economy had a mixed influence on private entrepreneurs. They were allowed to take responsibility for their decisions and also to earn benefits. On the other hand, doing business was more a matter of finding and targeting weak points of the centrally planned economy, both structurally and functionally (Balcerowicz, Balcerowicz and Hashi, 1998).

In these circumstances, until 1989, the ownership structure in Eastern European countries was absolutely dominated by the so-called national sector and the size structure was characterized by a majority of large enterprises and underdevelopment of small and mid-size enterprises (Kaminska and Mularczyk, 2006). Then the years of privatization start the process of evaporation of the big conglomerates and companies.

Between 1994 and 1998 large portions of industry underwent privatization, mostly in tenders closed to foreign bidders (Sirák, Salner and Druga, 2004). In 1998 changes were implemented by government in economic policy leading to intensified liberalization and privatization of many assets that had remained in state hands, as well as the restructuring and privatization of most of the state banking sector that had been plagued heavily by bad debts.

Statistics on the number of employees within our four sample countries[14] show in effect the prevalence of small and medium size companies in the "landscape" of Eastern European countries, see Table 4.12. We may observe that small enterprises (not exceeding 10 employees) amount from 94% to 95% of the total number of economic entities in three out of four of our Eastern European markets (the Czech Republic, Poland, and Hungary). Slovakia shows a lower level of small companies within the total of companies, between 71% to 79%.

3% to 5% of the companies have 10 to 49 number of employees, with the exception of Slovakia, where the percentage is significantly higher, rounding to 20%. As a consequence, Eastern European companies are now in a majority (from 90% to 95% of the total number of economic entities in the Eastern European markets) of small and medium size firms (not exceeding 50 employees). We may explain this situation by the steady transformation of big companies due to the effect of privatization, and its positive effect on the sector of small and medium companies. As we explained in the previous section, the process of transformation of big state-owned companies is a long-term process (called privatization).

The small-size of companies implies that the managers of those companies act in a different way than managers of the big companies. In particular, the Czech, Polish, Hungarian and Slovakian companies are quite flexible and quickly adapt to market requirements and challenges. A globalized and open Europe has increased the market competition, but at the same time this worldwide market leaves space to develop,

[14] Our statistics centre on the analysis period (2003-2009). 2002 was not available.

increase and expand for the new activities. Small firms especially have more opportunities to enter these new markets. In these circumstances, small companies from new emerging markets (the Czech Republic, Polish, Hungarian, Slovakian) may take advantage and try to grow rapidly.

Table 4.12: Small, medium and big size companies in Eastern European countries (number of companies and percentage)

Panel A: CZECH REPUBLIC														
Nº of employees	2003		2004		2005		2006		2007		2008		2009	
0 - 9	813,683	95.06%	814,503	95.09%	836,756	95.12%	855,918	95.11%	896,832	95.48%	883,040	95.39%	889,707	95.43%
10 - 49	34,180	3.99%	33,702	3.93%	34,370	3.91%	35,163	3.91%	34,343	3.66%	34,606	3.74%	34,591	3.71%
50 - 249	6,715	0.78%	6,895	0.80%	7,053	0.80%	7,290	0.81%	6,761	0.72%	6,684	0.72%	6,642	0.71%
250 +	1,389	0.16%	1,448	0.17%	1,474	0.17%	1,533	0.17%	1,353	0.14%	1,362	0.15%	1,379	0.15%
Total	855,967		856,548		879,653		899,904		939,289		925,692		932,319	
Panel B: POLAND														
Nº of employees	2003		2004		2005		2006		2007		2008		2009	
0 – 9	1,349,823	95.92%	1,388,062	95.99%	1,424,373	95.97%	1,464,038	95.43%	1,357,951	95.32%	1,342,574	95.71%	1,339,817	95.71%
10 – 49	41,297	2.93%	41,101	2.84%	41,903	2.82%	51,404	3.35%	47,986	3.37%	41,781	2.98%	41,961	3.00%
50 – 249	13,491	0.96%	14,028	0.97%	14,775	1.00%	15,567	1.01%	15,559	1.09%	15,174	1.08%	14,930	1.07%
250 +	2,680	0.19%	2,874	0.20%	3,124	0.21%	3,134	0.20%	3,078	0.22%	3,184	0.23%	3,175	0.23%
Total	1,407,291		1,446,065		1,484,175		1,534,143		1,424,574		1,402,713		1,399,883	
Panel C: HUNGARY														
Nº of employees	2003		2004		2005		2006		2007		2008		2009	
0 – 9	527,484	94.67%	512,338	94.33%	517,174	94.26%	533,695	94.28%	519,407	94.64%	543,603	94.77%	543,773	94.79%
10 – 49	24,730	4.44%	25,727	4.74%	26,209	4.78%	26,920	4.76%	24,467	4.46%	24,856	4.33%	24,854	4.33%
50 – 249	4,136	0.74%	4,217	0.78%	4,409	0.80%	4,565	0.81%	4,178	0.76%	4,284	0.75%	4,257	0.74%
250 +	842	0.15%	831	0.15%	854	0.16%	887	0.16%	792	0.14%	831	0.14%	805	0.14%
Total	557,192		543,113		548,646		566,067		548,844		573,574		573,689	
Panel D: SLOVAKIA														
Nº of employees	2003		2004		2005		2006		2007		2008		2009	
0 – 9	30,684	72.70%	40,101	76.17%	43,518	72.79%	44,394	71.07%	47,274	75.75%	51,750	78.82%	49,440	78.40%
10 – 49	8,858	20.99%	9,981	18.96%	13,637	22.81%	15,274	24.45%	12,344	19.78%	11,116	16.93%	10,831	17.18%
50 – 249	2,154	5.10%	2,059	3.91%	2,106	3.52%	2,237	3.58%	2,278	3.65%	2,292	3.49%	2,296	3.64%
250 +	510	1.21%	505	0.96%	524	0.88%	562	0.90%	513	0.82%	494	0.75%	494	0.78%
Total	42,206		52,646		59,785		62,467		62,409		65,652		63,061	

Source: Worldbank, 2012.

4.6.9. A LISTED/ UNLISTED COMPANY

We also analyze the proportion of listed and unlisted companies in the Eastern European market. As different authors (see for example, Becker *et al.,* 1998; Rangan, 1998; Erickson and Wang, 1999; Vander Bauwhede and Willekens, 2003; Jensen, 2005; Sundgren, 2007; Skarda, 2010) point out managers of listed or unlisted companies act distinctly from each other. We may observe that the number of listed companies changes over time, and is quite diverse among different Eastern European countries, see Table 4.13. In Poland the number of listed companies has grown over recent years. In 2002 (the first year of our analysis period) there were 216 listed companies, in 2006 there were 267 listed companies, finally, in 2009 (our last analysis year) the number increased to 354 listed companies. In terms of the Czech stock-exchange market, we observe the opposite situation. At the beginning there were more than seventy listed companies. But over time the number of listed companies decreased. Finally, in 2009 there were only 16 listed companies.

Table 4.13: Number of listed and unlisted companies over time in Eastern European countries

	2002	2003	2004	2005	2006	2007	2008	2009
Czech Republic	78	63	54	36	29	32	18	16
Poland	216	203	225	248	267	328	349	354
Hungary	48	49	47	44	41	41	41	43
Slovakia	354	306	258	209	173	153	125	107

Source: Worldbank, 2012.

The number of Hungarian listed companies remained constant over several years, ranging between 41 and 49 listed companies. In our last analysis period (2009) there were 43 listed companies in Hungary. Finally, in Slovakia, at the beginning we may observe a high number of listed companies, 354. Then a steady decrease can be observed over the following years. In 2009 were only 107 listed companies.

The authors point out some of the possible reason for a constant and solid decrease in the number of listed companies in Eastern European countries. Firstly, the companies had greater freedom in the process of restructuring companies if the company was not listed (we have pointed out a large process of privatization, restructuring). To save the companies from bankruptcy, many owners decided to

restructure them. By withdrawing the company from the stock exchange, it was easier to negotiate with banks, new investors, as nobody interfered with the plans of the company.

Secondly, the company, which was not listed on the stock exchange, did not have to publish their results, in other words, how much the company earned and how much lost. They did not have to comply with the strict rules, procedure, regulations, public information, etc.

Finally, managers of companies that were no longer on the stock market, did not have to shine eyes in front of other co-owners. When a company was on the stock exchange, the owners many times may have been influenced by decisions to improve financial indicators, not increase the employees salaries, etc, to show better image of the company for the outside investors (see for example studies of Atje and Jovanovic, 1993; Claessens, Djankov and Klingebiel, 2001; Berglof and Pajuste, 2003; Korczak and Tavakkol, 2004; Szilagyi, Fetherston and Batten, 2004; Young, 2004; Voronkova and Bohl, 2005; Zalewska, 2006; Iorgova and Ong, 2008).

Therefore, the listed/ unlisted status of the company is an important factor contributing to the description of the Eastern European countries' picture. As business owners are often puzzled the information (Skarda, 2010), different listed/ unlisted statuses, different conditions and grades of independence for managers may be observed. Because a number of aspects affect the valuation of listed and unlisted companies differently, it is difficult to point them out. To signal just some of them, for example, managers of unlisted companies are able to retain their private information more successfully than their counterparts of listed companies (Becker et al. 1998). Profitability is every business owner's highest concern, but the way companies report their profits affects the way business appraisers value a company. In most listed companies, the primary goal is to keep shareholders happy by generating high profits. However, unlisted companies have few, if any, shareholders besides the owners themselves, and they can therefore fill financial statements with unnecessary expenses to reduce their tax liability (Skarda, 2010).

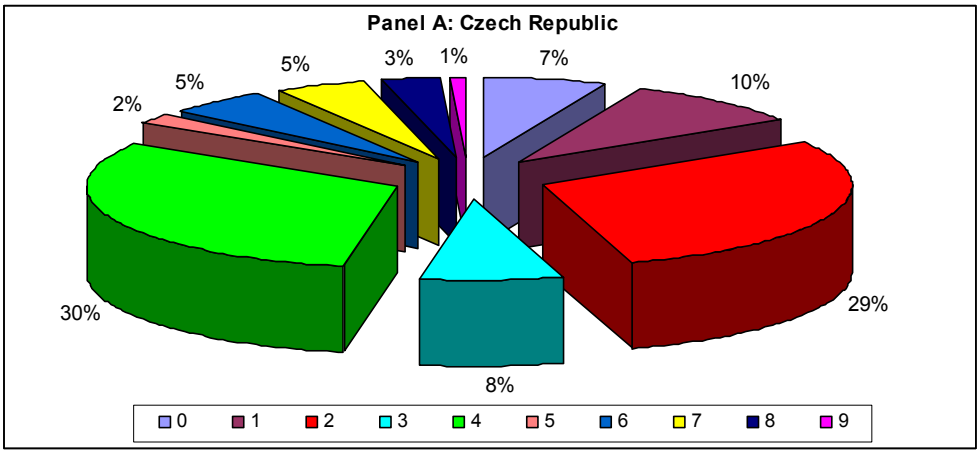
Also, when comparing listed and unlisted companies, unlisted companies are usually smaller. Larger listed companies typically have greater infrastructures comprised of broader management teams with more diversity and greater input into the decision making process. This size advantage allows listed companies to have stronger

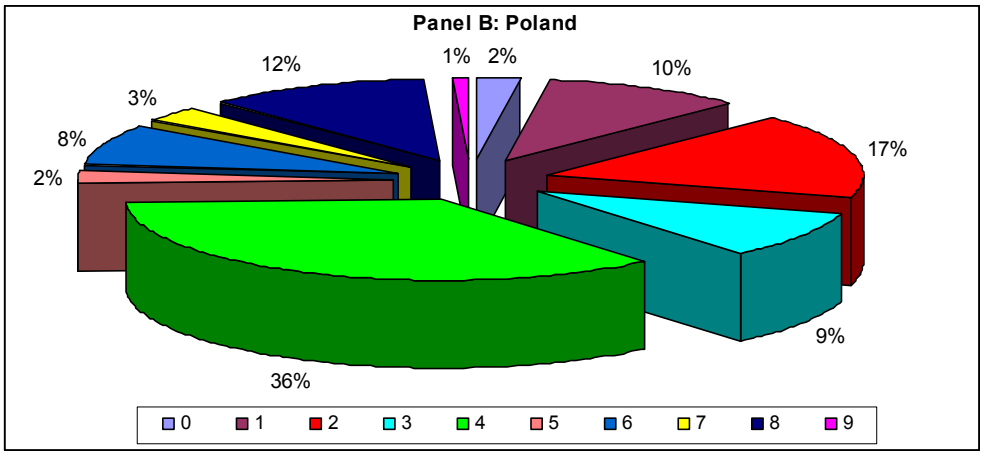
brand equity and to operate at greater economies of scale, which makes them more efficient and able to provide the same product or service to customers at a lower cost (Skarda, 2010). Moreover, economic downturns tend to hit unlisted companies harder in terms of performance and market position, making them more vulnerable to systematic or market risk (Skarda, 2010), among other differences.

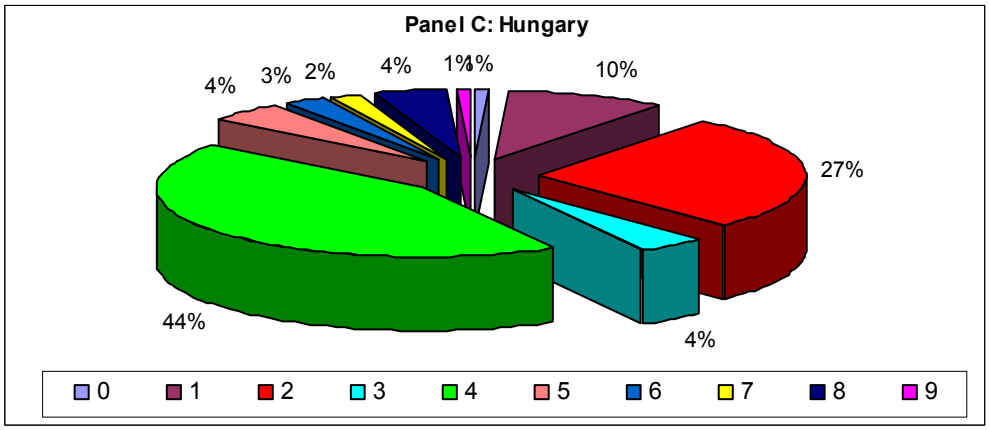
4.6.10. INDUSTRY FACTOR

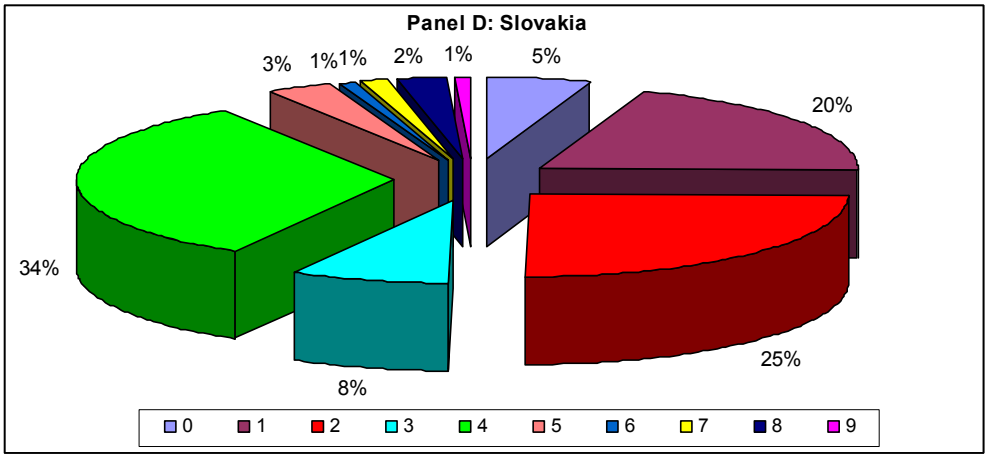
The structure of industry has significantly modified in Eastern European countries. No longer are heavy industries a principal industry factor. Until 1989 Poland, the Czech Republic, Hungary and Slovakia were a part of the "socialist block" and its industry was orientated to its needs. There were preferred great state enterprises with an overbearing orientation on heavy industry, especially mines, smelting works, machine industries and chemistry (Vanek, 2002). Now, the structure of the industries in Eastern European countries has completely changed. Figure 4.14 provides the industry distribution of our Eastern European countries (data on 2009, last our analysis period).

Figure 4.14: Distribution of Eastern European companies in each industry









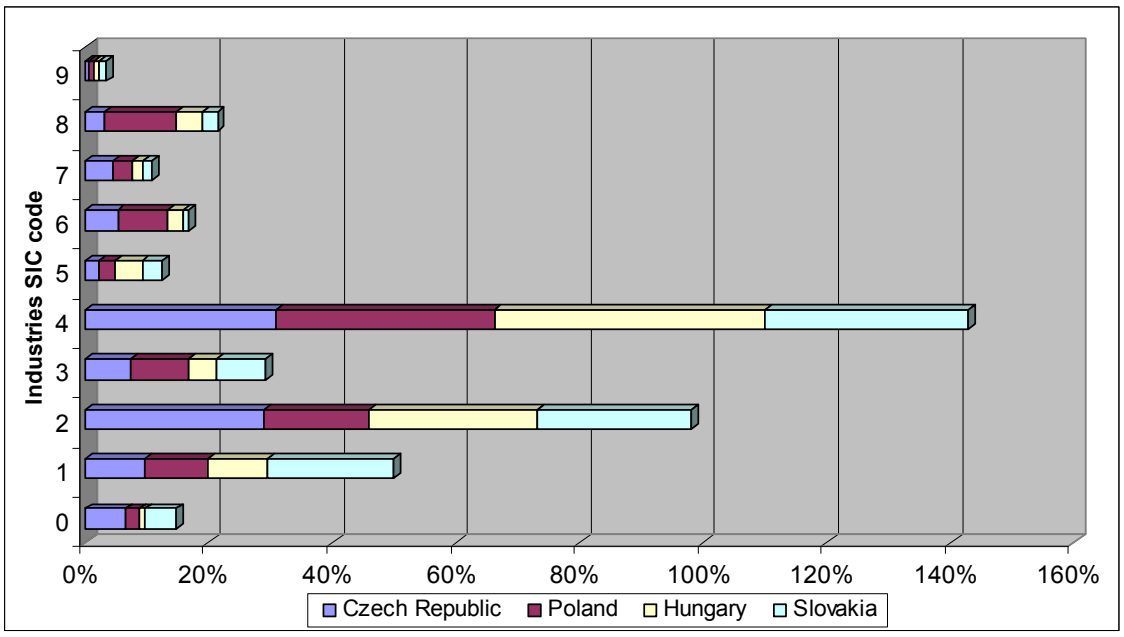
According to SIC-code:
1 - agriculture, forestry and fishing industries,
2 - manufacturing, mining and quarrying and other industry,
3 - construction,
4 - wholesale and retail trade, transportation and storage, accommodation and food service activities,
5 - information and communication industry,
6 - financial and insurance activities,
7 - real estate activities,
8 - professional, scientific, technical, administration and support service activities,
9 - public administration, defence, education, human health and social work activities,
0 - other services (group "other" comprises establishments engaged in providing services not specifically in previous category of public services, for example, Hunting, trapping and related service activities; Marine services).

Source: The author based on Amadeus database, 2012.

Our sample firms are distributed within 10 groups in relation to the SIC codes. Three main groups of industries enclose almost 70% of all Eastern European countries. These industries are: wholesale and retail trade, transportation and storage, accommodation and food service activities (33.5% of total of companies); manufacturing, mining and quarrying (22.9%); and agriculture, forestry and fishing (10.5%). On the other hand, the lowest industries include information and communication, real estate activities, and public administration, defence, education, human health. Each of these industries covers between 1-3%.

We compare, as well, the structure of the distribution of companies within the industries in each of our sample countries separately. Figure 4.15 presents the results.

Figure 4.15: Distribution of companies in each country in relation to industries



Source: The author.

We may observe that in our four Eastern European samples the proportion of the number of companies in each sector is similar, with two exceptions: in industry the Group 1 (agriculture, forestry and fishing industries) there is a slightly higher percentage of companies in Slovakia than in the other three sample countries (20.2% in Slovakia, the other three countries between 9.6% to and 10.3%), also in industry the Group 8 (professional, scientific, technical, administration and support service activities), in Poland there is a slightly higher percentage than in other the three sample countries (11.5% in Poland, in the rest of our sample countries the percentage is

between 2.3 and 4.4%). Other industries show an almost identical distribution of companies in each of our four sample Eastern European countries.

Therefore, we confirm that, these major transforming economies (Poland, Hungary, Slovakia and the Czech Republic) have registered a change in industry structure. The industry structure of Eastern European countries now shows a structure orientated on the markets' needs.

4.7. DESCRIPTION OF EASTERN EUROPEAN COUNTRIES: CONCLUSIONS

Globalization, European Union enlargement, and the combination of transition processes affect the overall development of transition economies in the most fundamental ways. Rapid advancement in the process of transition accompanied by full participation (due to EU membership) in the wide-open European economy enables countries - such as: the Czech Republic, Poland, Hungary, Slovakia, and their economic agents - to seize the opportunities and reap the benefits of such a wide-open European market. There is much information available in the financial market. The now wide-open European market gives many opportunities. However, economic actors in countries in transition are still significantly different to Western European managers. We may perceive important differences between Eastern and Western European countries in terms of culture, history, economic data, and social differences.

A variety of characteristics of firms has been presented: size of the Eastern European companies, industry structure, the number of listed companies which signals the growth of the capital market. Additionally, some institutional factors of the Eastern European environment have been presented such as: level of investor protection, level of transparency, audit quality, tax issue, or accounting normative, as well descriptions of the landscape of Eastern European countries. They show that Eastern European countries are different to their Western European counterparts.

It is certain, that Eastern European countries have been in steady transition over the past decade. They continue to make great strides in overcoming the drag exerted by their communist heritage. Nevertheless, Eastern Europe countries are still characterized by environmental uncertainty. The theory of the firm (Child, 1972; Williamson, 1975) recognizes that environmental uncertainty places significant constraints on firms, affecting strategy and decision-making. As the literature points out, two dimensions

generally characterize environmental uncertainty: complexity and dynamism (Child, 1972; Thompson, 1967). Both elements might be observed in the companies of Eastern Europe. On one side, managers of companies must face the new complex and highly competitive European market. This high competition leads to constant changes in the market. Nothing is like it in the old communist system of management. Now the competition and the market set the pace. For one side, negotiation with Western European countries requires transparency and full financial information support. On the other hand, still the "communist" mentality of the managers prevails (where the less information shown the better for the negotiation).

Therefore, we clearly may observe that the mechanisms of Eastern European companies are complex and multifaceted. Managers in this nature kind of environment may do respond by earnings management. Consequently, managers of emerging Eastern European countries indeed may have wide range of possible motivations for practicing earnings management. Nevertheless, taking into account the above considerations, we expect that earnings management and the motivations for such behaviour in the Eastern European countries will be as complex and diverse as it is in Western European countries. We think that the perception of earnings management may differ, because we state that this perception is highly influenced by the national culture, history, heritage, etc of each country. In this context, we think it can be very interesting investigating the phenomenon of earnings management in Eastern European countries. Eastern and Western European countries are so different; hence, earnings management can be also different.

Macroeconomic statistics show that Eastern European countries continue to adapt to the open European market with constant transformation and development. Nevertheless, they are still below the Western European economic level. They have not already reached the level of Western markets, as mentioned previously. In these circumstances, managers may have invectives to manage their earnings and obtain better position in terms of the Western European competition.

Finally, exploring the scope of earnings management of Eastern European countries in effect taking into account the whole European Community and not only the Western part of the European Union, can significantly improve investigation into earnings management. Consequently, the investigation of earnings management in these growing Eastern European markets is needed.

PART II

EMPIRICAL RESEARCH

CHAPTER 5

ALTERNATIVE MODELS FOR MEASURING EARNINGS MANAGEMENT. SELECTION OF THE MODEL

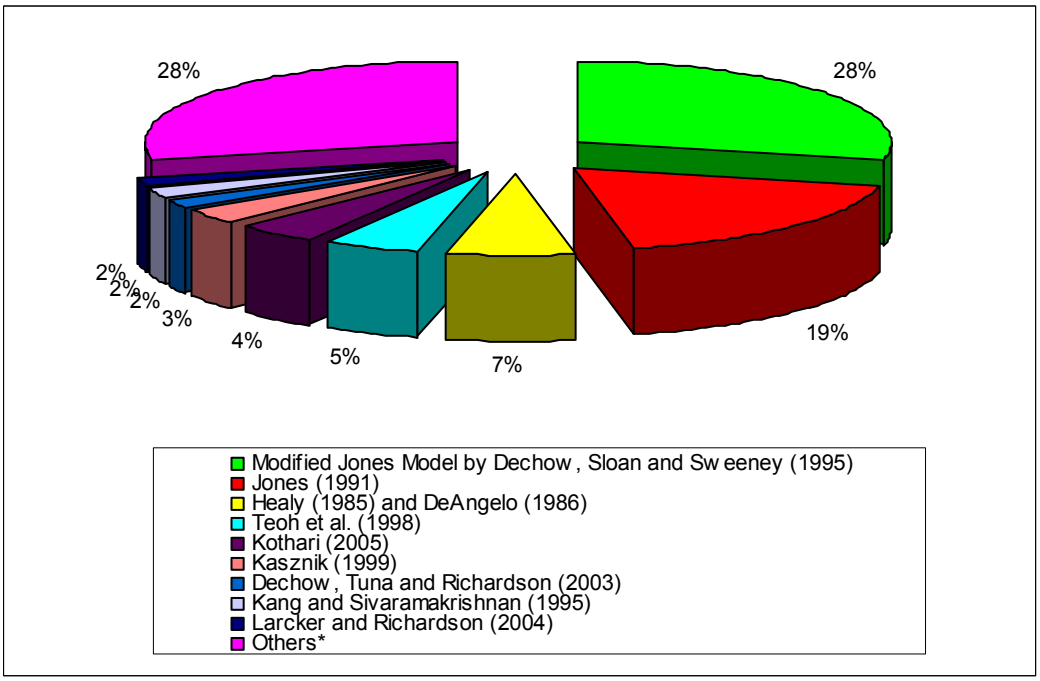
Literature on earnings management points out the wide range of use of alternative models to measure earnings management. Authors require models that estimate the discretionary component of reported earnings. Proposed models range from simple models in which discretionary accruals are measured as total accruals (see for example, Healy 1985, DeAngelo 1986), to more sophisticated models that attempt to separate total accruals into discretionary and nondiscretionary components (see for example, Jones 1991, Kasznik, 1999, Kothari, Leone, Wasley, 2005, among others). However, there is no systematic evidence regarding the relative performance of alternative models on detecting earnings management.

The authors usually center their attention on measuring earnings management using the most applicable and most popular models. Drawing on existing the earnings management literature we point out five the most popular models: the Jones (1991) model, the Modified Jones model (Dechow, Sloan, and Sweeney, 1995), Teoh, Welch and Wong (1998) model, Kasznik (1999) model and Kothari, Leone, Wasley (2005) model. We have not included Healy (1985) and DeAngelo (1986) models, as these models are first attempt to measure the earnings management and they are based on the assumption that nondiscretionary accruals are constant from period to period. In total, these five models were applied in almost 60% of the studies on earnings management (see Figure 5.1). Moreover, if we exclude other methodologies (excluding 61 studies, the group of "Others", in the total of 207 papers examined in our study) the percentage of studies which employed these five models increases to more than 83%.

A small group of authors has sought to contrast the results obtained from different models. These studies recollect different models, determining the power of the models, and identifying the most appropriate way to measure earnings management. As mentioned, we can find only a few studies which take into consideration the evaluation of different models. The study by Dechow, Sloan and Sweeney (1995) is the first comprehensive paper which evaluates the power of different earnings management models. They evaluate five models*: Healy model (1985), DeAngelo model (1986), Jones model (1991), the industry model (Dechow and Sloan, 1991), modified Jones model (1995).* Their results suggest that all the models considered appear to produce reasonably well-specified tests for a random sample of event-years. However, the power of the tests is low for earnings management of economically plausible magnitudes.

When the models are applied for samples of firm-years experiencing extreme financial performance, all models lead to misspecified tests.

Figure 5.1: Percentage of studies using determined model of measuring earnings management



* The group "Others" includes different ways of measuring discretionary accruals, such as: neural networks, questionnaires, the models of the ratio adjustment process, ratio of the absolute value of accruals to the absolute value of cash flow from operations, among others.

Source: The author.

Bartov, Gul and Tsui (2001) evaluate empirically the ability of the cross-sectional version of two discretionary-accruals models - *the cross-sectional Jones model (1991) and the cross-sectional modified Jones model (1995)* - to detect earnings management vis-à-vis their time series counterparts. They show that the cross-sectional Jones model and the cross-sectional modified Jones model perform better than their time-series counterparts in detecting earnings management.

Yoon and Miller (2002) compare two models: *Jones model (1991) and Kang and Sivaramkrishinan (1995)*. Their results indicate that the Kang and Sivaramkrishinan model (1995) is a reliable model in estimating the nondiscretionary accruals for Korean firms.

Zhang (2002) evaluates the power of a comprehensive list of six earnings management detecting metrics: *Healy model (1985), DeAngelo model (1986), modified*

Jones model (1995), cross-sectional Jones model (1991), cross-sectional modified Jones model (1995). He offers consistent results across different empirical tests; however, he does not draw out the conclusion which of the applied models is the best in detecting earnings management.

Kothari, Leone and Wasley (2005) examine the specification and power of tests based on performance-matched discretionary accruals. They make comparisons with tests using traditional discretionary accrual measures*: the Jones model (1991) and modified-Jones models (1995).* The results suggest that the Jones and modified-Jones models are severely misspecified in stratified random samples.

Ye (2007) incorporates in his analysis three models: *Jones model (1991), Dechow, Sloan and Sweeney model (1995) and Kothari, Leone and Wasley model (2005).* The Kothari, Leone and Wasley model (2005) using simple pooled regression, demonstrates a substantially better ability to capture the dynamics in accruals than commonly-used models such as the Jones model (1991) and the performance-adjusted Jones model (1995), whose parameters are estimated independently for each industry-year combination. The unexpected accruals generated by the Kothari, Leone and Wasley model (2005) show lower bias and greater power when testing earnings management. They demonstrate as well higher significance than the variables in the original Jones model (1991) and the Dechow, Sloan and Sweeney model (1995).

The Mora and Sabater (2008) study measures the political costs hypothesis of Continental European countries using a sample of Spanish companies. They apply five models*: Jones (1991) model and its extensions: Dechow, Sloan and Sweeney model, 1995; Kasznik model, 1999; Peasnell, Pope and Young model, 2000; and Kothari, Leone and Wasley model (2005)*; to analyse total and discretionary accruals around the time of labour negotiations. The results show that the Jones (1991), Kasznik (1999), and Kothari, Leone and Wasley (2005) models have a lower level of variables than the long-term discretionary accruals version. They observe as well the same results for Jones (1991), Dechow, Sloan and Sweeney (1995), and Peasnell, Pope and Young (2000) models in their short-term versions.

Siregar and Utama (2008) apply in their research four different models*: Jones model (1991), Dechow, Sloan and Sweeney model (1995), Kasznik model (1999) and Dechow, Richardson and Tuna model (2002).* They conclude that the ability of the Jones model and modified Jones model to accurately separate accruals into non-

discretionary and discretionary components is still questionable. Accordingly, there is a possibility of misclassification of non-discretionary and discretionary accruals. If some components of non-discretionary accruals are mistakenly classified as discretionary accruals, then this may explain the positive relation between discretionary accruals and some measures of future profitability.

Finally, in the last period (between 2010 and 2013), we find two more studies evaluating earnings management models. The first one it is a study of Dechow *et al.* (2010) who provide an approach for the detection of earnings management based on six models: *Healy (1985) model, DeAngelo (1986) model, Jones (1991) model, Dechow, Sloan and Sweeney (1995) model, industry model (1996), Dechow and Dichev model (2002)*. Their results suggest that the power of typical accrual-based models can be almost doubled and misspecification in samples with extreme earnings performance is substantially mitigated.

The study of Matis *et al.* (2010) makes an attempt of measuring earnings management using an econometric model valid for the Romanian specificities. They try to establish the level of significance of three acknowledged econometric models - *Jones (1991), Dechow, Sloan and Sweeney (1995) and Kasznik (1999)* - on Romanian economic environment. Their analyses lead to the conclusion that the Jones model (1991) is found to be significant for the Romanian economic environment.

As we may notice, over more than thirty years of investigation on earnings management, in more than two hundred papers, we may find only a few studies which attempt to compare and evaluate the detection ability of the discretionary part of accruals by different models. Additionally, in Chapter 2 we have explained different models. We have identified the advantages, weaknesses and limitations of each model. Young (1999), for example, criticizes the two most applied models in the literature: Jones (1991) and modified Jones model (1995). He points out that these widely used models have systematic errors in measuring abnormal accruals. Defond and Jiambalvo (1994) show another important limitation of the Jones model. They explain that the Jones model requires long time-series data to allow effective estimation of regression parameters. Another criticism, by Kang and Sivaramkrishinan (1995), underlines that the Jones model is subjected to simultaneity, errors-in-variables, or omitted variable problems.

As we may observe, even the widely used Jones model has important limitations. It is obviously biased by some conditions. In this way, investigation on earnings management models is needed. Therefore, we discuss and evaluate a wide range of different earnings management models.

Hence, this chapter has a main objective: we evaluate and assess the ability of existing discretionary accruals models in detecting earnings management. We try to help and facilitate the selection the most appropriate model in detecting the discretionary part of accruals for Eastern European firms. It is because; our main objective of the Thesis is measure earnings management in Eastern European countries. Therefore, selecting the most appropriated model will help to obtain reliable results for our samples of Eastern European countries.

We are motivated to undertake this investigation based on three assumptions: first, because ample and complex evaluation of the different earnings management models (thirteen models) has not been done by prior research. As we have seen, in the literature we may find studies making comparisons between two/ three or five, or even six models; nevertheless so complex a study may produce interesting contrasting results.

Second, each model relies on a different set of variables (for example, annual change in revenues, gross property, change in net receivables, operating expenses, cash flow from operations, among others). Different models measure earnings management by different proxies. Each model requires at least one parameter to be estimated. The question emerges in relation to selection of a set of variables, which are better to use, and are more descriptively valid in evaluation of the discretionary part of accruals.

Finally, we need to specify the model which offers the most powerful results in detecting earnings management for our sample countries, as mentioned before.

5.1. SAMPLE SELECTION

5.1.1. SAMPLE SELECTION PROCEDURE

Our source of financial data is the Amadeus database supplied by Bureau van Dijk. Amadeus provides financial information for a huge set of European private and public companies. The Amadeus database covers only a range of ten years. We select

the period of 2002 to 2011 for three main reasons: first, we are interested to investigate the period before the European Union membership of Eastern European countries. Second, we observe the period of accession and years immediately after the introduction into European structures[1]. Finally, we are interested in investigating the effect of the world financial crisis[2]. In these circumstances we may test the strength and reliability of each model within different and important periods of time for Eastern European countries and their effect on firms' data.

Moreover, we have observed important missing data in the Amadeus database in the period from 2010 and 2011. Therefore, we eliminate these years. We focus on the seven-year period of 2002 to 2009[3]. We generate the sample retaining only firms for which data were available with regard to the variables considered for all the years of the study (2003-2009). Data from 2002 we used to calculate changes in certain variables, as explained below.

We consider four countries: Poland, the Czech Republic, Hungary, and Slovakia. Each country offers us one independent sample. Having four different samples allows us to compare the obtained results from different samples, and it permits us to contrast widely the results.

We are considering thirteen models. Table 5.1 resumes the models: formula and variables specifications. Most models require at least one parameter to be estimated. Therefore, taking into consideration all models we have in total 15 different variables: total assets, current assets, receivables accounts, payables accounts, operating revenues, operating expenses, cash flow, depreciation and amortization, sales, return on assets (ROA), inventory, gross, property, plant and equipment, current liabilities, intangible assets, book-to-market ratio.

Table 5.1: Models of measuring earnings management: resume

Model	*1. The Healy Model (1985)*
Formula	$NDA_t = 1/n \sum_t \frac{TA_{it}}{A_{it-1}}$
Variables	TA_{it} - Total Accruals in year t A_{it-1} - Total Assets in year t -1

[1] Our four sample Eastern European countries access into European structures in May 2004.
[2] World financial crisis starts in late 2007, and beginning of 2008.
[3] For example, DeFond and Jiambalvo (1994), Peasnell, Pope and Young (2000), Ye (2007), and study of Callao and Jarne (2010) also used the seventh year sample.

	n - number of years in the estimation period
Model	*2. The DeAngelo Model (1986)*
Formula	$NDA_{it} = \frac{TA_{it-1}}{A_{it-2}}$
Variables	TA_{it-1} - Total Accruals in year t -1 A_{it-2} - Total Assets in year t -2
Model	*3. The Jones Model (1991)*
Formula	$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it}$
Variables	TA_{it} - Total Accruals in year t A_{it-1} - Total Assets in year t -1 ΔREV_{it} - Annual change in revenues in year t PPE_{it} - Gross property, plant and equipment in year t ε_{it} - The error term
Model	*4. The Dechow, Sloan and Sweeney called modified Jones Model (1995)*
Formula	$TA_{it} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it}$
Variables	TA_{it} - Total Accruals in year t A_{it-1} - Total Assets in year t -1 ΔREV_{it} - Annual change in revenues in year t ΔREC_{it} - Annual change in receivables accounts in year t PPE_{it} - Gross property, plant and equipment in year t ε_{it} - The error term
Model	*5. The Kang and Sivaramakrishnan Model (1995)*
Formula	$\frac{AB_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it}}{A_{it-1}} + \alpha_2 \frac{EXP_{it}}{A_{it-1}} + \alpha_3 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it}$
Variables	AB_{it} - Accrual balance in year t, which is: $AB_{it} = AR_{it} + INV_{it} + OCA_{it} - CL_{it} - DEP_{it}$ AR_{it} - Receivables INV_{it} - Inventory OCA_{it} - Other current assets than cash, receivables, and inventory CL_{it} - Current liabilities excluding taxes and current maturities of long-term debt DEP_{it} - Depreciation and amortization A_{it-1} - Total Assets in year t -1 ΔREV_{it} - Annual change in revenues in year t EXP_{it} - Operating expenses in year t PPE_{it} - Gross property, plant and equipment in year t ε_{it} - The error term
Model	*6. The Shivakumar Model (1996)*
Formula	$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \alpha_3 \frac{CFO_{it}}{A_{it-1}} + \varepsilon_{it}$

Variables	TA_{it} - Total Accruals in year t A_{it-1} - Total Assets in year t -1 ΔREV_{it} - Annual change in revenues in year t PPE_{it} - Gross property, plant and equipment in year t CFO_{it} - Cash flow from operations in year t ε_{it} - The error term
Model	*7. Key Model (1997)*
Formula	$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \alpha_3 \frac{IA_{it}}{A_{it-1}} + \varepsilon_{it}$
Variables	TA_{it} - Total Accruals in year t A_{it-1} - Total Assets in year t -1 ΔREV_{it} - Annual change in revenues in year t PPE_{it} - Gross property, plant and equipment in year t IA_{it} - Gross intangible assets in year t ε_{it} - The error term
Model	*8. The Teoh, Welch and Wong Model (1998)*
Formula	$TA_{it} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta SALE_{it} - \Delta REC_{it}}{A_{it-1}} + \varepsilon_{it}$
Variables	TA_{it} - Total Accruals in year t A_{it-1} - Total Assets in year t -1 $\Delta SALE_{it}$ - Change in sales in year t ΔREC_{it} - Annual change in receivables in year t ε_{it} - The error term
Model	*9. The Kasznik Model (1999)*
Formula	$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \alpha_3 \frac{\Delta CFO_{it}}{A_{it-1}} + \varepsilon_{it}$
Variables	TA_{it} - Total Accruals in year t A_{it-1} - Total Assets in year t -1 ΔREV_{it} - Annual change in revenues in year t PPE_{it} - Gross property, plant and equipment in year t ΔCFO_{it} - Change in cash flow from operations in year t ε_{it} - The error term
Model	*10. The Yoon and Miller Model (2002)*
Formula	$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{\Delta EXP_{it} - \Delta PAY_{it}}{A_{it-1}} + \alpha_3 \frac{NCASH_{it-1} \times GPPEGRW_{it}}{A_{it-1}} + \varepsilon_{it}$
Variables	TA_{it} - Total Accruals in year t A_{it-1} - Total Assets in year t -1 ΔREV_{it} - Annual change in revenues in year t ΔREC_{it} - Annual change in receivables accounts in year t ΔEXP_{it} - Change in operating expenses excluding non-cash expenses in year t

	ΔPAY_{it} - Change in payables accounts in year t $NCASH_{it-1}$ - Non-cash expenses such as depreciation in year t-1 $GPPEGRW_{it}$ - A rate of growth in gross property, plant and equipment in year t ε_{it} - The error term
Model	*11. The Dechow, Richardson, and Tuna Model (2003)*
Formula	$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{(1+k)\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \alpha_3 \frac{TA_{it-1}}{A_{it-2}} + \alpha_4 \frac{\Delta SALE_{it+1}}{A_{it}} \varepsilon_{it}$
Variables	TA_{it} - Total Accruals in year t A_{it-1} - Total Assets in year t -1 k – is a slope coefficient from regression ΔREC_{it} on ΔREV_{it} ΔREV_{it} - Annual change in revenues in year t ΔREC_{it} - Annual change in receivables accounts in year t PPE_{it} - Gross property, plant and equipment in year t TA_{it-1} - Total Accruals in year t-1 $\Delta SALE_{it+1}$ - Annual change in sales from current year (t) to next year (t+1) $(SALE_{t+1} - SALE_t) / SALE_t$ ε_{it} - The error term
Model	*12. The Larcker and Richardson Model (2004)*
Formula	$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta SALE_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \alpha_3 \frac{BM_{it}}{A_{it-1}} + \alpha_4 \frac{CFO_{it}}{A_{it-1}} + \varepsilon_{it}$
Variables	TA_{it} - Total Accruals in year t A_{it-1} - Total Assets in year t -1 $\Delta SALE_{it}$ - Change in sales in year t ΔREC_{it} - Annual change in receivables accounts in year t PPE_{it} - Gross property, plant and equipment in year t BM_{it} - Book-to-market ratio in year t CFO_{it} - Cash flow from operations in year t ε_{it} - The error term
Model	*13. The Kothari, Leone and Wasley Model (2005)*
Formula	$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta SALE_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \alpha_3 \frac{ROA_{it-1}}{A_{it-1}} + \varepsilon_{it}$
Variables	TA_{it} - Total Accruals in year t A_{it-1} - Total Assets in year t -1 $\Delta SALE_{it}$ - Change in sales in year t ΔREC_{it} - Annual change in receivables accounts in year t PPE_{it} - Gross property, plant and equipment in year t ROA_{it-1} - Return on assets in year t ε_{it} - The error term

Source: Based on the literature, see Chapter 2.

Within the thirteen above models we abandon and discard the Healy model (1985) and the DeAngelo model (1986) from our analysis. These two models are the first attempts to measure earnings management. However, they are based on an unfounded assumption, that nondiscretionary accruals are constant from period to period. Both the Healy model (1985) and the DeAngelo model (1986) assume that nondiscretionary accruals are constant over time, and that changes can only be discretionary. Kaplan (1985) points out, that the level of nondiscretionary accruals should change in response to changes in economic circumstances, and the impact of the economic circumstances on nondiscretionary accruals will cause inflated standard error due to the omission of relevant (uncorrelated) variables.

In addition, both models measure earnings management in the "direct way". This means that they instantaneously show the scale of the manipulation[4], which prevents us from evaluating the power of the models (regression models permit evaluation of the power of the models and the scale of the manipulation).

We abandon as well the model of Larcker and Richardson (2004). The book-to-market variable limits the sample significantly. We observe significant missing data from the book-to-market variable. The missing data leads us to reject this model for the fact of the impossibility of obtaining reliable sample data. Within the total of our four countries sample only three firms fulfill the requirements data to be able to apply Larcker and Richardson model. In these circumstances we centre analysis on ten models on earnings management.

Furthermore, to avoid subjectivity when selecting a model, we compare the relative performance of all ten alternative discretionary accrual models. We are interested selecting the model with the highest precision in detecting earnings management. According to Carmines and Zeller (1979) all kinds of measures can be seen as the sum of three components:

[4] As we have seen in Chapter 2 the Healy (1985) model tries to detect earnings management by estimating deviations from the average accruals. The mean total accruals from the estimation period then represent the measure of non-discretionary accruals (NDA). Discretionary accruals are the result of deducting the non-discretionary accruals from the total accruals. Earnings management is seen as any deviation from the average (Praag, 2001). In the same line of investigation, the DeAngelo (1986) model does not differ much from the Healy model. In the DeAngelo model the period of estimation for non-discretionary accruals is focused on prior year observation. The total accruals of previous years are the measure of non-discretionary accruals. It means that non-discretionary accruals are equal to the total accruals of the last period (Bartov and Gul, 2000). The changes between this period and the previous period are seen as discretionary accruals.

$$\underbrace{M}_{\text{measure}} = \underbrace{V}_{\text{true store}} + \underbrace{S}_{\text{systematic error}} + \underbrace{r_e}_{\text{random error}}$$

If the systematic error is low, than the measure is valid. If the random error is low, the measure is reliable. In other words, validity refers to the degree to which instruments truly measure the construct which they are intended to measure, and reliability to the degree to which measures have the lowest possibility of error (Peters, 1979). Besides, the reliability of models depends on the sample size.

To secure the objectivity, independence and neutrality of the results obtained for each of the models (an evaluation of ten models is made), we used the same sample of companies for each model. We are aware that our sample size will decrease significantly, as it is very difficult to support all variables (11 variables are required to test all ten models) for all the companies for all the four countries. For one side, we lose the number of firms, but on the other hand, we obtain very reliable results. Hence, the results for different models are comparable.

We observe that observations from 2009 have fallen. Not all variables are available for this year. Therefore, we had to discard this year from our samples. Besides, incomplete and missing data of some variables limits our samples. Additionally, for each variable we eliminate outliers. Outliers are observations falling outside the range set by the mean value plus/minus three times the standard deviation. Table 5.2 shows the sample selection procedure.

Table 5.2: Sample selection procedure

	Czech Republic	***Poland***	***Hungary***	***Slovakia***	**Total**
Total number of firms available in Amadeus data base	3,006	2,609	183	398	6,196
Firms with incomplete data	(1,894)	(1,600)	(25)	(253)	(3,772)
Firms with extreme observations	(88)	(155)	(71)	(55)	(369)
Total sample firms	**1,024**	**853**	**87**	**90**	**2,054**
Number of observations	7,168	5,971	609	630	14,378

Source: The author.

Isaac and Michael (1981) suggest that the sample of the surveys research should be systematic, representative, objective, and quantitative. It should be planned to secure appropriate content and efficient data collection, reflecting the population. Hence, the

representative samples assure that the results of sample can subsequently be generalized back to the population. Our sample fulfills the requirement to be a representative sample, see Table 5.3. This means that the results obtained are valid, and can be translated into the total of the "population". The results can be interpreted and understood with legitimate significance.

Some studies point out the requirement of more than 10 observations per company (see for example, Dechow, Sloan and Sweeney, 1995). Nevertheless, studies by DeFond and Jiambalvo (1994), Peasnell, Pope and Young (2000), Ye (2007), or Callao and Jarne (2010), among others, based their studies on less than 10 observations per company. Our total sample comprises a total of 14,378 observations (seven observations for each firm, period 2002 to 2008).

Table 5.3: Sample size selection chart

Recommended sample sizes for two different precision levels					
	Sample Size			**Sample Size**	
Population size	**5%**	**10%**	**Population size**	**5%**	**10%**
10	10		275	163	74
15	14		300	172	76
20	19		325	180	77
25	24		350	187	78
30	28		375	194	80
35	32		400	201	81
40	36		425	207	82
45	40		450	212	82
50	44		475	218	83
55	48		500	222	83
60	52		1,000	286	91
65	56		2,000	333	95
70	59		3,000	353	97
75	63		4,000	364	98
80	66		5,000	370	98
85	70		6,000	375	98
90	73		7,000	378	99
95	76		8,000	381	99
100	81	51	9,000	383	99
125	96	56	10,000	385	99
150	110	61	15,000	390	99
175	122	64	20,000	392	100
200	134	67	25,000	394	100
225	144	70	50,000	397	100
250	154	72	100,000	398	100

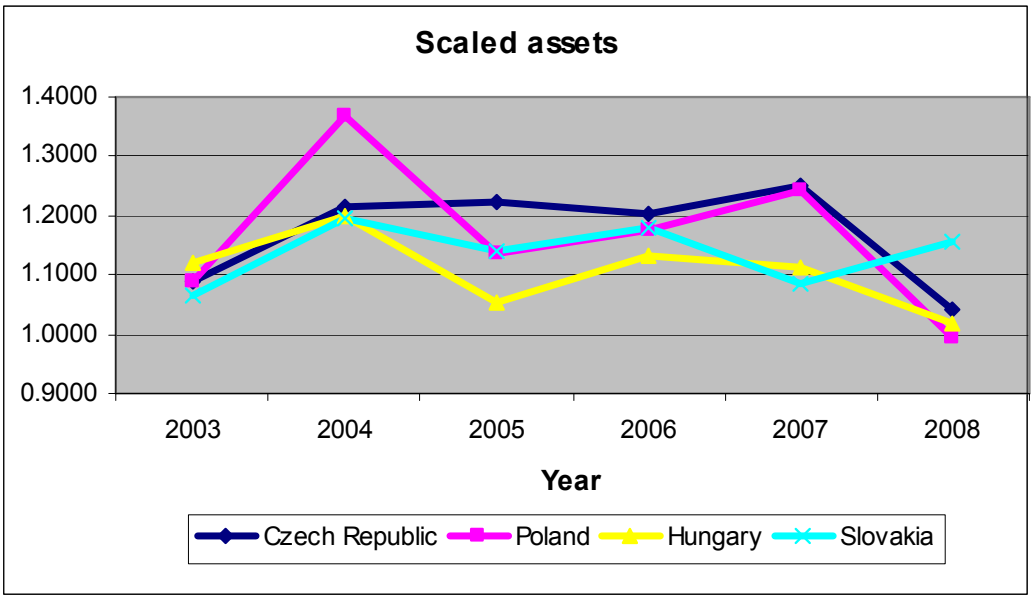
Source: Isaac and Michael, 1981.

5.1.2. SAMPLE CHARACTERISTICS

The sample is designed to investigate the power and explanation ability of each model of measuring earnings management. This section shows the characteristics of our four samples in evaluating the performance of different accruals models. Along with our ten models we have 11 different variables: total assets, property, plant and equipment, intangible assets, revenues, receivables accounts, payables accounts, expenses, non-cash expenses, cash flow, sales, return on assets (ROA). We provide descriptive statistics on all of them, see Annex 5.1.

Focusing on some of the variables (total assets, sales, ROA), we describe the sample and present some graphics. As we may observe in Figure 5.2 the ***total scaled assets*** of the Czech firms in the period of 2003-2007 grew progressively. We then observe a significant decrease in 2008. The Polish and Hungarian samples show slightly different tendencies. Both countries at the beginning of the investigating period indicate substantial growth of total assets.

Figure 5.2: Assets (mean) by country



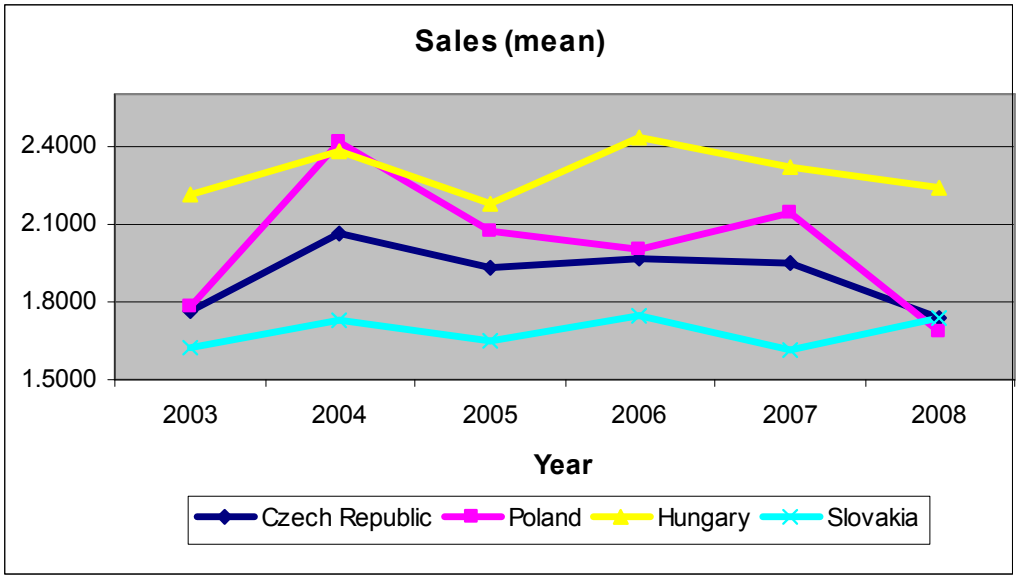
Source: The author.

In 2005 we may observe a significant decrease, to again recover, and begin to increase between 2006 and 2007. Finally, in 2008 we may observe deep decreases for both countries, the same as for the Czech sample. Finally, companies from Slovakia

show slight fluctuation within the examination period, with the exception of 2008 where we may observe a considerable increase in the total of scaled assets.

Figure 5.3 presents graphics on ***sales scaled by lagged total assets*** for each country. The Czech and Polish companies show similar tendencies over the years. First, we may observe a significant increase in sales. Then, a decrease is observed. Sales recover slightly in 2007. Finally, the sales drop notably in 2008. Hungarian companies between 2003 and 2006 show significant fluctuations. Then within the final two years they start to decrease. Slovakian companies present instability and fluctuations over the period. We observe variations: increasing and decreasing (year by year) of sales' values.

Figure 5.3: Sales (mean) by country



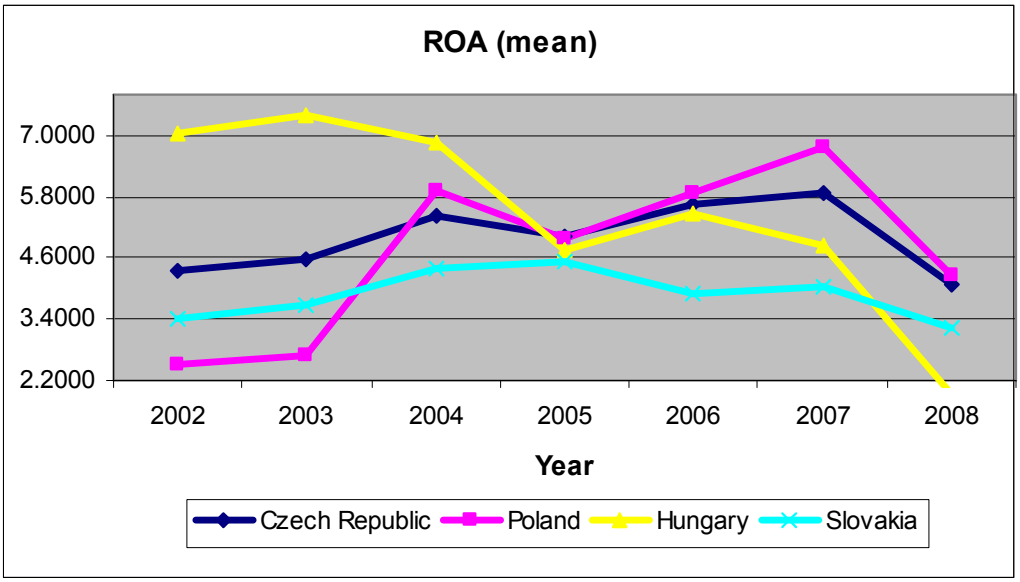
Source: The author.

Figure 5.4 presents the evolution of the ***return on assets (ROA)*** of our sample countries. We can observe significant fluctuations in ROA ratio among all samples countries. Especially, the results of the Hungarian sample show very high results at the beginning of our investigation period. Then a sudden decrease is perceived in 2005. In 2006 ROA recovers slightly, only to drop again very significantly in the final year of our period. The Polish sample shows also high fluctuation between 2002 and 2007, to finally decrease in 2008. This means a lack of stability in the generating of revenues. A sample from the Czech Republic presents a slight gradual increase of ROA within the period of 2002 to 2004 and 2006 to 2007. In 2005 we observe a minor decrease. And in 2008 we detect a significant decrease, the same as all Eastern Europe countries. We may

observe the most stable results in the Slovakian sample. Almost no fluctuations are observed. The results round 3.50 over all years.

In general, we may conclude that all samples (with the exception of Slovakian companies) suffer a decrease in ROA in 2005 and in 2008. On the other hand, in 2006 we observe an important increase within all samples (again with the exception of Slovakia).

Figure 5.4: ROA (mean) by country



Source: The author.

Describing the Eastern European country sample, we may detect some instability over time. This may result from incorporation into tighter competition with the Western European countries, European Union structures requirements, or the influence of the world financial crisis. Nevertheless, companies from the Czech Republic, Poland, Hungary and Slovakia are companies with perspective to grow and develop.

5.2. EVALUATION OF THE MODELS

5.2.1. BASIC QUESTIONS ON EVALUATION OF EARNINGS MANAGEMENT MODELS

Total accruals are calculated as following:

$$TA_{it} = \Delta REC_{it} + \Delta INV_{it} - \Delta PAY_{it} - DEP_{it}^{5} \qquad (1)$$

where TA_{it} is total accruals in year *t*; ΔREC_{it} is the change in receivables accounts; ΔINV_{it} is the change in inventories; ΔPAY_{it} is the change in payable accounts; and DEP_{it} is depreciation.

All models are scaled by total lagged assets. A_{it-1} is used as a deflator to avoid problems of heteroscedasticity. We use also the test of heteroscedasticity proposed by White (1980) to secure the results and obtain consistent estimates.

Summarizing, ten models are applied (the Healy, DeAngelo and Larcker and Richardson models were eliminated). Most models require at least one parameter to be estimated. Our estimation period is from 2002 to 2008. We test each model for the four Eastern European samples to be able to compare the results and to ensure reliability.

5.2.2. CROSS-SECTIONAL ANALYSIS VS TIME-SERIES ANALYSIS

Research designs in prior studies on earnings management can be summarized into two main categories: time series and cross-sectional analysis. The parameters of time-series methods are estimated for each firm in the sample using data from periods prior to the event period. In contrast, the parameters of cross-sectional methods are estimated for each period for each firm in the event sample using the contemporaneous accounting data of firms (Jeter and Shivakumar, 1999). The time-series methods and the cross-sectional methods provide conceptually different estimates of abnormal accruals due to differences in their approaches for estimating expected accruals. To estimate model parameters, time-series methods use data from an estimation period during which

[5] Total accruals can be also calculated as: $TA_{it} = NETPROFIT_{it} - CFO_{it}$ where $NETPROFIT_{it}$ is profit of the company after taxation and CFO_{it} is cash flow from operations.

no systematic earnings management is expected to occur. Cross-sectional methods make no assumptions regarding systematic earnings management in the estimation sample but implicitly assume that the model parameters are the same across all firms in an estimation sample (Jeter and Shivakumar, 1999).

Many studies on earnings management widely used either time-series data, studies such as: Jones (1991), Dechow, Sloan, and Sweeny (1995), Guay, Kothari, and Watts (1996), Kallunki and Martikainen (1999), McNichols (2000), Cormier and Martinez (2006); or cross-section data, studies such as: Subramanyam (1996), DeFond and Subramanyam (1998), Peasnell, Pope, and Young (2000), Bartov, Gul, and Tsui (2001), Larcker and Richardson (2004), Park and Shin (2004), Roychowdhury (2006), Jaggi and Leung (2007), Siregar and Utama (2008), among others. However, there is no consensus about which of the analysis offers better results. Both approaches have limitations.

The time-series approach assumes temporal stationarity of parameter estimates, whereas the cross-sectional approach assumes homogeneity across firms in the same industry (Larker and Richardson, 2004). Moreover, the temporal model requires the sample to have at least ten observations for each firm. This means that the time series approach suffers from the typically short time series data available, and ignores time variation in accruals intensities (Ye, 2007). For studies using annual data, this requirement implies that the sample firms must survive for at least eleven years. Since such firms are more likely to be large, mature firms with greater reputational capital to lose if earnings management is uncovered. Hence, this methodology introduces a selection bias.

On the other hand, the cross-sectional method is less likely to detect any abnormal accruals if such accruals are correlated across several firms in the same industry. This is because the discretionary accruals are firm specific rather than industry-specific (Ebrahim, 2001). Jeter and Shivakumar (1999) state that whenever firms smooth reported earnings, the cross-sectional methods are unlikely to capture the negative abnormal accruals. Only those firms whose accruals are negative relative to the industry benchmark will be identified as earnings managers. This is a significant limitation of the cross-sectional approach.

The literature indicates that cross-sectional methodology is preferred by authors. Subramanyam (1996) for example states that cross-sectional methods have been

generally well received in the literature and have been used in a number of papers. Dechow, Sloan and Sweeney (1995) point out as well that the cross-sectional version has several advantages, such as: (a) it generates a larger sample size to facilitate hypothesis testing; (b) the number of observations per model is greater for the cross-sectional method, which enhances the efficiency and precision of the estimates; (c) the time-series method suffers potential survivorship bias as it generally requires a minimum of 10 years of observations to achieve a reasonable level of estimation efficiency (Dechow, Sloan and Sweeney, 1995). Koh (2003) adds the fourth advantage: (d) given the lengthy time period required by the time-series method, it is possible for the model to be misspecified due to non-stationarity. Bartow *et al.* (2000) insist that the cross-sectional version performs better than the time-series counterpart.

Analyzing papers on earnings management in terms of methodology we may observe the clear preeminence of the application of cross-sectional methods to time-series methods, see Table 5.4.

Table 5.4: Cross-sectional vs. time-series analysis

	Number of studies	***Percentage***
Cross-sectional	132	68.39%
Time-series	17	8.81%
Both: Cross-sectional and Time-series	6	3.11%
Other methodology	38**	19.69%
	193*	**100.00%**

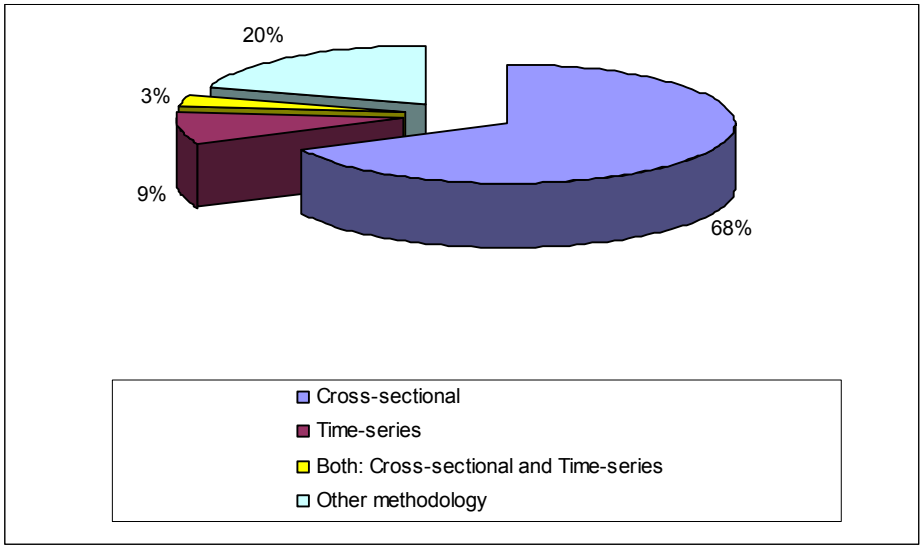
* We have investigated a total of 207 papers on earnings management; however, there are 14 theoretical papers that do not supply any methodology.

**The percentage of the other methodology indicates the application of different methodologies (not using time-series or cross-sectional) such as: using logistic regressions (Kerstein and Rai, 2007); or using an asymmetric information model (Chaney and Lewis, 1995); or for example, using a model that incorporates any changes in the discretionary accruals without employing the accounting methods directly (Darrough, Pourjalali and Saudagaran,1998), among others.

Source: The author.

Cross-sectional methods evidently dominate the earnings management literature. More than two thirds of the studies (68%) apply the cross-sectional methodology. Only 17 of the 193 studies, or 9%, use the time-series methods, see also Figure 5.5.

Figure 5.5: Cross-sectional vs. time-series: percentage of studies



Source: The author.

Additionally, little research has been conducted to date that evaluates the effectiveness of these methods at detecting earnings management. We find only four studies that try to compare the cross-sectional and time-series methodology.

Lo (2008) conducts a theoretical investigation on cross-sectional and time-series approaches. He points out that models can be summarized into three categories: time series, cross-sectional, and cross-country, where the cross-country approach is a variation of the cross-sectional approach. Othman and Zeghal (2006) show the advantages and disadvantages of each of the methods: cross-sectional and time-series. Ye (2007) explains as well the advantages of both cross-sectional and time-series Jones models. Park and Ro (2004) try to evaluate both methodologies. They conclude that these methods (time-series, cross-sectional) do not always work as well as indicated in the literature.

Despite the widespread use of cross-sectional methodology we evaluate both methodologies to select the most appropriate for our Eastern European countries investigation. We try to avoid making a selection one of them (cross-sectional or time-series) based only on the perceptions of other authors.

5.2.3. CRITERIA FOR EVALUATING EARNINGS MANAGEMENT MODELS

To determine which model to use in our main analysis, we follow the criteria proposed by the literature. We use four measures: explanatory power (adjusted R^2), predicted sign of the variables, the standard errors of the variables and the level of significance of the variables.

Explanatory power (adjusted R^2) has been widely used by the authors as a measure of the strength and reliability of models on earnings management. We may find it in numerous studies, such as, Key (1997), Peasnell, Pope and Young (2000), McNichols (2000), Yoon and Miller (2002), Burgstahler, Hail and Leuz (2006), Ye (2007), Siregar and Utama (2008), among many others. By indicating adjusted R^2 authors explain the variability and relevance of the selected models. However, we cannot determine the intervals of values of adjusted R^2 which assure us verifiable results. The only way is to contrast the obtained results over time, and compare the achieved results and tendencies between the models. If higher values of adjusted R^2 are observed it means that the model is better at explaining earnings management. The literature talks about the "goodness" of a model. On the other hand, lower values of adjusted R^2 indicate a worse model in the specification earnings management.

The second measure proposed by the earnings management literature, is the ***predicted sign of the variables,*** see for example studies by: Peasnell, Pope and Young (2000), McNichols (2000), Bartov, Gul and Tsui (2001), Jeanjean (2000), Seok Park and Park (2004), Kothari, Leone and Wasley (2005), Ye (2007), Dechow *et. al.* (2010), Matis *et al.* (2010), and others. The predicted sign of the variables indicates whether the expectation of relation with other variables is met. If correct sign is received, the model better explains the phenomenon of earnings management. If the variable obtains a different sign than expected, the variable must be excluded from the model.

The third test is the ***standard errors of the variables***. Many authors also use the standard error to determine the effectiveness of the model in detecting earnings management, see for example, Dechow, Sloan and Sweeney (1995), Konings, Labro and Roodhooft (1998), McNichols (2000), Jeanjean (2000), Bartov, Gul and Tsui (2001), Seok Park and Park (2004), Kothari, Leone and Wasley (2005), Siregar and Utama (2008), Mora and Sabater (2008), among others. Analysis of standard deviation

is used to describe the variability in samples. Standard deviation is used to show how much variation or dispersion exists from the average (mean) (see for example, Blalock, 1979; Snedecor and Cochran, 1980; Weisberg, 1985, Neter, Wasserman and Whitmore, 1993). A low standard deviation indicates that the data points tend to be very close to the mean, which indicates a better model for the explanation of earnings management. Whereas high standard deviation indicates that the data points are spread out over a large range of values, and that the model is worse for explaining the phenomenon of earnings management.

Finally, the last test of the "goodness" of the earnings management models is the ***significance test***. Statistical significance of the variables informs the degree to which the results are true, in the sense of being representative of the population. It confirms about the goodness of fit of the model (see for example, Blalock, 1979; Snedecor and Cochran, 1980; Weisberg, 1985, Neter, Wasserman and Whitmore, 1993). High significance means better model. No significance of the variable means that the variable must be excluded from the model. A model which has all significant variables explains the phenomenon of earnings management in the correct way. On the contrary, a model with some non-significant variables indicates that these variables do not explain the manipulation of the discretionary part of accruals.

Taking into consideration all four tests: adjusted R^2, predicted sign of the variables, standard deviation of the means of the discretionary part of accruals, as well as significance of the variables of the models, we evaluate the models on detecting earnings management. We try to select the most appropriate model for our samples to detect earnings management.

5.2.4. EVALUATION OF MODELS APPLIED ON OUR SAMPLE DATA

5.2.4.1. CROSS-SECTIONAL ANALYSIS

5.2.4.1.1. CROSS-SECTIONAL ANALYSIS: ADJUSTED R^2

Table 5.5 reports the explanatory power of the models by adjusted R^2 within our countries' samples. We may observe that adjusted R^2 for the Jones model (1991) in general shows low values, values rounding 9%. However, in some cases the adjusted R^2 reach 22.2% for the Hungarian sample in 2003 and 27.8% for the Slovakian sample in

2004 (see details on means of adjusted R^2 in Annex 5.2). The Modified Jones model (1995) presents even worse results. Adjusted R^2 mean rounds to 6% (exactly 5.97%). Only four times does the adjusted R^2 exceed 10%. It exceeds for the Polish sample in 2004 obtaining the value of 14.1%, for the Hungarian sample in 2006 obtaining 14.4%, and twice for the Slovakian sample obtaining in 2004 the percentage of 26.3 and in 2006 percentage of 10.4%.

The Kang and Sivaranakrishnan model (1995) reports similar results to the Jones model (1991). Adjusted R^2 values range from 1.1% to 27.0%, showing a mean of 9%. The Key model (1997) also indicates a mean of adjusted R^2 of about 8.41%, with values from 1.3% to 27.0%.

Table 5.5: Mean values of Adjusted R^2 by models and across the countries' samples

Measurement model	***Sample countries***				
Mean value of R^2	*Czech Republic*	*Poland*	*Hungary*	*Slovakia*	**Mean**
Jones (1991)	0.0947	0.0666	0.0890	0.0996	**0.0875**
Modified Jones (1995)	0.0452	0.0617	0.0511	0.0806	**0.0597**
Kang and Sivaranakrishnan (1995)	0.0973	0.0796	0.0821	0.0900	**0.0872**
Shivakumar (1996)	0.0995	0.1449	0.1200	0.0953	**0.1149**
Key (1997)	0.0957	0.0705	0.0796	0.0906	**0.0841**
Teoh, Welch and Wong (1998)	0.0120	0.0287	0.0192	-0.0060	**0.0135**
Kasznik (1999)	0.0953	0.1423	0.1177	0.1106	**0.1165**
Yoon and Miller (2002)	0.3490	0.3733	0.3500	0.4292	**0.3754**
Dechow, Richardson and Tuna (2003)	0.0668	0.0848	0.0800	0.1079	**0.0849**
Kothari, Leone and Wasley (2005)	0.0405	0.0661	0.0599	0.0910	**0.0644**

Source: The author.

The Shivakumar (1996) and Kasznik models (1999) report similar results. They show slightly better results than the Jones model (1991), Kand and Sivaranakrishnan model (1995), and Key model (1997). The mean rounds to 11.5% for both models (Shivakumar: 11.49%; Kasznik: 11.65%). Adjusted R^2 in the Shivakumar model (1996) exceeds 10 times the 10% value, even once reaching the 50% rate (for the Polish sample in 2003). The Kasznik model (1999) also exceeds 10 times the 10% value of adjusted R^2. The highest value reached is 41.95% for Polish sample in 2003. As mentioned, details on means are presented in Annex 5.2

The Teoh, Welch and Wong model (1998) shows a very low adjusted R^2. The values even decrease significantly to reach negative values. This is observed for the

Hungarian sample in 2007 in almost all models. Greene (2002) explains in his econometric study that adjusted R² may decline when a variable is added to the set of independent variables, and indeed, adjusted R² may even be negative (Greene, 2002). It is considered an admittedly extreme case. It supposes that both the independent variable and dependent variable have a sample correlation of zero. Then the adjusted R² will equal $-1/(n-2)$[6]. In this way, the Teoh, Welch and Wong model (1998) is the worst model within our models. This model reports the lowest value of adjusted R². Up to eleven times the negative value of the adjusted R² are observed. This leads to the conclusion of an unreliable model.

The Dechow, Richardson and Tuna model (2003) and Kothari, Leone and Wasley (2005) also report poor results, mean values of 8.49% and 6.44% respectively for the Dechow, Richardson and Tuna (2003) and Kothari, Leone and Wasley (2005) models.

Finally, our results indicate that the Yoon and Miller model (2002) offers the highest values of adjusted R². The values vary from 11% (only once such low a value) until 64%. The mean value rounds to 40% (exactly 37.54%). Additionally, only four times does the value of adjusted R² decreases below 25%.

To contrast the results, we present results on adjusted R² test for an accumulated total of our four samples, see Table 5.6. We present results over years for each model for a total of the countries' samples. The results are calculated as mean values within all four Eastern European countries. Observing the mean values over years, we identify relatively low values of Jones model (1991). Only in 2003 and 2004 do the values exceed the level of 10%. In 2003 the adjusted R² has 11.75% and in 2004 17.20%. The Kang and Sivaranakrishnan model (1995) presents similar results over time as the Jones model (1991). We may observe again that only in 2003 and 2004 do the adjusted R² reach levels above 10%, 11.24% and 17.77% respectively for 2003 and 2004. The Shivakumar (1996) and Kasznik models (1999) report better results for the first two years of the investigations. In 2003 the Shivakumar model indicates mean values of adjusted R² of 22.98% and the Kasznik model 20.90%. In 2004 18.16% and 19.74% are

[6] The adjusted R² formula. The relationship between R² and adjusted R² (Greene, 2002).
$\overline{R}^2 = 1 - \frac{n-1}{n-K}(1-R^2)$

observed respectively. In the following years, the level of adjusted R^2 decreases considerably, showing values between 3% and 9%.

Table 5.6: Mean values of adjusted R^2 for a total of four samples over years

Measurement model	*Years*						
Mean value of R^2	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	**Mean**
Jones (1991)	0.1175	0.1720	0.0355	0.0811	0.0552	0.0636	**0.0875**
Modified Jones (1995)	0.0470	0.1405	0.0264	0.0772	0.0292	0.0376	**0.0597**
Kang and Sivaranakrishnan (1995)	0.1124	0.1777	0.0344	0.0790	0.0600	0.0600	**0.0872**
Shivakumar (1996)	0.2298	0.1816	0.0569	0.0965	0.0594	0.0653	**0.1149**
Key (1997)	0.1126	0.1690	0.0305	0.0778	0.0507	0.0639	**0.0841**
Teoh, Welch and Wong (1998)	0.0135	0.0240	0.0230	0.0066	-0.0012	0.0151	**0.0135**
Kasznik (1999)	0.2090	0.1974	0.0521	0.1093	0.0628	0.0682	**0.1165**
Yoon and Miller (2002)	0.4764	0.3812	0.4365	0.2943	0.3438	0.3200	**0.3754**
Dechow, Richardson and Tuna (2003)		0.1606	0.0538	0.0868	0.0384		**0.0849**
Kothari, Leone and Wasley (2005)	0.0502	0.1357	0.0516	0.0844	0.0317	0.0327	**0.0644**

Source: The author.

The Key (1997) and Kasznik models (1999) also show better results in 2003 and 2004, 11.26% in 2003 and 16.90% in 2004 for the Key model (1997); and 20.90% and 19.74% for the Kasznik model (1999) respectively for 2003 and 2004. Finally, the Yoon and Miller model (2002) explains the variables in the best way. The adjusted R^2 has the highest values of means, ranging from 29.43% to 47.64%. This indicates that even the lowest value of the Yoon and Miller model (2002), which is 29.43, supports a much better explanation of results than any other earnings management model.

The lowest values of adjusted R^2 are presented by the Teoh, Welch and Wong model (1998), the Dechow, Richardson and Tuna model (2003) and the Kothari, Leone and Wasley model (2005). In these models adjusted R^2 only twice goes over 10%.

5.2.4.1.2. CROSS-SECTIONAL ANALYSIS: PREDICTED SIGN

Table 5.7 presents the details on coefficient on predicted sign of the variables. The percentage of the coefficient of a predicted sign for each model is calculated as the number of times the variable gets the expected sign to total number of observations. We have a six year period of observation, hence we calculate the percentage of the expected

sign as a relation (division) between the number of times the variable obtains the expected sign to the total of years (divided into six).

The Jones model (1991) shows a relatively greater proportion of coefficients that fulfill the predicted sign. The results indicate as well that the Modified Jones model (1995), Key model (1997), and Yoon and Miller model (2002) seem to be reliable models in estimating the nondiscretionary accruals. For the Modified Jones model (1995) the ΔREV-ΔREC variable in 62.50% regressions have the expected sign. The second variable, PPE, shows perfectly the relationship with the dependent variable, negative relationship with gross property, plant and equipment (100%). The results of the regressions of the Key model (1997) show that 64 of 72 observations (88.89%) have the expected signs of the variables.

Furthermore, variables for the Yoon and Miller model (2002) show consistent signs. Changes in the cash revenues variable, ΔREV-ΔREC have negative relationships with TA (total accruals variable). We obtain this result for all regressions. Changes in cash expenses, ΔEXP-ΔPAY has positive relationships with TA (total accruals), and they show 100% of expected sign. Finally, non-cash expenses capture the non-discretionary nature of non-current accruals. They show negative relationships with TA. Approximately two thirds of them have the expected sign of the regression.

Other models in most cases present right and adequate results in terms of the relationship of independent variables with dependent variables, see models of Teoh, Welch and Wong (1998), Dechow, Richardson and Tuna (2003), Kothari, Leone and Wasley (2005). However, the Shivakumar model (1996) in some cases shows regressions that do not show such a clear expected relationship. The third variable of cash flow has the expected relationship, which is positive; nevertheless, only the Czech sample regressions correctly show this association (83.33%). In the same way, the variable of change in cash flow should have negative relationship (Kasznik model, 1999). However our regressions show poor results: 0.00%, 16.67%, 16.67% and 33.33%, respectively for the Czech, Polish, Hungarian and Slovakian regressions.

Table 5.7: Evaluation of earnings management measurement models: predicted sign

Measurement model: variables and predicted sign	*% of the variables which have predicted sign of the estimated parameters**				
	Czech Republic	Poland	Hungary	Slovakia	Total
Jones (1991)					
ΔREV (+)	100.00%	100.00%	83.33%	100.00%	95.83%
PPE (-)	100.00%	100.00%	100.00%	100.00%	100.00%
Modified Jones (1995)					
ΔREV-ΔREC (+)	83.33%	50.00%	66.67%	50.00%	62.50%
PPE (-)	100.00%	100.00%	100.00%	100.00%	100.00%
Kang and Sivaranakrishnan (1995)					
ΔREV (+)	100.00%	100.00%	83.33%	100.00%	95.83%
EXP (+)	33.33%	16.67%	66.67%	50.00%	50.00%
PPE (-)	100.00%	100.00%	83.33%	100.00%	95.83%
Shivakumar (1996)					
ΔREV (+)	100.00%	100.00%	83.33%	100.00%	95.83%
PPE (-)	100.00%	100.00%	100.00%	100.00%	100.00%
CFO (-)	83.33%	16.67%	16.67%	50.00%	41.67%
Key (1997)					
ΔREV (+)	100.00%	100.00%	83.33%	100.00%	95.83%
PPE (-)	100.00%	100.00%	100.00%	100.00%	100.00%
IA (-)	100.00%	83.33%	50.00%	50.00%	70.83%
Teoh, Welch and Wong (1998)					
ΔSALE- ΔREC (+)	83.33%	83.33%	66.67%	33.33%	66.67%
Kasznik (1999)					
ΔREV (+)	100.00%	50.00%	83.33%	83.33%	79.17%
PPE (-)	100.00%	100.00%	100.00%	100.00%	100.00%
ΔCFO (-)	0.00%	16.67%	16.67%	33.33%	16.67%
Yoon and Miller (2002)					
ΔREV-ΔREC (-)	100.00%	100.00%	100.00%	100.00%	100.00%
ΔEXP-ΔPAY (+)	100.00%	100.00%	100.00%	100.00%	100.00%
NCASH-1xGPPEGRW (-)	16.67%	83.33%	83.33%	66.67%	62.50%
Dechow, Richardson and Tuna (2003)					
(1+k)ΔREV-ΔREC (+)	100.00%	25.00%	75.00%	75.00%	68.75%
PPE (-)	100.00%	100.00%	100.00%	100.00%	100.00%
TA-1 (+)	25.00%	25.00%	25.00%	50.00%	31.25%
ΔSALE+1 (+)	75.00%	50.00%	100.00%	75.00%	75.00%
Kothari, Leone and Wasley (2005)					
ΔSALE-ΔREC (+)	83.33%	50.00%	66.67%	33.33%	58.33%
PPE (-)	100.00%	100.00%	100.00%	100.00%	100.00%
ROA-1 (-)	66.67%	83.33%	83.33%	66.67%	75.00%

*Percentage of coefficients for predicted sign for each model is calculated as division between the numbers of variables which have fulfill the expected sign to the total of variables of each model.

where: TA_{it-1}: Total Accruals in year t-1; ΔREV_{it}: Annual change in revenues in year t; ΔREC_{it}: Annual change in receivables accounts in year t; PPE_{it}: Gross property, plant and equipment in year t; EXP_{it}: Operating expenses in year t; ΔEXP_{it}: Change in operating expenses excluding non-cash expenses in year t; CFO_{it}: Cash flow from operations in year t; ΔCFO_{it}: Change in cash flow from operations in year t; IA_{it}: Gross intangible assets in year t; $\Delta SALE_{it}$: Change in sales in year t; ΔPAY_{it}: Change in payables accounts in year t;

$NCASH_{it-1}$: Non-cash expenses such as depreciation in year t-1; $GPPEGRW_{it}$: A rate of growth in gross property, plant and equipment in year t; ROA_{it-1}: Return on assets in year t; k. is a slope coefficient from regression ΔREC_{it} on ΔREV_{it}.

Source: The author.

Based on our results, we conclude that all models present in most of cases the correct relationship between dependent and independent variables. Nevertheless, four models seem to explain the relationship better than the others: the Jones model (1991), Modified Jones model (1995), Key (1997) and Yoon and Miller model (2002). They present higher reliability by showing a higher percentage of predicted sign of the variables.

5.2.4.1.3. CROSS-SECTIONAL ANALYSIS: STANDARD DEVIATION

Table 5.8 provides results on standard deviation and mean values on variables by models (the mean values over years) and among different samples. The results are divided within the panels which correspond to each model. The Jones model (1991) presents high values of standard errors related to the estimated variables (see Panel A). In Poland in 2003, standard error represents more than 10% of the estimated variables of change in revenues (parameter estimation is 0.1198; standard error 0.0124). The Hungarian sample also shows very high values, for example, in 2004 for fixed assets it indicates that the standard error is more than 40% in relation to the parameters of the variable. The Czech sample in 2006 for fixed assets variable also indicates a high standard deviation of 17%. While for Slovakian firms in 2008 fixed assets variable standard deviation represents more than 50% of the parameters. This suggests poor results of the model. Annex 5.3 shows detailed results on standard deviations over years for all models.

The standard deviations for the Modified Jones model (1995) remain as high as in the previous model, rounding from 10% of the variable to even 60% of the variable (Panel B). We also observe poor results for the Kang and Sivaranakrishnan model (1995). A high level of standard errors is observed (Panel C).

Table 5.8: Results on mean values and standard deviation by models among our four Eastern European samples

Panel A: Jones (1991)		Intercept	ΔREV	PPE		
Czech Republic:	Mean value	0.0045	0.0700	-0.0817		
	Std dev.	0.0091	0.0082	0.0159		
Poland:	Mean value	0.0214	0.0443	-0.0956		
	Std dev.	0.0129	0.0106	0.0198		
Hungary:	Mean value	0.0098	0.0344	-0.1010		
	Std dev.	0.0282	0.0243	0.0536		
Slovakia:	Mean value	0.0223	0.0437	-0.1210		
	Std dev.	0.0287	0.0310	0.0452		
Panel B: Modified Jones (1995)		Intercept	ΔREV-ΔREC	PPE		
Czech Republic:	Mean value	0.0154	0.0326	-0.0850		
	Std dev.	0.0092	0.0090	0.0163		
Poland:	Mean value	0.0312	0.0030	-0.0995		
	Std dev.	0.0128	0.0113	0.0198		
Hungary:	Mean value	0.0168	0.0023	-0.0998		
	Std dev.	0.0291	0.0268	0.0555		
Slovakia:	Mean value	0.0327	-0.0057	-0.1227		
	Std dev.	0.0287	0.0324	0.0456		
Panel C: Kang and Sivaranakrishnan (1995)		Intercept	ΔREV	EXP	PPE	
Czech Republic:	Mean value	0.0176	0.0776	-0.0057	-0.0907	
	Std dev.	0.0138	0.0097	0.0043	0.0174	
Poland:	Mean value	0.0488	0.0682	-0.0119	-0.1139	
	Std dev.	0.0176	0.0127	0.0046	0.0217	
Hungary:	Mean value	-0.0016	0.0300	0.0039	-0.0933	
	Std dev.	0.0457	0.0292	0.0124	0.0603	
Slovakia:	Mean value	0.0216	0.0429	0.0005	-0.1205	
	Std dev.	0.0424	0.0376	0.0160	0.0483	
Panel D: Shivakumar (1996)		Intercept	ΔREV	PPE	CFO	
Czech Republic:	Mean value	0.0117	0.0749	-0.0790	-0.0819	
	Std dev.	0.0097	0.0086	0.0159	0.0405	
Poland:	Mean value	0.0114	0.0362	-0.0833	0.0175	
	Std dev.	0.0129	0.0104	0.0184	0.0391	
Hungary:	Mean value	-0.0114	0.0233	-0.1147	0.2196	
	Std dev.	0.0299	0.0243	0.0528	0.1213	
Slovakia:	Mean value	0.0246	0.0439	-0.1217	-0.0192	
	Std dev.	0.0313	0.0318	0.0459	0.1409	
Panel E: Key (1997)		Intercept	ΔREV	PPE	IA	
Czech Republic:	Mean value	0.0063	0.0702	-0.0813	-0.1721	
	Std dev.	0.0092	0.0082	0.0159	0.1285	
Poland:	Mean value	0.0225	0.0465	-0.0947	-0.1337	
	Std dev.	0.0130	0.0107	0.0198	0.1184	
Hungary:	Mean value	0.0091	0.0344	-0.0993	0.0011	
	Std dev.	0.0284	0.0245	0.0556	0.1888	
Slovakia:	Mean value	0.0223	0.0433	-0.1209	0.0037	
	Std dev.	0.0288	0.0312	0.0457	0.2558	
Panel F: Teoh, Welch and Wong (1998)		Intercept	ΔSALE- ΔREC			
Czech Republic:	Mean value	-0.0230	0.0200			
	Std dev.	0.0051	0.0096			

Poland:	Mean value	-0.0278	0.0049			
	Std dev.	0.0064	0.0114			
Hungary:	Mean value	-0.0271	0.0073			
	Std dev.	0.0172	0.0276			
Slovakia:	Mean value	-0.0338	-0.0147			
	Std dev.	0.0142	0.0360			
Panel G: Kasznik (1999)		Intercept	ΔREV	PPE	ΔCFO	
Czech Republic:	Mean value	0.0048	0.0666	-0.0826	0.0574	
	Std dev.	0.0091	0.0089	0.0159	0.0544	
Poland:	Mean value	0.0170	0.0267	-0.0842	0.1353	
	Std dev.	0.0122	0.0108	0.0187	0.0504	
Hungary:	Mean value	0.0155	0.0117	-0.1122	0.3129	
	Std dev.	0.0278	0.0261	0.0527	0.1783	
Slovakia:	Mean value	0.0231	0.0410	-0.1269	0.1807	
	Std dev.	0.0289	0.0320	0.0458	0.1904	
Panel H: Yoon and Miller (2002)		Intercept	ΔREV-ΔREC	ΔEXP-ΔPAY	NCASH-1xGPPEGRW	
Czech Republic:	Mean value	-0.0356	-0.5163	0.6076	0.1970	
	Std dev.	0.0042	0.0256	0.0271	0.1292	
Poland:	Mean value	-0.0354	-0.5746	0.6530	-0.4207	
	Std dev.	0.0054	0.0293	0.0305	0.2044	
Hungary:	Mean value	-0.0360	-0.5522	0.5898	-0.3526	
	Std dev.	0.0139	0.0884	0.0920	0.6357	
Slovakia:	Mean value	-0.0465	-0.5000	0.5800	-0.6218	
	Std dev.	0.0110	0.0736	0.0790	0.5110	
Panel I: Dechow. Richardson and Tuna (2003)		Intercept	(1+k)ΔREV-ΔREC	PPE	TA-1	ΔSALE+1
Czech Republic:	Mean value	0.0119	0.0215	-0.0601	-0.0382	0.0144
	Std dev.	0.0110	0.0147	-0.0133	-0.1960	0.0069
Poland:	Mean value	0.1583	0.0010	-0.0801	0.1185	0.0012
	Std dev.	0.0324	0.0264	-0.0428	-0.3276	0.0082
Hungary:	Mean value	0.0409	-0.0123	-0.0734	0.1224	0.0197
	Std dev.	0.0323	0.0382	-0.0246	2.7953	0.0184
Slovakia:	Mean value	0.1562	0.0247	-0.0702	0.0246	0.0202
	Std dev.	0.0414	0.0200	-0.0307	-0.7382	0.0214
Panel J: Kothari, Leone and Wasley (2005)		Intercept	ΔSALE-ΔREC	PPE	ROA-1	
Czech Republic:	Mean value	0.0166	0.0180	-0.0846	1.3544	
	Std dev.	0.0095	0.0095	0.0164	1.5610	
Poland:	Mean value	0.0292	-0.0023	-0.0975	2.0586	
	Std dev.	0.0130	0.0113	0.0200	2.1098	
Hungary:	Mean value	0.0124	0.0068	-0.1055	4.5982	
	Std dev.	0.0294	0.0274	0.0560	5.2508	
Slovakia:	Mean value	0.0323	-0.0151	-0.1221	7.5836	
	Std dev.	0.0295	0.0348	0.0459	13.2710	

where: TA_{it-1}: Total Accruals in year t-1; ΔREV_{it}: Annual change in revenues in year t; ΔREC_{it}: Annual change in receivables accounts in year t; PPE_{it}: Gross property, plant and equipment in year t; EXP_{it}: Operating expenses in year t; ΔEXP_{it}: Change in operating expenses excluding non-cash expenses in year t; CFO_{it}: Cash flow from operations in year t; ΔCFO_{it}: Change in cash flow from operations in year t; IA_{it}: Gross intangible assets in year t; $\Delta SALE_{it}$: Change in sales in year t; ΔPAY_{it}: Change in payables accounts in year t; $NCASH_{it-1}$: Non-cash expenses such as depreciation in year t-1; $GPPEGRW_{it}$: A rate of growth in gross

property, plant and equipment in year t; ROA_{it-1}: Return on assets in year t; k: is a slope coefficient from regression ΔREC_{it} on ΔREV_{it}.

Source: The author.

The Shivakumar model (1996), panel D, again presents high standard errors. However, in some variables, standard errors decrease below 10%, for example, in 2003 for the Polish sample the first variable, ΔREV, standard error is 7%; in 2004 for the Czech sample for the first variable the standard error represents 8% of the variable. Nevertheless, in most cases the standard error remains at the 40% level. In the Key model (1997) the standard errors for all variables stay high, see Panel E.

The Teoh, Welch and Wong model (1998) is the worst model, see Panel F. In most situations standard deviation for variables remains high, even twice or three times the value of the variables, see for example, the mean value for Polish sample for ΔSALE-ΔREC variable is 0.0049, and the standard error of the variable reaches 0.0114, which is more then twice the value of mean. The Kasznik model (1999) (Panel G) also shows high errors, ranging between 13% as much as 200% of the mean of variable (see for example, the Hungarian sample standard deviation for ΔREV is 0.0261, and mean 0.0117, it is a standard deviation of more than 200%).

The results presented for the Yoon and Miller model (2002) (Panel H) indicate that the standard errors tend to be much lower that in the other models, suggesting that the Yoon and Miller model (2002) is much more effective at modeling and suffer less from misspecifications caused by omitted determinants of nondiscretionary accruals. In the first two variables, ΔREV-ΔREC and ΔEXP-ΔPAY, the standard error does not exceed 0.16 for all samples and over all years. In 2003, for example, the first variable for the Czech, Polish, Hungarian and Slovakian samples show respectively 4% of standard error, 6%, 9%, 9%. The last variable, NCASH-GPPEGRW, shows a high level of standard error, 80%.

Results for the Dechow, Richardson and Tuna (2003) model, Panel I, show high standard errors over 15% of variable, reaching even 60%. Finally, results of the Kothari, Leone and Wasley model (2005) indicate that the model is not well specified. The standard errors keep very high values. Hence, it seems that the Yoon and Miller model (2002) is the best model of those presented, showing the lowest values of standard deviations, despite having high errors in the last variable.

5.2.4.1.4. CROSS-SECTIONAL ANALYSIS: SIGNIFICANCE

Table 5.9 provides a summary of the results on significance of the variables of each model. Detailed results are presented in Annex 5.3. The results are divided within the panels which correspond to each model. The percentage of significance is calculated as a relation (division) between the parameters with a significance of at least 0.1 to the total number of evaluated years. We have a six year period of observation, hence the percentage of significance of each variable we calculate by the number of times when the variable is significant divided into six (total of years).

Panel A shows the resume of the results for Jones model (1991). The Jones model (1991) presents a high percentage of significance of the variables. Almost all variables are statistically significant over all years. Most of them are significant at 1% (see Annex 5.3). Only the Slovakian sample for ΔREV variable and Hungarian sample for second variable, PPE, show lack of significance of the variables in some of the cases. In 2003, 2004, 2006, 2007 and 2008 ΔREV is not significant for the Slovakian sample; and in 2005, 2007 and 2008 PPE variable shows no significance for the Hungarian sample.

For the Modified Jones model (1995), Panel B, the variables stay moderately significant. Nevertheless, we find no significant variables. In 2006 and 2007 the first variable, ΔREV-ΔREC, shows no significance over almost all samples. Moreover, the Slovakia sample shows no significance for ΔREV-ΔREC, and the Hungarian sample shows poor significance for the PPE variable.

We observe poor results for the Kang and Sivaranakrishnan model (1995), Panel C. Many insignificant variables are observed over the years. We may observe, for example, no significant variables: ΔREV and EXP, for the Slovakian samples over all investigated years. The Hungarian sample shows no significance for the EXP variable.

The variables of the Shivakumar model (1996) stay significant at the 1% level over many years. Nevertheless, we observe no significant variables. In 2005, 2006 and 2007 the first variable, ΔREV, is not significant for almost all sample countries. The third variable, CFO, for the Slovakian sample in 2004 stays insignificant over all years. Similar results of insignificance are observed for the Hungarian sample in 2004, 2007 and 2008.

Table 5.9: Percentage on significance of the variables

Panel A: Jones (1991)	Intercept	ΔREV	PPE		
Czech Republic		100.00%	100.00%		
Poland		66.67%	83.33%		
Hungary		66.67%	50.00%		
Slovakia		16.67%	83.33%		
		62.50%	79.17%		
Panel B: Modified Jones (1995)	Intercept	ΔREV-ΔREC	PPE		
Czech Republic		83.33%	100.00%		
Poland		66.67%	83.33%		
Hungary		33.33%	33.33%		
Slovakia		0.00%	83.33%		
		45.83%	75.00%		
Panel C: Kang and Sivaranakrishnan (1995)	Intercept	ΔREV	EXP	PPE	
Czech Republic		100.00%	50.00%	100.00%	
Poland		100.00%	50.00%	83.33%	
Hungary		33.33%	0.00%	33.33%	
Slovakia		0.00%	0.00%	83.33%	
		58.33%	25.00%	75.00%	
Panel D: Shivakumar (1996)	Intercept	ΔREV	PPE	CFO	
Czech Republic		100.00%	100.00%	66.67%	
Poland		50.00%	83.33%	100.00%	
Hungary		66.67%	66.67%	50.00%	
Slovakia		50.00%	66.67%	0.00%	
		66.67%	79.17%	54.17%	
Panel E: Key (1997)	Intercept	ΔREV	PPE	IA	
Czech Republic		100.00%	100.00%	33.33%	
Poland		83.33%	83.33%	33.33%	
Hungary		66.67%	50.00%	0.00%	
Slovakia		16.67%	83.33%	0.00%	
		66.67%	79.17%	16.67%	
Panel F: Teoh, Welch and Wong (1998)	Intercept	ΔSALE- ΔREC			
Czech Republic		50.00%			
Poland		66.67%			
Hungary		50.00%			
Slovakia		0.00%			
		41.67%			
Panel G: Kasznik (1999)	Intercept	ΔREV	PPE	ΔCFO	
Czech Republic		100.00%	100.00%	16.67%	
Poland		50.00%	83.33%	100.00%	
Hungary		50.00%	66.67%	66.67%	
Slovakia		16.67%	50.00%	33.33%	
		54.17%	75.00%	54.17%	
Panel H: Yoon and Miller (2002)	Intercept	ΔREV-ΔREC	ΔEXP-ΔPAY	NCASH-1xGPPEGRW	
Czech Republic		100.00%	100.00%	16.67%	
Poland		100.00%	100.00%	50.00%	
Hungary		100.00%	100.00%	16.67%	
Slovakia		100.00%	100.00%	33.33%	
		100.00%	100.00%	29.17%	

Panel I: Dechow. Richardson and Tuna (2003)	Intercept	(1+k)ΔREV-ΔREC	PPE	TA-1	ΔSALE+1
Czech Republic		75.00%	100.00%	75.00%	50.00%
Poland		50.00%	100.00%	50.00%	50.00%
Hungary		25.00%	75.00%	50.00%	25.00%
Slovakia		0.00%	75.00%	25.00%	25.00%
		37.50%	87.50%	50.00%	37.50%
Panel J: Kothari, Leone and Wasley (2005)	Intercept	ΔSALE-ΔREC	PPE	ROA-1	
Czech Republic		50.00%	100.00%	16.67%	
Poland		66.67%	83.33%	33.33%	
Hungary		50.00%	50.00%	33.33%	
Slovakia		0.00%	83.33%	33.33%	
		41.67%	79.17%	29.17%	

where: TA_{it-1}: Total Accruals in year t-1; ΔREV_{it}: Annual change in revenues in year t; ΔREC_{it}: Annual change in receivables accounts in year t; PPE_{it}: Gross property, plant and equipment in year t; EXP_{it}: Operating expenses in year t; ΔEXP_{it}: Change in operating expenses excluding non-cash expenses in year t; CFO_{it}: Cash flow from operations in year t; ΔCFO_{it}: Change in cash flow from operations in year t; IA_{it}: Gross intangible assets in year t; $\Delta SALE_{it}$: Change in sales in year t; ΔPAY_{it}: Change in payables accounts in year t; $NCASH_{it-1}$: Non-cash expenses such as depreciation in year t-1; $GPPEGRW_{it}$: A rate of growth in gross property, plant and equipment in year t; ROA_{it-1}: Return on assets in year t; k: is a slope coefficient from regression ΔREC_{it} on ΔREV_{it}.

Source: The author.

The Key model (1997), Panel E, shows the high level of significance at the beginning of our analysis period for the first two variables: ΔREV, PPE. A high significance of 1% is observed. This means that the model is well specified. However, in previous years, there is shown a significance decrease, or even for some of the variables insignificance, see for example, the Hungarian sample in 2005 for PPE variable. We need to point out as well the insignificance of the third variable, IA, for almost all countries' samples. Only in four cases does the variable shows significance.

The variables of the Teoh, Welch and Wong model (1998) are insignificant in more than 50% of the results. This indicates a bad model in terms of significance of the variables, see Panel F. All insignificant variables should be excluded from the model.

In the Kasznik model (1999), the parameters stay significant at 1%, for the second variable, PPE. However, from 2005 to 2007 for the Polish sample, the first variable, ΔREV becomes insignificant. In the Czech sample, between 2005 and 2008 the last variable, ΔCFO also remains insignificant.

The results presented by the Yoon and Miller model (2002) show significance of the variables at a high 1% level for the two first variables of the model: ΔREV-ΔREC,

ΔEXP-ΔPAY over all years (except the Czech Republic sample in 2007: significance at 5%), see Panel H. This suggests the strength of the model in detecting earnings management, because the variables have a statistically significant relationship with the dependent variable. However, in 16 of 24 cases for the last variable of the model, NCASH-GPPEGRW, the variable has no significant relationship.

Panel I shows the results for the Dechow, Richardson and Tuna (2003) model. They indicate that the model is not well specified as a reason that only 34 of the 64 results of our different samples for our variables are significant (24 variables are significant at 1%, 6 variables at 5% and 4 variables at 10%). Finally, results of the Kothari, Leone and Wasley model (2005) also present that the model is not well specified. The first variable, ΔSALE-ΔREC, in most of the cases is not significant, 10 out of the 24 results. The second variable, PPE, is significant in most of the results. The last variable, ROA, is again not significant in most of the cases (17 out of 24). Concluding, it seems that again the Yoon and Miller model (2002) shows the most reliable results (despite of the poor results of the last variables of the model).

5.2.4.1.5. CROSS-SECTIONAL ANALYSIS: FINAL REMARKS

We have evaluated the "goodness" of different models in detecting earnings management. We used four measures proposed by the literature. We have calculated the explanatory power (adjusted R^2) of each model. We have evaluated the standard error, as well as significance and predicted sign of the variables. Our analyses lead us to the conclusion that the Yoon and Miller model (2002) is the most reliable model for Eastern European countries (the Czech Republic, Poland, Hungary and Slovakia).

The results of the cross-sectional analysis are pretty clear: indicating that the Yoon and Miller model (2002) offers significant results in estimating the non-discretionary accruals. This model offers the most consistent results for the economic environment of Eastern European countries in terms of the applicability and identification of earnings management. We may observe high values of adjusted R^2. The results highly exceed the other models. Moreover, the variables of the regression of the model are statistically significant (mostly at 0.01 level) with the expected sign in most cases. Finally, the standard errors tend to be much lower that in the other models,

suggesting that the Yoon and Miller model (2002) is much more effective. The model suffers less from misspecifications caused by omitted determinants of non-discretionary accruals.

We may consider that the Yoon and Miller model explains non-discretionary accruals of Eastern European country samples significantly better than other models. The results indicate that we may have a serious misspecification problem if we apply one of other models to our sample of firms. Other models, indeed, present much poorer results than the Yoon and Miller model (2002). Other models do not seem to be reliable at least for our samples of Czech, Polish, Hungarian, and Slovakian firms. Consequently, we think that the Yoon and Miller model (2002) of cross-sectional version correctly determines and measures the discretionary part of accruals in Eastern European countries. To confirm the results, we evaluate all ten models using time-series analysis.

5.2.4.2. TIME-SERIES ANALYSIS

5.2.4.2.1. TIME-SERIES ANALYSIS: ADJUSTED R²

The results on adjusted R² for each model are presented in Table 5.10. We may observe that the Yoon and Miller model (2002) shows the highest values of adjusted R². The values range from 33.55% for the Czech sample to 41.29% for the Slovakian sample, obtaining a mean within all countries of 37.96%. The results show that the Yoon and Miller model (2002) significantly better measures earnings management than other models. The second model has only a 10.23% mean of adjusted R² (Kasznik model, 1999).

Other models (except Teoh, Welch and Wong, 1998) present the values of adjusted R² ranging from 3.02% to 12.95%. Only once does adjusted R² rise above 10%, for the Shivakumar model (1996), and 12.95% in the Hungarian sample. The Teoh, Welch and Wong model (1998) is a misspecified model because it indicates very low values of adjusted R². We observe 1.17%; 0.99%; 0.84%; 0.00%, for the Czech, Polish, Hungarian, and Slovakian samples, respectively.

Table 5.10: Evaluation of earnings management measurement models: Adjusted R^2

Measurement model					
	Czech R.	Poland	Hungary	Slovakia	Mean
Jones (1991)	0.0957	0.0671	0.0937	0.0856	0.0855
Modified Jones (1995)	0.0440	0.0331	0.0357	0.0722	0.0462
Kang and Sivaranakrishnan (1995)	0.0967	0.0774	0.0921	0.0839	0.0875
Shivakumar (1996)	0.0982	0.0810	0.1295	0.0839	0.0982
Key (1997)	0.0968	0.0682	0.0922	0.0839	0.0853
Teoh, Welch and Wong (1998)	0.0117	0.0099	0.0084	0.0000	0.0075
Kasznik (1999)	0.0972	0.0777	0.1409	0.0935	0.1023
Yoon and Miller (2002)	0.3355	0.3684	0.4018	0.4129	0.3796
Dechow, Richardson and Tuna (2003)	0.0552	0.0464	0.0568	0.1041	0.0656
Kothari, Leone and Wasley (2005)	0.0340	0.0302	0.0503	0.0754	0.0475

Source: The author.

5.2.4.2.2. TIME-SERIES ANALYSIS: PREDICTED SIGN

Table 5.11 presents results on predicted sign of the variables. The percentage of the coefficient of a predicted sign (*% Positive*) for each model is calculated as a number of times when the variable obtains the expected sign to a total of the observations (we have four samples).

Analyzing data for the Jones model (1991) we may observe that all samples for both variables show the expected sign. This indicates that the relationship between independent variables with dependent variables has correct correlations. Moreover, we detect another four reliable and consistent models: the Modified Jones model (1995), Shivakumar model (1996), Key model (1997) and the Yoon and Miller model (2002). All these models present a high percentage of predicted sign of the coefficient for all variables (100% or 75% of the regressions have expected sign).

Other models such as Kang and Sivaranakrishnan (1995) or Dechow, Richardson and Tuna (2003) always have at least one variable which does not show predicted sign of the variables. This means that the variables should be eliminated from the model.

Table 5.11: Evaluation of earnings management measurement models: predicted sign

Measurement model: variables and predicted sign	% of variable which has predicted sign of estimated parameters*
Jones (1991)	
ΔREV (+)	100.00%
PPE (-)	100.00%
Modified Jones (1995)	
ΔREV-ΔREC (+)	75.00%
PPE (-)	100.00%
Kang and Sivaranakrishnan (1995)	
ΔREV (+)	100.00%
EXP (+)	0.00%
PPE (-)	100.00%
Shivakumar (1996)	
ΔREV (+)	100.00%
PPE (-)	100.00%
CFO (-)	75.00%
Key (1997)	
ΔREV (+)	100.00%
PPE (-)	100.00%
IA (-)	75.00%
Teoh, Welch and Wong (1998)	
ΔSALE- ΔREC (+)	75.00%
Kasznik (1999)	
ΔREV (+)	100.00%
PPE (-)	100.00%
ΔCFO (-)	25.00%
Yoon and Miller (2002)	
ΔREV-ΔREC (-)	100.00%
ΔEXP-ΔPAY (+)	100.00%
NCASH-1xGPPEGRW (-)	75.00%
Dechow, Richardson and Tuna (2003)	
(1+k)ΔREV-ΔREC (+)	100.00%
PPE (-)	100.00%
TA-1 (+)	0.00%
ΔSALE+1 (+)	75.00%
Kothari, Leone and Wasley (2005)	
ΔSALE-ΔREC (+)	75.00%
PPE (-)	100.00%
ROA-1 (+)	75.00%

where: TA_{it-1}: Total Accruals in year t-1; ΔREV_{it}: Annual change in revenues in year t; ΔREC_{it}: Annual change in receivables accounts in year t; PPE_{it}: Gross property, plant and equipment in year t; EXP_{it}: Operating expenses in year t; ΔEXP_{it}: Change in operating expenses excluding non-cash expenses in year t; CFO_{it}: Cash flow from operations in year t; ΔCFO_{it}: Change in cash flow from operations in year t; IA_{it}: Gross intangible assets in year t; $\Delta SALE_{it}$: Change in sales in year t; ΔPAY_{it}: Change in payables accounts in year t;

$NCASH_{it-1}$: Non-cash expenses such as depreciation in year t-1; $GPPEGRW_{it}$: A rate of growth in gross property, plant and equipment in year t; ROA_{it-1}: Return on assets in year t; k: is a slope coefficient from regression ΔREC_{it} on ΔREV_{it}.

Percentage of coefficients for a predicted sign for each model is calculated as division between the numbers of the variables which have fulfill the expected sign to the total of variables of each model.

Source: The author.

The Kasznik model (1999), Teoh, Welch and Wong model (1998) and Kothari, Leone and Wasley model (2005) indicate in most cases a correct relationship between the variables: independents and dependents. However in some cases the percentage of the predicted sign is low, for example, in the third variable, ΔCFO, of the Kasznik model (1999) only 25% of the variables show predicted sign.

5.2.4.2.3. TIME-SERIES ANALYSIS: STANDARD DEVIATION

Table 5.12 provides results on standard deviation and means values on variables by each model. The results are divided within the panels which correspond to each model. The results indicate again that Yoon and Miller model (2002) offers the best results in measuring earnings management. The the Yoon and Miller model (2002) shows the lowest values of standard errors. The first two variables, ΔREV-ΔREC and ΔEXP-ΔPAY, have the standard error between 2% to 5% of the variable. The third variable, NCASH-GPPEGRW, shows slightly worse results.

Other models show a significant variability of standard errors. The Jones model (1991), for example, for the Czech and Polish samples shows correct low standard errors (4%, 7% for the Czech sample respectively for the variables, and 6% and 9% for Poland, respectively for revenues and plant, property and equipment variables). On the other hand, for the Hungarian and Slovakian samples we may observe high standard errors, 16%, 24% for Hungary, and 35% and 15% for Slovakia.

Table 5.12: Results on mean values and standard deviation by models among the countries' samples

Panel A: Jones (1991)		**Intercept**	**ΔREV**	**PPE**		
Czech Republic:	Mean value	0.0054	0.0635	-0.0822		
	Std dev.	0.0036	0.0028	0.0065		
Poland:	Mean value	0.0037	0.0605	-0.0809		
	Std dev.	0.0050	0.0038	0.0079		
Hungary:	Mean value	0.0000	0.0609	-0.0953		
	Std dev.	0.0122	0.0098	0.0236		
Slovakia:	Mean value	0.0239	0.0345	-0.1223		
	Std dev.	0.0118	0.0123	0.0185		
Panel B: Modified Jones (1995)		Intercept	ΔREV-ΔREC	PPE		
Czech Republic:	Mean value	0.0123	0.0380	-0.0808		
	Std dev.	0.0037	0.0032	0.0066		
Poland:	Mean value	0.0120	0.0335	-0.0839		
	Std dev.	0.0051	0.0042	0.0080		
Hungary:	Mean value	0.0095	0.0240	-0.0969		
	Std dev.	0.0125	0.0110	0.0243		
Slovakia:	Mean value	0.0322	-0.0023	-0.1236		
	Std dev.	0.0118	0.0126	0.0186		
Panel C: Kang and Sivaranakrishnan (1995)		Intercept	ΔREV	EXP	PPE	
Czech Republic:	Mean value	0.0177	0.0694	-0.0051	-0.0906	
	Std dev.	0.0056	0.0035	0.0018	0.0071	
Poland:	Mean value	0.0426	0.0797	-0.0139	-0.1091	
	Std dev.	0.0072	0.0045	0.0018	0.0087	
Hungary:	Mean value	0.0035	0.0624	-0.0012	-0.0980	
	Std dev.	0.0197	0.0118	0.0052	0.0265	
Slovakia:	Mean value	0.0244	0.0348	-0.0003	-0.1226	
	Std dev.	0.0174	0.0149	0.0066	0.0196	
Panel D: Shivakumar (1996)		Intercept	ΔREV	PPE	CFO	
Czech Republic:	Mean value	0.0117	0.0670	-0.0798	-0.0703	
	Std dev.	0.0039	0.0030	0.0065	0.0165	
Poland:	Mean value	0.0195	0.0702	-0.0815	-0.1441	
	Std dev.	0.0053	0.0039	0.0078	0.0163	
Hungary:	Mean value	-0.0226	0.0522	-0.1076	0.2517	
	Std dev.	0.0128	0.0098	0.0233	0.0533	
Slovakia:	Mean value	0.0246	0.0348	-0.1220	-0.0080	
	Std dev.	0.0128	0.0125	0.0187	0.0578	
Panel E: Key (1997)		Intercept	ΔREV	PPE	IA	
Czech Republic:	Mean value	0.0069	0.0639	-0.0814	-0.1494	
	Std dev.	0.0037	0.0028	0.0065	0.0504	
Poland:	Mean value	0.0053	0.0610	-0.0805	-0.1300	
	Std dev.	0.0051	0.0038	0.0079	0.0492	
Hungary:	Mean value	-0.0003	0.0607	-0.0930	-0.0271	
	Std dev.	0.0122	0.0099	0.0245	0.0785	
Slovakia:	Mean value	0.0239	0.0344	-0.1226	0.0123	
	Std dev.	0.0118	0.0123	0.0187	0.1045	
Panel F: Teoh, Welch and Wong (1998)		Intercept	ΔSALE-ΔREC			
Czech Republic:	Mean value	-0.0238	0.0292			

	Std dev.	0.0021	0.0034			
Poland:	Mean value	-0.0335	0.0308			
	Std dev.	0.0026	0.0043			
Hungary:	Mean value	-0.0310	0.0262			
	Std dev.	0.0074	0.0113			
Slovakia:	Mean value	-0.0344	-0.0143			
	Std dev.	0.0058	0.0142			
Panel G: Kasznik (1999)		Intercept	ΔREV	PPE	ΔCFO	
Czech Republic:	Mean value	0.0058	0.0596	-0.0835	0.0750	
	Std dev.	0.0036	0.0031	0.0065	0.0219	
Poland:	Mean value	0.0018	0.0700	-0.0764	-0.1407	
	Std dev.	0.0050	0.0040	0.0079	0.0182	
Hungary:	Mean value	0.0078	0.0377	-0.1068	0.4076	
	Std dev.	0.0119	0.0105	0.0231	0.0751	
Slovakia:	Mean value	0.0248	0.0280	-0.1269	0.1839	
	Std dev.	0.0117	0.0125	0.0185	0.0772	
Panel H: Yoon and Miller (2002)		Intercept	ΔREV-ΔREC	ΔEXP-ΔPAY	NCASH-1xGPPEGRW	
Czech Republic:	Mean value	-0.0338	-0.5052	0.5840	0.1214	
	Std dev.	0.0017	0.0104	0.0109	0.0341	
Poland:	Mean value	-0.0392	-0.5967	0.6850	-0.0730	
	Std dev.	0.0021	0.0123	0.0128	0.0662	
Hungary:	Mean value	-0.0381	-0.6370	0.6954	-0.4682	
	Std dev.	0.0059	0.0370	0.0377	0.2288	
Slovakia:	Mean value	-0.0471	-0.5363	0.6222	-0.6132	
	Std dev.	0.0047	0.0297	0.0322	0.1932	
Panel I: Dechow, Richardson and Tuna (2003)		Intercept	(1+k)ΔREV-ΔREC	PPE	TA-1	ΔSALE+1
Czech Republic:	Mean value	0.0165	0.0367	-0.0878	-0.0572	0.0136
	Std dev.	0.0050	0.0033	0.0086	0.0157	0.0049
Poland:	Mean value	0.0517	0.0054	-0.1171	-0.0605	-0.0094
	Std dev.	0.0066	0.0046	0.0093	0.0151	0.0057
Hungary:	Mean value	0.0089	0.0125	-0.1076	-0.1089	0.0161
	Std dev.	0.0134	0.0113	0.0252	0.0400	0.0131
Slovakia:	Mean value	0.0267	0.0060	-0.1282	-0.0725	0.0275
	Std dev.	0.0132	0.0140	0.0204	0.0479	0.0141
Panel J: Kothari, Leone and Wasley (2005)		Intercept	ΔSALE-ΔREC	PPE	ROA-1	
Czech Republic:	Mean value	0.0135	0.0295	-0.0795	0.3018	
	Std dev.	0.0038	0.0034	0.0067	0.5699	
Poland:	Mean value	0.0128	0.0297	-0.0840	-0.0344	
	Std dev.	0.0052	0.0042	0.0081	0.6716	
Hungary:	Mean value	0.0052	0.0279	-0.1006	6.0370	
	Std dev.	0.0125	0.0111	0.0242	2.0099	
Slovakia:	Mean value	0.0329	-0.0177	-0.1243	5.4868	
	Std dev.	0.0119	0.0137	0.0186	4.5932	

where: TA_{it-1}: Total Accruals in year t-1; ΔREV_{it}: Annual change in revenues in year t; ΔREC_{it}: Annual change in receivables accounts in year t; PPE_{it}: Gross property, plant and equipment in year t; EXP_{it}: Operating expenses in year t; ΔEXP_{it}: Change in operating expenses excluding non-cash expenses in year t; CFO_{it}: Cash flow from operations in year t; ΔCFO_{it}: Change in cash flow from operations in year t; IA_{it}: Gross intangible assets in year t; $\Delta SALE_{it}$: Change in sales in year t; ΔPAY_{it}: Change in payables accounts in year t;

$NCASH_{it-1}$: Non-cash expenses such as depreciation in year t-1; $GPPEGRW_{it}$: A rate of growth in gross property, plant and equipment in year t; ROA_{it-1}: Return on assets in year t; k: is a slope coefficient from regression ΔREC_{it} on ΔREV_{it}.

Source: The author.

Other models show as well this variability of results. In some cases even within the same sample, the different variables show a very different percentage of standard error, which confuses the interpretation of the results. The Key model (1997), for example, for the sample of Polish companies, shows 6% and 9% of standard error, for revenues and property, plant and equipment variables respectively; nevertheless the third variable indicates a very high 38% of standard error.

5.2.4.2.4. TIME-SERIES ANALYSIS: SIGNIFICANCE

Table 5.13 provides a summary of the results on significance of the variables of the models. Detailed results are presented in Annex 5.4. The results are divided within the panels which correspond to each model. The percentage of significance is calculated as a relation (division) between the parameters with significance of at least 0.1 to the total number of evaluated samples. As we have four samples, the percentage of significance of each variable we calculate by the number of samples when the significant variable divided into four (the total number of samples).

The results indicate five reliable models: the Jones model (1991), Modified Jones model (1995), Shivakumar model (1996), Kasznik model (1999) and Yoon and Miller model (2002). We may observe very reliable results, significance of total of the variables of each model at the 0.01 level.

However, other models present variables with some insignificant relation between the variables. The Dechow, Richardson and Tuna model (2003), for example, shows no significant first variable, (1+k)ΔREV- ΔREC, for three of four of our samples (Poland, Hungary and Slovakia). The Key model (1997) also has no significant variables for two samples (within our four samples) for last variables of regression, IA. The Kang and Sivaranakrishnan model (1995) confirms also a low significance for the second variable of the model, EXP, having only 50% of the significant variables (for the Czech and Polish samples).

Table 5.13: Percentage on significance of the variables

Panel A: Jones (1991)	Intercept	ΔREV	PPE		
		100.00%	100.00%		
Panel B: Modified Jones (1995)	Intercept	ΔREV-ΔREC	PPE		
		75.00%	100.00%		
Panel C: Kang and Sivaranakrishnan (1995)	Intercept	ΔREV	EXP	PPE	
		100.00%	50.00%	100.00%	
Panel D: Shivakumar (1996)	Intercept	ΔREV	PPE	CFO	
		100.00%	100.00%	75.00%	
Panel E: Key (1997)	Intercept	ΔREV	PPE	IA	
		100.00%	100.00%	50.00%	
Panel F: Teoh, Welch and Wong (1998)	Intercept	ΔSALE- ΔREC			
		75.00%			
Panel G: Kasznik (1999)	Intercept	ΔREV	PPE	ΔCFO	
		100.00%	100.00%	100.00%	
Panel H: Yoon and Miller (2002)	Intercept	ΔREV-ΔREC	ΔEXP-ΔPAY	NCASH-1xGPPEGRW	
		100.00%	100.00%	75.00%	
Panel I: Dechow, Richardson and Tuna (2003)	Intercept	(1+k)ΔREV-ΔREC	PPE	TA-1	ΔSALE+1
		25.00%	100.00%	75.00%	75.00%
Panel J: Kothari, Leone and Wasley (2005)	Intercept	ΔSALE-ΔREC	PPE	ROA-1	
		75.00%	100.00%	25.00%	

where: TA_{it-1}: Total Accruals in year t-1; ΔREV_{it}: Annual change in revenues in year t; ΔREC_{it}: Annual change in receivables accounts in year t; PPE_{it}: Gross property, plant and equipment in year t; EXP_{it}: Operating expenses in year t; ΔEXP_{it}: Change in operating expenses excluding non-cash expenses in year t; CFO_{it}: Cash flow from operations in year t; ΔCFO_{it}: Change in cash flow from operations in year t; IA_{it}: Gross intangible assets in year t; $\Delta SALE_{it}$: Change in sales in year t; ΔPAY_{it}: Change in payables accounts in year t; $NCASH_{it-1}$: Non-cash expenses such as depreciation in year t-1; $GPPEGRW_{it}$: A rate of growth in gross property, plant and equipment in year t; ROA_{it-1}: Return on assets in year t; k: is a slope coefficient from regression ΔREC_{it} on ΔREV_{it}.

Source: The author.

5.2.4.2.5. TIME-SERIES ANALYSIS: FINAL REMARKS

Time-series analysis of the samples identifies the Yoon and Miller model (2002) as the most convenient model to analyze earnings management in Eastern European countries (Czech, Polish, Hungarian and Slovakian firms). Using four measures: adjusted R^2, standard error, as well as significance and predicted sign of the variables for each model, we have identified the most reliable results for Yoon and Miller model (2002).

The results are pretty obvious, indicating the highest values of adjusted R^2 for Yoon and Miller model (2002) when compared to the other models. We also observe a lower level of standard deviation and significance of the variables of the regression for the proposed model. Finally, all variables show the expected sign, which suggests that the relationship within the variables of the models is correct.

We may conclude that the Yoon and Miller model (2002) for both, cross-sectional analysis, and time-series analysis, offers significant results in estimating the non-discretionary accruals for Eastern European countries. Consequently, for our posterior analysis, we employ this model.

Annex 5.1: Sample descriptive data

	Years					
	2003	**2004**	**2005**	**2006**	**2007**	**2008**
PANEL A: CZECH REPUBLIC						
Total assets						
Mean	1.0879	1.2154	1.2231	1.2016	1.2517	1.0412
Std. dev.	0.2093	0.4957	0.5445	0.3329	0.6959	0.2131
Median	1.0556	1.1231	1.1462	1.1601	1.1476	1.0334
Property. plant and equipment						
Mean	0.4713	0.5069	0.4829	0.4803	0.4612	0.4317
Std. dev.	0.3044	0.3159	0.2971	0.2821	0.2737	0.2682
Median	0.4470	0.4760	0.4604	0.4622	0.4469	0.4218
Intangible assets						
Mean	0.0142	0.0153	0.0130	0.0126	0.0112	0.0096
Std. dev.	0.0376	0.0517	0.0319	0.0351	0.0335	0.0305
Median	0.0042	0.0045	0.0046	0.0041	0.0035	0.0027
Revenues						
Mean	1.8722	2.1886	2.0480	2.0961	2.0668	1.8445
Std. dev.	1.3060	1.7327	1.4439	1.4246	1.3971	1.2320
Median	1.5950	1.8618	1.7908	1.8192	1.7649	1.6137
Cash Flow from operations						
Mean	0.1081	0.1290	0.1215	0.1265	0.1253	0.0966
Std. dev.	0.1145	0.1249	0.1263	0.1167	0.1170	0.1140
Median	0.0898	0.1079	0.1024	0.1091	0.1064	0.0829
Accounts receivable						
Mean	0.1930	0.2380	0.1990	0.2546	0.2695	0.2301
Std. dev.	0.2067	0.2816	0.2325	0.2597	0.2209	0.1946
Median	0.1529	0.1903	0.1410	0.2062	0.2247	0.1867
Accounts payable						
Mean	0.1824	0.2082	0.1631	0.2143	0.2163	0.1820
Std. dev.	0.2209	0.2692	0.2038	0.2366	0.1946	0.1692
Median	0.1150	0.1305	0.0961	0.1518	0.1621	0.1286
Sales						
Mean	1.7640	2.0626	1.9316	1.9703	1.9507	1.7401
Std. dev.	1.2679	1.6769	1.4027	1.3950	1.3513	1.1943
Median	1.5125	1.7506	1.6871	1.7120	1.6525	1.5194
Operating expenses						
Mean	1.7862	2.0812	1.9515	1.9941	1.9661	1.7744
Std. dev.	1.2813	1.6988	1.4073	1.3981	1.3672	1.2149
Median	1.4931	1.7346	1.6629	1.7407	1.6694	1.5328
Non-cash expenses						
Mean	0.0551	0.0608	0.0581	0.0567	0.0545	0.0493
Std. dev.	0.0514	0.0598	0.0535	0.0507	0.0489	0.0412
Median	0.0454	0.0493	0.0485	0.0482	0.0464	0.0428
ROA						
Mean	4.5649	5.4318	5.0274	5.6464	5.8679	4.0903
Std. dev.	9.2815	8.3892	8.9170	8.9314	8.9387	11.1178
Median	3.5347	4.0218	3.8975	4.2646	4.7353	3.3035
PANEL B: POLAND						
Total assets						
Mean	1.0897	1.3675	1.1345	1.1745	1.2431	0.9929
Std. dev.	0.4478	0.4693	0.2125	0.2752	0.2167	0.2496
Median	0.9728	1.2517	1.1066	1.1323	1.2184	0.9513
Property. plant and equipment						
Mean	0.4756	0.6343	0.5793	0.5571	0.5777	0.4723
Std. dev.	0.2395	0.3284	0.3145	0.3224	0.3147	0.2698

Median	0.4802	0.6354	0.5797	0.5461	0.5812	0.4624
Intangible assets						
Mean	0.0159	0.0186	0.0153	0.0141	0.0129	0.0107
Std. dev.	0.0486	0.0574	0.0498	0.0503	0.0408	0.0448
Median	0.0026	0.0030	0.0025	0.0022	0.0021	0.0016
Revenues						
Mean	1.8151	2.4636	2.1114	2.0467	2.1882	1.7223
Std. dev.	1.5296	2.0520	1.7213	1.7695	1.7243	1.4010
Median	1.3914	1.9599	1.7134	1.6915	1.8571	1.4603
Cash Flow from operations						
Mean	0.0895	0.1524	0.1241	0.1271	0.1455	0.0930
Std. dev.	0.2087	0.1684	0.1262	0.1245	0.1427	0.1139
Median	0.0715	0.1179	0.1008	0.1037	0.1188	0.0803
Accounts receivable						
Mean	0.2543	0.3115	0.2864	0.2759	0.2777	0.2192
Std. dev.	0.2327	0.2674	0.2882	0.2246	0.2280	0.1893
Median	0.1893	0.2491	0.2229	0.2260	0.2160	0.1708
Accounts payable						
Mean	0.2214	0.2554	0.2264	0.2189	0.2162	0.1726
Std. dev.	0.2436	0.2643	0.2357	0.2385	0.2230	0.2010
Median	0.1343	0.1683	0.1479	0.1528	0.1441	0.1081
Sales						
Mean	1.7782	2.4179	2.0702	2.0049	2.1433	1.6863
Std. dev.	1.5292	2.0557	1.7194	1.7676	1.7273	1.3970
Median	1.3722	1.9156	1.6964	1.6673	1.8077	1.4350
Operating expenses						
Mean	1.7477	2.3597	2.0292	1.9575	2.0839	1.6520
Std. dev.	1.5008	2.0093	1.6991	1.7501	1.6926	1.3863
Median	1.3312	1.8508	1.6528	1.6095	1.7432	1.3696
Non-cash expenses						
Mean	0.0586	0.0694	0.0618	0.0571	0.0585	0.0469
Std. dev.	0.1702	0.0450	0.0411	0.0377	0.0402	0.0314
Median	0.0468	0.0620	0.0546	0.0518	0.0528	0.0431
ROA						
Mean	2.6949	5.9123	4.9727	5.8613	6.7567	4.2390
Std. dev.	11.1548	11.0212	9.8734	9.8279	10.7685	12.7293
Median	1.9278	4.2475	3.2585	4.1575	5.0268	3.5888
PANEL C: HUNGARY						
Total assets						
Mean	1.1216	1.1993	1.0529	1.1324	1.1125	1.0169
Std. dev.	0.4360	0.3384	0.2437	0.1902	0.2233	0.1930
Median	1.0484	1.1332	1.0126	1.0873	1.0840	0.9979
Property. plant and equipment						
Mean	0.4155	0.4849	0.4117	0.4126	0.3964	0.3680
Std. dev.	0.2809	0.3486	0.2777	0.2841	0.2774	0.2595
Median	0.3933	0.4058	0.3540	0.3617	0.3174	0.3319
Intangible assets						
Mean	0.0212	0.0350	0.0255	0.0248	0.0230	0.0184
Std. dev.	0.0751	0.1371	0.0861	0.0842	0.0813	0.0637
Median	0.0042	0.0037	0.0041	0.0035	0.0032	0.0025
Revenues						
Mean	2.2884	2.4630	2.2477	2.5050	2.3911	2.3138
Std. dev.	1.5386	1.6305	1.6154	1.8648	1.8345	1.8605
Median	1.8859	2.0931	1.8328	2.1015	2.0173	1.8537
Cash Flow from operations						
Mean	0.1487	0.1490	0.1096	0.1222	0.1072	0.0696
Std. dev.	0.1518	0.1390	0.1245	0.1175	0.1002	0.1196

Median	0.1171	0.1231	0.1062	0.1085	0.0991	0.0731
Accounts receivable						
Mean	0.2911	0.2709	0.2657	0.2776	0.2572	0.2206
Std. dev.	0.3616	0.2170	0.2262	0.2150	0.1876	0.1677
Median	0.1834	0.2169	0.2441	0.2499	0.2194	0.1759
Accounts payable						
Mean	0.2099	0.1904	0.1828	0.1891	0.1796	0.1529
Std. dev.	0.2362	0.2099	0.1975	0.1701	0.1726	0.1637
Median	0.1214	0.1253	0.1279	0.1249	0.1319	0.1046
Sales						
Mean	2.2117	2.3837	2.1795	2.4293	2.3192	2.2425
Std. dev.	1.5257	1.6245	1.6084	1.8444	1.8017	1.8566
Median	1.7965	2.0101	1.7609	2.0636	1.9347	1.8358
Operating expenses						
Mean	2.1654	2.3609	2.1773	2.4230	2.3233	2.2696
Std. dev.	1.4981	1.6140	1.6096	1.8619	1.8443	1.8687
Median	1.7358	2.0537	1.7194	2.0003	1.9790	1.8329
Non-cash expenses						
Mean	0.0577	0.0616	0.0550	0.0569	0.0531	0.0478
Std. dev.	0.0410	0.0413	0.0308	0.0338	0.0346	0.0332
Median	0.0485	0.0512	0.0506	0.0511	0.0442	0.0389
ROA						
Mean	7.3785	6.8728	4.7479	5.4688	4.8654	1.9250
Std. dev.	9.2623	10.5945	14.1138	9.7379	8.8942	11.8040
Median	6.6033	5.7174	4.1843	4.4343	4.0162	2.0651
PANEL D: SLOVAKIA						
Total assets						
Mean	1.0664	1.1970	1.1420	1.1787	1.0835	1.1564
Std. dev.	0.2178	0.2469	0.2619	0.2022	0.1364	0.2245
Median	1.0304	1.1047	1.1190	1.1538	1.0610	1.1537
Property. plant and equipment						
Mean	0.5135	0.5917	0.5602	0.5909	0.5152	0.5574
Std. dev.	0.2577	0.2984	0.2799	0.2986	0.2163	0.2747
Median	0.4949	0.5756	0.5107	0.5582	0.5058	0.5554
Intangible assets						
Mean	0.0156	0.0163	0.0144	0.0130	0.0112	0.0122
Std. dev.	0.0541	0.0554	0.0511	0.0475	0.0369	0.0464
Median	0.0042	0.0042	0.0039	0.0046	0.0033	0.0030
Revenues						
Mean	1.6510	1.7797	1.6836	1.7958	1.6569	1.7820
Std. dev.	0.9272	0.9737	0.9041	1.0102	0.9691	1.1538
Median	1.4920	1.6179	1.4706	1.6256	1.5080	1.5564
Cash Flow from operations						
Mean	0.1090	0.1256	0.1220	0.1184	0.1123	0.1111
Std. dev.	0.0964	0.1008	0.0815	0.0821	0.0801	0.0948
Median	0.0925	0.1080	0.1156	0.1188	0.1031	0.1012
Accounts receivable						
Mean	0.2303	0.2388	0.2506	0.2451	0.2380	0.2166
Std. dev.	0.1973	0.1981	0.2264	0.1968	0.1906	0.1700
Median	0.1802	0.1965	0.2118	0.2110	0.1928	0.1926
Accounts payable						
Mean	0.2253	0.2353	0.2297	0.2305	0.2085	0.1928
Std. dev.	0.1964	0.1941	0.1825	0.1740	0.1736	0.2064
Median	0.1788	0.1960	0.2033	0.2103	0.1548	0.1321
Sales						
Mean	1.6204	1.7315	1.6496	1.7491	1.6181	1.7386
Std. dev.	0.9265	0.9581	0.9054	0.9865	0.9634	1.1296

Median	1.4698	1.5324	1.4150	1.5741	1.4233	1.5072
Operating expenses						
Mean	1.5764	1.6960	1.6071	1.7313	1.5906	1.7333
Std. dev.	0.8894	0.9584	0.8976	1.0022	0.9401	1.1396
Median	1.4037	1.4918	1.3439	1.5286	1.4223	1.5201
Non-cash expenses						
Mean	0.0654	0.0707	0.0662	0.0710	0.0664	0.0722
Std. dev.	0.0367	0.0403	0.0363	0.0398	0.0378	0.0400
Median	0.0613	0.0625	0.0608	0.0668	0.0589	0.0663
ROA						
Mean	3.6874	4.3915	4.5125	3.8946	4.0164	3.2168
Std. dev.	7.8892	7.4301	5.7786	7.0059	5.9710	7.8191
Median	2.5893	3.0426	3.2277	3.4713	3.0386	2.3781

All variables scaled by total lagged assets.

Source: The author.

Annex 5.2: Cross-sectional analysis. Detailed results on adjusted R^2 by models, among countries' samples, and over years

Measurement model	*Years*						
	2003	2004	2005	2006	2007	2008	Mean
Jones (1991)							
Czech Republic	0.0468	0.1301	0.0686	0.0918	0.1242	0.1068	0.0947
Poland	0.1144	0.1594	0.0139	0.0220	0.0558	0.0343	0.0666
Hungary	0.2223	0.1202	0.0162	0.0924	-0.0152	0.0981	0.0890
Slovakia	0.0863	0.2783	0.0433	0.1184	0.0560	0.0152	0.0996
							0.0875
Modified Jones (1995)							
Czech Republic	0.0255	0.0832	0.0257	0.0407	0.0474	0.0486	0.0452
Poland	0.0711	0.1411	0.0746	0.0207	0.0538	0.0090	0.0617
Hungary	0.0336	0.0747	0.0014	0.1435	-0.0226	0.0761	0.0511
Slovakia	0.0580	0.2629	0.0038	0.1041	0.0382	0.0166	0.0806
							0.0597
Kang and Sivaranakrishnan (1995)							
Czech Republic	0.0461	0.1323	0.0686	0.1018	0.1292	0.1059	0.0973
Poland	0.1144	0.1861	0.0159	0.0443	0.0838	0.0334	0.0796
Hungary	0.2132	0.1224	0.0119	0.0815	-0.0245	0.0879	0.0821
Slovakia	0.0759	0.2701	0.0411	0.0883	0.0515	0.0130	0.0900
							0.0872
Shivakumar (1996)							
Czech Republic	0.0624	0.1328	0.0774	0.0909	0.1243	0.1093	0.0995
Poland	0.5001	0.1876	0.0443	0.0271	0.0686	0.0417	0.1449
Hungary	0.2797	0.1361	0.0620	0.1586	-0.0143	0.0977	0.1200
Slovakia	0.0769	0.2700	0.0439	0.1095	0.0591	0.0123	0.0953
							0.1149
Key (1997)							
Czech Republic	0.0459	0.1301	0.0711	0.0919	0.1270	0.1079	0.0957
Poland	0.1133	0.1590	0.0128	0.0287	0.0549	0.0544	0.0705
Hungary	0.2135	0.1166	0.0047	0.0815	-0.0259	0.0874	0.0796
Slovakia	0.0778	0.2703	0.0335	0.1093	0.0469	0.0059	0.0906
							0.0841
Teoh, Welch and Wong. (1998)							
Czech Republic	0.0015	0.0524	0.0018	-0.0004	0.0170	-0.0004	0.0120
Poland	0.0475	0.0301	0.0895	-0.0009	-0.0006	0.0068	0.0287
Hungary	0.0164	0.0250	-0.0071	0.0306	-0.0115	0.0621	0.0192
Slovakia	-0.0113	-0.0114	0.0077	-0.0029	-0.0098	-0.0082	-0.0060
							0.0135
Kasznik (1999)							
Czech Republic	0.0474	0.1335	0.0685	0.0909	0.1235	0.1081	0.0953
Poland	0.4195	0.1834	0.0616	0.0348	0.0988	0.0557	0.1423
Hungary	0.2694	0.1590	0.0398	0.1740	-0.0232	0.0873	0.1177
Slovakia	0.0999	0.3137	0.0386	0.1376	0.0521	0.0218	0.1106
							0.1165
Yoon and Miller (2002)							
Czech Republic	0.4109	0.3091	0.3848	0.3176	0.4328	0.2387	0.3490
Poland	0.3109	0.2629	0.6406	0.4255	0.3413	0.2585	0.3733
Hungary	0.6110	0.5408	0.2809	0.1103	0.3679	0.1890	0.3500
Slovakia	0.5726	0.4122	0.4397	0.3240	0.2331	0.5936	0.4292

							0.3754
Dechow, Richardson and Tuna (2003)							
Czech Republic		0.0907	0.0317	0.0773	0.0675		0.0668
Poland		0.1465	0.0756	0.0199	0.0972		0.0848
Hungary		0.1552	0.0813	0.1310	-0.0473		0.0800
Slovakia		0.2501	0.0265	0.1191	0.0361		0.1079
							0.0849
Kothari, Leone and Wasley (2005)							
Czech Republic	0.0207	0.0711	0.0221	0.0651	0.0327	0.0315	0.0405
Poland	0.0684	0.1392	0.1016	0.0285	0.0531	0.0061	0.0661
Hungary	0.0585	0.0770	0.0457	0.1245	-0.0282	0.0818	0.0599
Slovakia	0.0533	0.2557	0.0371	0.1197	0.0692	0.0114	0.0910
							0.0644

Source: The author.

Annex 5.3: Cross-sectional analysis. Evaluation of earnings management measurement models: estimation results, standard deviation (error) and significance

Panel A: Jones (1991)	Intercept	ΔREV	PPE
2003			
Czech Republic	-0.0006	0.0468***	-0.0725***
Std dev.	0.0087	0.0086	0.0153
Poland	0.0211	0.1198***	-0.1384***
Std dev.	0.0171	0.0124	0.0320
Hungary	0.0513	0.1446***	-0.1791*
Std dev.	0.0460	0.0297	0.0917
Slovakia	0.0253	0.0580	-0.1423***
Std dev.	0.0293	0.0353	0.0502
2004			
Czech Republic	0.0170	0.0524***	-0.0849***
Std dev.	0.0092	0.0045	0.0154
Poland	0.0972	0.0367***	-0.1752***
Std dev.	0.0143	0.0069	0.0178
Hungary	0.0121	0.0534***	-0.1254**
Std dev.	0.0325	0.0202	0.0521
Slovakia	0.0926	0.0373	-0.2110***
Std dev.	0.0263	0.0273	0.0374
2005			
Czech Republic	-0.0028	0.0598***	-0.0726***
Std dev.	0.0092	0.0081	0.0158
Poland	0.0022	0.0299**	-0.0655***
Std dev.	0.0146	0.0150	0.0214
Hungary	-0.0101	0.0249	-0.0683
Std dev.	0.0218	0.0213	0.0442
Slovakia	-0.0291	0.0918**	-0.0505
Std dev.	0.0308	0.0423	0.0471
2006			
Czech Republic	0.0156	0.0691***	-0.1003***
Std dev.	0.0105	0.0091	0.0175
Poland	0.0052	0.0142	-0.0652***
Std dev.	0.0106	0.0106	0.0157
Hungary	0.0724	-0.0708*	-0.1723***
Std dev.	0.0324	0.0416	0.0567
Slovakia	0.0087	0.0295	-0.1079***
Std dev.	0.0219	0.0230	0.0312
2007			
Czech Republic	-0.0023	0.0983***	-0.0676***
Std dev.	0.0091	0.0088	0.0163
Poland	0.0449	0.0158	-0.1088***
Std dev.	0.0124	0.0098	0.0169
Hungary	-0.0345	0.0160	-0.0046
Std dev.	0.0193	0.0193	0.0391
Slovakia	0.0131	0.0400	-0.1011**
Std dev.	0.0240	0.0286	0.0429
2008			

Czech Republic	0.0004	0.0934***	-0.0922***
Std dev.	0.0076	0.0101	0.0150
Poland	-0.0421	0.0494***	-0.0204
Std dev.	0.0084	0.0087	0.0151
Hungary	-0.0326	0.0383***	-0.0564
Std dev.	0.0173	0.0139	0.0377
Slovakia	0.0232	0.0056	-0.1131*
Std dev.	0.0398	0.0295	0.0624

Panel B: Modified Jones (1995)	Intercept	ΔREV-ΔREC	PPE
2003			
Czech Republic	0.0032	0.0235**	-0.0731***
Std dev.	0.0087	0.0092	0.0155
Poland	0.0220	0.0990***	-0.1398***
Std dev.	0.0175	0.0141	0.0328
Hungary	0.0697	0.0634	-0.1695
Std dev.	0.0511	0.0388	0.1025
Slovakia	0.0340	-0.0001	-0.1392***
Std dev.	0.0294	0.0345	0.0510
2004			
Czech Republic	0.0181	0.0461***	-0.0758***
Std dev.	0.0095	0.0052	0.0158
Poland	0.1145	0.0228***	-0.1865***
Std dev.	0.0142	0.0076	0.0179
Hungary	0.0205	0.0352	-0.1256**
Std dev.	0.0336	0.0221	0.0536
Slovakia	0.1045	0.0026	-0.2174***
Std dev.	0.0261	0.0283	0.0376
2005			
Czech Republic	0.0068	0.0225***	-0.0746***
Std dev.	0.0094	0.0083	0.0162
Poland	0.0265	-0.1147***	-0.0690***
Std dev.	0.0138	0.0148	0.0207
Hungary	-0.0107	-0.0080	-0.0613
Std dev.	0.0220	0.0246	0.0445
Slovakia	-0.0021	-0.0507	-0.0548
Std dev.	0.0309	0.0488	0.0480
2006			
Czech Republic	0.0480	-0.0018	-0.1204***
Std dev.	0.0105	0.0099	0.0179
Poland	0.0128	-0.0096	-0.0698***
Std dev.	0.0105	0.0116	0.0156
Hungary	0.0851	-0.1158***	-0.1785***
Std dev.	0.0307	0.0407	0.0549
Slovakia	0.0152	0.0106	-0.1090***
Std dev.	0.0219	0.0230	0.0315
2007			
Czech Republic	0.0152	0.0565***	-0.0741***
Std dev.	0.0094	0.0100	0.0170
Poland	0.0598	-0.0090	-0.1188***
Std dev.	0.0122	0.0102	0.0168

Hungary	-0.0321	0.0054	-0.0059
Std dev.	0.0194	0.0200	0.0393
Slovakia	0.0154	0.0162	-0.1003**
Std dev.	0.0242	0.0287	0.0434
2008			
Czech Republic	0.0013	0.0488***	-0.0921***
Std dev.	0.0079	0.0114	0.0155
Poland	-0.0483	0.0296***	-0.0133
Std dev.	0.0084	0.0096	0.0152
Hungary	-0.0320	0.0338**	-0.0577
Std dev.	0.0176	0.0145	0.0382
Slovakia	0.0292	-0.0125	-0.1156*
Std dev.	0.0400	0.0307	0.0624

Panel C: Kang and Sivaranakrishnan (1995)	Intercept	ΔREV	EXP	PPE
2003				
Czech Republic	0.0045	0.0484***	-0.0020	-0.0760***
Std dev.	0.0136	0.0092	0.0042	0.0169
Poland	0.0025	0.1181***	0.0059	-0.1212***
Std dev.	0.0251	0.0125	0.0058	0.0363
Hungary	0.0608	0.1477***	-0.0034	-0.1856*
Std dev.	0.0764	0.0360	0.0220	0.1012
Slovakia	0.0216	0.0556	0.0021	-0.1407***
Std dev.	0.0421	0.0404	0.0170	0.0521
2004				
Czech Republic	0.0375	0.0629***	-0.0088*	-0.0985***
Std dev.	0.0142	0.0072	0.0047	0.0170
Poland	0.1555	0.0834***	-0.0266***	-0.2146***
Std dev.	0.0178	0.0111	0.0050	0.0190
Hungary	-0.0362	0.0339	0.0179	-0.0965
Std dev.	0.0546	0.0268	0.0162	0.0583
Slovakia	0.0971	0.0405	-0.0025	-0.2127***
Std dev.	0.0372	0.0334	0.0147	0.0388
2005				
Czech Republic	-0.0135	0.0545***	0.0043	-0.0655***
Std dev.	0.0140	0.0096	0.0043	0.0173
Poland	0.0261	0.0447**	-0.0083	-0.0827***
Std dev.	0.0206	0.0175	0.0051	0.0238
Hungary	-0.0333	0.0177	0.0072	-0.0491
Std dev.	0.0363	0.0232	0.0091	0.0504
Slovakia	-0.0594	0.0668	0.0165	-0.0353
Std dev.	0.0458	0.0508	0.0185	0.0501
2006				
Czech Republic	0.0529	0.0928***	-0.0166***	-0.1253***
Std dev.	0.0149	0.0113	0.0047	0.0188
Poland	0.0458	0.0513***	-0.0175***	-0.0915***
Std dev.	0.0138	0.0133	0.0038	0.0165
Hungary	0.0712	-0.0716	0.0004	-0.1712***
Std dev.	0.0456	0.0462	0.0107	0.0638
Slovakia	0.0127	0.0324	-0.0021	-0.1100***
Std dev.	0.0324	0.0292	0.0124	0.0338
2007				

Czech Republic	0.0241	0.1139***	-0.0111***	-0.0868***
Std dev.	0.0136	0.0106	0.0042	0.0178
Poland	0.1014	0.0614***	-0.0239***	-0.1503***
Std dev.	0.0164	0.0131	0.0046	0.0185
Hungary	-0.0458	0.0101	0.0037	0.0047
Std dev.	0.0302	0.0228	0.0076	0.0437
Slovakia	-0.0072	0.0312	0.0088	-0.0870*
Std dev.	0.0358	0.0309	0.0114	0.0468
2008				
Czech Republic	0.0001	0.0933***	0.0001	-0.0920***
Std dev.	0.0124	0.0106	0.0038	0.0166
Poland	-0.0388	0.0500***	-0.0013	-0.0230
Std dev.	0.0119	0.0089	0.0032	0.0164
Hungary	-0.0262	0.0420**	-0.0021	-0.0622
Std dev.	0.0311	0.0203	0.0086	0.0444
Slovakia	0.0647	0.0310	-0.0198	-0.1374**
Std dev.	0.0609	0.0409	0.0220	0.0681

Panel D: Shivakumar (1996)	Intercept	ΔREV	PPE	CFO
2003				
Czech Republic	0.0155	0.0552***	-0.0685***	-0.1759***
Std dev.	0.0094	0.0088	0.0152	0.0415
Poland	0.0561	0.1324***	-0.0768***	-0.7124***
Std dev.	0.0129	0.0093	0.0242	0.0278
Hungary	0.0039	0.1210***	-0.2249**	0.4807***
Std dev.	0.0475	0.0298	0.0898	0.1734
Slovakia	0.0282	0.0611*	-0.1390***	-0.0471
Std dev.	0.0307	0.0366	0.0514	0.1419
2004				
Czech Republic	0.0252	0.0548***	-0.0822***	-0.0820**
Std dev.	0.0100	0.0046	0.0155	0.0403
Poland	0.0775	0.0244***	-0.1780***	0.1911***
Std dev.	0.0145	0.0072	0.0175	0.0346
Hungary	-0.0121	0.0457**	-0.1346**	0.2130
Std dev.	0.0356	0.0206	0.0520	0.1335
Slovakia	0.0913	0.0369	-0.2112***	0.0117
Std dev.	0.0290	0.0277	0.0377	0.1113
2005				
Czech Republic	0.0077	0.0707***	-0.0663***	-0.1325***
Std dev.	0.0097	0.0087	0.0159	0.0404
Poland	-0.0343	0.0094	-0.0576***	0.2883***
Std dev.	0.0159	0.0153	0.0212	0.0545
Hungary	-0.0304	0.0193	-0.0762*	0.2187**
Std dev.	0.0231	0.0209	0.0433	0.0968
Slovakia	-0.0426	0.0811*	-0.0606	0.1735
Std dev.	0.0334	0.0435	0.0481	0.1695
2006				
Czech Republic	0.0143	0.0684***	-0.1008***	0.0135
Std dev.	0.0113	0.0094	0.0176	0.0432
Poland	-0.0078	0.0056	-0.0612***	0.0998**
Std dev.	0.0120	0.0112	0.0157	0.0429

Hungary	0.0423	-0.1002**	-0.1884***	0.3726***
Std dev.	0.0330	0.0414	0.0549	0.1351
Slovakia	0.0052	0.0275	-0.1095***	0.0427
Std dev.	0.0241	0.0238	0.0317	0.1181
2007				
Czech Republic	0.0008	0.1022***	-0.0648***	-0.0429
Std dev.	0.0096	0.0096	0.0165	0.0417
Poland	0.0313	0.0017	-0.1108***	0.1381***
Std dev.	0.0129	0.0105	0.0168	0.0388
Hungary	-0.0455	0.0155	-0.0071	0.1121
Std dev.	0.0220	0.0193	0.0392	0.1083
Slovakia	0.0302	0.0491	-0.1061	-0.1370
Std dev.	0.0283	0.0296**	0.0431**	0.1205
2008				
Czech Republic	0.0067	0.0979***	-0.0911***	-0.0717**
Std dev.	0.0082	0.0103	0.0150	0.0361
Poland	-0.0546	0.0434***	-0.0152	0.0998***
Std dev.	0.0095	0.0090	0.0151	0.0363
Hungary	-0.0269	0.0385***	-0.0568	-0.0794
Std dev.	0.0182	0.0139	0.0377	0.0808
Slovakia	0.0352	0.0077	-0.1039	-0.1589
Std dev.	0.0422	0.0297	0.0634	0.1838

Panel E: Key (1997)	Intercept	ΔREV	PPE	IA
2003				
Czech Republic	-0.0001	0.0466***	-0.0726***	-0.0290
Std dev.	0.0089	0.0087	0.0153	0.1249
Poland	0.0211	0.1198***	-0.1384***	0.0001
Std dev.	0.0172	0.0124	0.0321	0.1581
Hungary	0.0513	0.1452***	-0.1836***	0.0789
Std dev.	0.0463	0.0300	0.0944	0.3532
Slovakia	0.0249	0.0589	-0.1387***	-0.1062
Std dev.	0.0294	0.0355	0.0511	0.2436
2004				
Czech Republic	0.0172	0.0529***	-0.0828***	-0.0972
Std dev.	0.0092	0.0045	0.0156	0.0952
Poland	0.0988	0.0366***	-0.1755***	-0.0731
Std dev.	0.0144	0.0070	0.0178	0.0981
Hungary	0.0076	0.0525**	-0.1068*	-0.1180
Std dev.	0.0330	0.0202	0.0570	0.1449
Slovakia	0.0922	0.0373	-0.2117***	0.0472
Std dev.	0.0264	0.0275	0.0377	0.2016
2005				
Czech Republic	0.0010	0.0600***	-0.0729***	-0.2850*
Std dev.	0.0094	0.0081	0.0158	0.1471
Poland	0.0024	0.0298**	-0.0655***	-0.0118
Std dev.	0.0147	0.0151	0.0215	0.1354
Hungary	-0.0100	0.0251	-0.0703	0.0269
Std dev.	0.0219	0.0214	0.0457	0.1466
Slovakia	-0.0289	0.0909**	-0.0529	0.0890
Std dev.	0.0309	0.0426	0.0479	0.2625

2006				
Czech Republic	0.0175	0.0692***	-0.1004***	-0.1489
Std dev.	0.0107	0.0091	0.0175	0.1395
Poland	0.0057	0.0216**	-0.0623***	-0.2677***
Std dev.	0.0106	0.0109	0.0156	0.1025
Hungary	0.0725	-0.0711*	-0.1716***	-0.0116
Std dev.	0.0326	0.0421	0.0583	0.1959
Slovakia	0.0087	0.0296	-0.1065***	-0.0650
Std dev.	0.0220	0.0232	0.0317	0.1992
2007				
Czech Republic	0.0003	0.0991***	-0.0671***	-0.2745**
Std dev.	0.0092	0.0088	0.0163	0.1329
Poland	0.0457	0.0158	-0.1089***	-0.0577
Std dev.	0.0126	0.0098	0.0169	0.1264
Hungary	-0.0345	0.0165	-0.0076	0.0476
Std dev.	0.0194	0.0194	0.0403	0.1375
Slovakia	0.0139	0.0394	-0.1003**	-0.1045
Std dev.	0.0242	0.0288	0.0432	0.2532
2008				
Czech Republic	0.0022	0.0935***	-0.0920***	-0.1982
Std dev.	0.0077	0.0101	0.0150	0.1317
Poland	-0.0387	0.0552***	-0.0173	-0.3923***
Std dev.	0.0083	0.0087	0.0149	0.0899
Hungary	-0.0325	0.0383***	-0.0558	-0.0173
Std dev.	0.0174	0.0140	0.0383	0.1545
Slovakia	0.0227	0.0040	-0.1150*	0.1615
Std dev.	0.0400	0.0299	0.0628	0.3745

Panel F: Teoh, Welch and Wong (1998)	Intercept	ΔSALE- ΔREC
2003		
Czech Republic	-0.0306	0.0159
Std dev.	0.0049	0.0099
Poland	-0.0452	0.0948***
Std dev.	0.0080	0.0144
Hungary	0.0008	0.0619
Std dev.	0.0291	0.0397
Slovakia	-0.0379	0.0029
Std dev.	0.0144	0.0375
2004		
Czech Republic	-0.0175	0.0415***
Std dev.	0.0054	0.0055
Poland	-0.0137	0.0408***
Std dev.	0.0074	0.0078
Hungary	-0.0421	0.0407*
Std dev.	0.0207	0.0228
Slovakia	-0.0235	-0.0003
Std dev.	0.0148	0.0364
2005		
Czech Republic	-0.0274	0.0148*
Std dev.	0.0052	0.0087
Poland	-0.0114	-0.1334***

Std dev.	0.0068	0.0145
Hungary	-0.0356	-0.0157
Std dev.	0.0123	0.0251
Slovakia	-0.0311	-0.0615
Std dev.	0.0150	0.0473
2006		
Czech Republic	-0.0085	-0.0083
Std dev.	0.0056	0.0105
Poland	-0.0270	-0.0052
Std dev.	0.0055	0.0119
Hungary	0.0020	-0.0833*
Std dev.	0.0199	0.0432
Slovakia	-0.0405	-0.0240
Std dev.	0.0120	0.0278
2007		
Czech Republic	-0.0164	0.0462***
Std dev.	0.0052	0.0107
Poland	-0.0144	0.0073
Std dev.	0.0063	0.0102
Hungary	-0.0340	0.0028
Std dev.	0.0112	0.0202
Slovakia	-0.0359	0.0121
Std dev.	0.0098	0.0333
2008		
Czech Republic	-0.0375	0.0097
Std dev.	0.0043	0.0121
Poland	-0.0552	0.0251***
Std dev.	0.0042	0.0096
Hungary	-0.0536	0.0375**
Std dev.	0.0101	0.0145
Slovakia	-0.0341	-0.0176
Std dev.	0.0191	0.0336

Panel G: Kasznik (1999)	Intercept	ΔREV	PPE	ΔCFO
2003				
Czech Republic	-0.0003	0.0434***	-0.0740***	0.0687
Std dev.	0.0087	0.0090	0.0154	0.0537
Poland	-0.0205	0.1288***	-0.0458*	-0.6308***
Std dev.	0.0140	0.0101	0.0263	0.0298
Hungary	0.0592	0.0969***	-0.2060**	0.5852**
Std dev.	0.0447	0.0344	0.0895	0.2312
Slovakia	0.0257	0.0449	-0.1506***	0.3159
Std dev.	0.0290	0.0361	0.0501	0.2081
2004				
Czech Republic	0.0163	0.0485***	-0.0873***	0.1194**
Std dev.	0.0092	0.0048	0.0154	0.0533
Poland	0.0946	0.0265***	-0.1787***	0.1706***
Std dev.	0.0141	0.0071	0.0175	0.0335
Hungary	0.0179	0.0232	-0.1339**	0.4628**
Std dev.	0.0319	0.0240	0.0511	0.2095
Slovakia	0.0853	0.0295	-0.2145***	0.4381**

Std dev.	0.0258	0.0268	0.0365	0.1868
2005				
Czech Republic	-0.0022	0.0553***	-0.0736***	0.0544
Std dev.	0.0092	0.0093	0.0159	0.0562
Poland	0.0095	-0.0100	-0.0728***	0.4788***
Std dev.	0.0142	0.0159	0.0209	0.0720
Hungary	-0.0020	0.0163	-0.0793*	0.2634*
Std dev.	0.0220	0.0216	0.0441	0.1506
Slovakia	-0.0338	0.1054**	-0.0421	-0.1501
Std dev.	0.0314	0.0460	0.0485	0.1985
2006				
Czech Republic	0.0155	0.0689***	-0.1004***	0.0048
Std dev.	0.0105	0.0095	0.0176	0.0544
Poland	0.0034	-0.0016	-0.0647***	0.2170***
Std dev.	0.0106	0.0114	0.0156	0.0619
Hungary	0.0853	-0.1182***	-0.1932***	0.4604***
Std dev.	0.0312	0.0426	0.0545	0.1510
Slovakia	0.0098	0.0200	-0.1108***	0.2434*
Std dev.	0.0217	0.0235	0.0309	0.1421
2007				
Czech Republic	-0.0019	0.0967***	-0.0684***	0.0209
Std dev.	0.0092	0.0099	0.0164	0.0611
Poland	0.0556	-0.0164	-0.1270***	0.3446***
Std dev.	0.0122	0.0108	0.0168	0.0534
Hungary	-0.0343	0.0134	-0.0045	0.1166
Std dev.	0.0194	0.0199	0.0393	0.2002
Slovakia	0.0164	0.0471	-0.1061**	-0.1075
Std dev.	0.0244	0.0300	0.0435	0.1337
2008				
Czech Republic	0.0013	0.0871***	-0.0920***	0.0764
Std dev.	0.0076	0.0108	0.0150	0.0480
Poland	-0.0404	0.0326***	-0.0161	0.2318***
Std dev.	0.0083	0.0094	0.0149	0.0515
Hungary	-0.0329	0.0385***	-0.0565	-0.0113
Std dev.	0.0177	0.0141	0.0379	0.1271
Slovakia	0.0355	-0.0010	-0.1373**	0.3447
Std dev.	0.0408	0.0299	0.0651	0.2734

Panel H: Yoon and Miller (2002)	Intercept	ΔREV-ΔREC	ΔEXP-ΔPAY	NCASH-1xGPPEGRW
2003				
Czech Republic	-0.0350	-0.6156***	0.6792***	0.3137
Std dev.	0.0038	0.0251	0.0256	0.2021
Poland	-0.0408	-0.6500***	0.7443***	0.1225
Std dev.	0.0068	0.0435	0.0416	0.1158
Hungary	-0.0049	-0.9557***	1.0319***	-0.7839
Std dev.	0.0184	0.0927	0.0906	0.6499
Slovakia	-0.0538	-0.7023***	0.7535***	0.1140
Std dev.	0.0095	0.0727	0.0726	0.5240
2004				
Czech Republic	-0.0179	-0.4465***	0.4982***	0.1656***

Std dev.	0.0046	0.0266	0.0269	0.0476
Poland	-0.0164	-0.4484***	0.5276***	-0.6898***
Std dev.	0.0073	0.0317	0.0333	0.2312
Hungary	-0.0687	-0.5912***	0.6760***	-0.1165
Std dev.	0.0156	0.0662	0.0688	0.3494
Slovakia	-0.0139	-0.4181***	0.5131***	-1.4182***
Std dev.	0.0125	0.0779	0.0854	0.4179
2005				
Czech Republic	-0.0494	-0.5313***	0.6356***	0.1545
Std dev.	0.0042	0.0232	0.0257	0.1098
Poland	-0.0422	-0.8462***	0.8981***	-0.4771**
Std dev.	0.0047	0.0218	0.0243	0.2223
Hungary	-0.0455	-0.5584***	0.5730***	-0.4611
Std dev.	0.0107	0.0938	0.0954	0.6386
Slovakia	-0.0518	-0.5771***	0.6378***	-0.1389
Std dev.	0.0119	0.0725	0.0760	0.6795
2006				
Czech Republic	-0.0201	-0.5016***	0.5814***	-0.0651
Std dev.	0.0047	0.0246	0.0266	0.0878
Poland	-0.0279	-0.5730***	0.6499***	-1.0133***
Std dev.	0.0042	0.0251	0.0262	0.2060
Hungary	-0.0055	-0.3855***	0.3577***	-0.5024
Std dev.	0.0201	0.1122	0.1293	1.2701
Slovakia	-0.0407	-0.2354***	0.3161***	-2.0629***
Std dev.	0.0103	0.0751	0.0817	0.3606
2007				
Czech Republic	-0.0410	-0.5703**	0.7159**	0.3351
Std dev.	0.0040	0.0245	0.0268	0.1336
Poland	-0.0321	-0.5243***	0.6243***	-0.3638
Std dev.	0.0057	0.0268	0.0299	0.2524
Hungary	-0.0340	-0.5442***	0.5806***	-0.8118*
Std dev.	0.0090	0.0775	0.0799	0.4481
Slovakia	-0.0369	-0.3894***	0.4478***	-0.7703
Std dev.	0.0087	0.0779	0.0821	0.6439
2008				
Czech Republic	-0.0500	-0.4323***	0.5350***	0.2780
Std dev.	0.0038	0.0296	0.0309	0.1944
Poland	-0.0531	-0.4056***	0.4736***	-0.1030
Std dev.	0.0036	0.0269	0.0279	0.1986
Hungary	-0.0576	-0.2785***	0.3194***	0.5603
Std dev.	0.0095	0.0879	0.0881	0.4580
Slovakia	-0.0817	-0.6778***	0.8115***	0.5455
Std dev.	0.0130	0.0656	0.0762	0.4404

Panel I: Dechow, Richardson and Tuna (2003)	Intercept	(1+k)ΔREV-ΔREC	PPE	TA$_{-1}$	ΔSALE$_{+1}$
2004					
Czech Republic	0.0135	0.0431***	-0.0674***	0.0735**	0.0093
Std dev.	0.0099	0.0047	0.0162	0.0331	0.0089
Poland	0.1202	0.0241***	-0.1885***	0.0086	-0.0320**
Std dev.	0.0145	0.0070	0.0180	0.0240	0.0130

Hungary	0.0439	0.0218	-0.1761***	-0.1550**	0.0740**
Std dev.	0.0332	0.0189	0.0539	0.0682	0.0333
Slovakia	0.1023	0.0059	-0.2186***	-0.0638	-0.0004
Std dev.	0.0271	0.0310	0.0381	0.0903	0.0391
2005					
Czech Republic	0.0118	0.0244***	-0.0867***	-0.0772**	-0.0007
Std dev.	0.0103	0.0079	0.0170	0.0302	0.0096
Poland	0.0345	-0.1075***	-0.0903***	-0.1199***	0.0272*
Std dev.	0.0159	0.0144	0.0232	0.0401	0.0148
Hungary	-0.0180	0.0161	-0.0874*	-0.2101***	0.0387
Std dev.	0.0250	0.0267	0.0453	0.0720	0.0318
Slovakia	-0.0279	-0.0363	-0.0515	0.0000	0.0849**
Std dev.	0.0331	0.0409	0.0510	0.1164	0.0383
2006					
Czech Republic	0.0326	0.0049	-0.1254***	-0.1775***	0.0451***
Std dev.	0.0112	0.0086	0.0184	0.0328	0.0107
Poland	0.0055	-0.0111	-0.0647***	-0.0020	0.0133
Std dev.	0.0117	0.0110	0.0162	0.0256	0.0104
Hungary	0.0853	-0.1213***	-0.1704***	0.1061	0.0043
Std dev.	0.0311	0.0433	0.0563	0.1391	0.0291
Slovakia	0.0147	0.0171	-0.1233***	-0.1375*	0.0131
Std dev.	0.0217	0.0214	0.0321	0.0767	0.0327
2007					
Czech Republic	0.0137	0.0567***	-0.0810***	-0.0478	0.0327***
Std dev.	0.0095	0.0080	0.0175	0.0295	0.0120
Poland	0.0628	-0.0057	-0.1370***	-0.2284***	-0.0013
Std dev.	0.0120	0.0094	0.0167	0.0348	0.0112
Hungary	-0.0322	0.0053	-0.0063	-0.0047	0.0010
Std dev.	0.0203	0.0199	0.0420	0.0745	0.0161
Slovakia	0.0048	0.0178	-0.0897*	0.0179	0.0234
Std dev.	0.0258	0.0259	0.0472	0.1091	0.0180

Panel J: Kothari, Leone and Wasley (2005)	Intercept	ΔSALE-ΔREC	PPE	ROA-1
2003				
Czech Republic	0.0035	0.0159	-0.0726***	0.1567
Std dev.	0.0090	0.0098	0.0156	1.0631
Poland	0.0244	0.0950***	-0.1436***	-2.2138*
Std dev.	0.0176	0.0142	0.0329	1.2933
Hungary	0.0700	0.0833**	-0.2120**	8.9994*
Std dev.	0.0505	0.0402	0.1046	5.0167
Slovakia	0.0340	0.0104	-0.1341**	-6.9066
Std dev.	0.0297	0.0375	0.0515	9.2305
2004				
Czech Republic	0.0218	0.0427***	-0.0760***	-1.4584
Std dev.	0.0099	0.0054	0.0161	1.0611
Poland	0.1157	0.0216***	-0.1872***	0.1240
Std dev.	0.0143	0.0076	0.0179	1.1072
Hungary	0.0144	0.0369	-0.1328**	7.4184
Std dev.	0.0341	0.0224	0.0540	6.4692
Slovakia	0.1065	-0.0095	-0.2186***	2.0852

Std dev.	0.0261	0.0313	0.0377	7.5104
2005				
Czech Republic	0.0125	0.0131	-0.0773***	-2.1477
Std dev.	0.0098	0.0087	0.0163	1.5520
Poland	0.0229	-0.1326***	-0.0640***	3.5624
Std dev.	0.0143	0.0144	0.0208	2.5569
Hungary	-0.0284	-0.0147	-0.0452	12.0281***
Std dev.	0.0229	0.0247	0.0441	5.4950
Slovakia	-0.0072	-0.0495	-0.0625	20.8487*
Std dev.	0.0312	0.0476	0.0474	11.7441
2006				
Czech Republic	0.0430	-0.0171*	-0.1170***	9.7122***
Std dev.	0.0105	0.0102	0.0178	1.9371
Poland	0.0053	-0.0141	-0.0619***	7.2134***
Std dev.	0.0109	0.0118	0.0159	2.6489
Hungary	0.0784	-0.1013	-0.1762***	3.4328
Std dev.	0.0316	0.0420***	0.0559	4.2208
Slovakia	0.0190	-0.0285	-0.1105***	17.5968
Std dev.	0.0226	0.0261	0.0312	13.9165
2007				
Czech Republic	0.0173	0.0433***	-0.0729***	0.6880
Std dev.	0.0097	0.0107	0.0172	2.0322
Poland	0.0580	-0.0096	-0.1171***	1.7206
Std dev.	0.0125	0.0103	0.0171	2.7749
Hungary	-0.0334	0.0032	-0.0054	3.2609
Std dev.	0.0196	0.0204	0.0394	4.2110
Slovakia	0.0024	0.0077	-0.0834*	23.6957**
Std dev.	0.0247	0.0323	0.0435	11.9108
2008				
Czech Republic	0.0013	0.0099	-0.0915***	1.1754
Std dev.	0.0081	0.0119	0.0157	1.7207
Poland	-0.0509	0.0258***	-0.0110	1.9448
Std dev.	0.0087	0.0097	0.0153	2.2776
Hungary	-0.0268	0.0335**	-0.0617	-7.5507
Std dev.	0.0180	0.0145	0.0382	6.0923
Slovakia	0.0392	-0.0213	-0.1237*	-11.8182
Std dev.	0.0425	0.0337	0.0640	25.3138

*Indicates statistical significance at 0.1 level.
**Indicates statistical significance at 0.05 level.
***Indicates statistical significance at 0.01 level.

where: TA_{it-1}: Total Accruals in year t-1; ΔREV_{it}: Annual change in revenues in year t; ΔREC_{it}: Annual change in receivables accounts in year t; PPE_{it}: Gross property, plant and equipment in year t; EXP_{it}: Operating expenses in year t; ΔEXP_{it}: Change in operating expenses excluding non-cash expenses in year t; CFO_{it}: Cash flow from operations in year t; ΔCFO_{it}: Change in cash flow from operations in year t; IA_{it}: Gross intangible assets in year t; $\Delta SALE_{it}$: Change in sales in year t; ΔPAY_{it}: Change in payables accounts in year t; $NCASH_{it-1}$: Non-cash expenses such as depreciation in year t-1; $GPPEGRW_{it}$: A rate of growth in gross property, plant and equipment in year t; ROA_{it-1}: Return on assets in year t; k: is a slope coefficient from regression ΔREC_{it} on ΔREV_{it}.

Source: The author.

Annex 5.4: Time-series analysis. Evaluation of earnings management measurement models: estimation results and significance

Measurement model					
Panel A: Jones (1991)	Intercept	ΔREV	PPE		
Czech Sample	0.0054	0.0635***	-0.0822***		
Poland Sample	0.0037	0.0605***	-0.0809***		
Hungary Sample	0.0000	0.0609***	-0.0953***		
Slovakia Sample	0.0239	0.0345***	-0.1223***		
Panel B: Modified Jones (1995)	Intercept	ΔREV-ΔREC	PPE		
Czech Sample	0.0123	0.0380***	-0.0808***		
Poland Sample	0.0120	0.0335***	-0.0839***		
Hungary Sample	0.0095	0.0240**	-0.0969***		
Slovakia Sample	0.0322	-0.0023	-0.1236***		
Panel C: Kang and Sivaranakrishnan (1995)	Intercept	ΔREV	EXP	PPE	
Czech Sample	0.0177	0.0694***	-0.0051***	-0.0906***	
Poland Sample	0.0426	0.0797***	-0.0139***	-0.1091***	
Hungary Sample	0.0035	0.0624***	-0.0012	-0.0980***	
Slovakia Sample	0.0244	0.0348**	-0.0003	-0.1226***	
Panel D: Shivakumar (1996)	Intercept	ΔREV	PPE	CFO	
Czech Sample	0.0117	0.0670***	-0.0798***	-0.0703***	
Poland Sample	0.0195	0.0702***	-0.0815***	-0.1441***	
Hungary Sample	-0.0226	0.0522***	-0.1076***	0.2517***	
Slovakia Sample	0.0246	0.0348***	-0.1220***	-0.0080	
Panel E: Key (1997)	Intercept	ΔREV	PPE	IA	
Czech Sample	0.0069	0.0639***	-0.0814***	-0.1494***	
Poland Sample	0.0053	0.0610***	-0.0805***	-0.1300***	
Hungary Sample	-0.0003	0.0607***	-0.0930***	-0.0271	
Slovakia Sample	0.0239	0.0344***	-0.1226***	0.0123	
Panel F: Teoh, Welch and Wong (1998)	Intercept	ΔSALE- ΔREC			
Czech Sample	-0.0238	0.0292***			
Poland Sample	-0.0335	0.0308***			
Hungary Sample	-0.0310	0.0262***			
Slovakia Sample	-0.0344	-0.0143			
Panel G: Kasznik (1999)	Intercept	ΔREV	PPE	ΔCFO	
Czech Sample	0.0058	0.0596***	-0.0835***	0.0750***	
Poland Sample	0.0018	0.0700***	-0.0764***	-0.1407***	
Hungary Sample	0.0078	0.0377***	-0.1068***	0.4076***	
Slovakia Sample	0.0248	0.0280**	-0.1269***	0.1839**	
Panel H: Yoon and Miller (2002)	Intercept	ΔREV-ΔREC	ΔEXP-ΔPAY	NCASH-$_{-1}$xGPPEGRW	
Czech Sample	-0.0338	-0.5052***	0.5840***	0.1214***	
Poland Sample	-0.0392	-0.5967***	0.6850***	-0.0730	
Hungary Sample	-0.0381	-0.6370***	0.6954***	-0.4682**	
Slovakia Sample	-0.0471	-0.5363***	0.6222***	-0.6132***	
Panel I: Dechow, Richardson and Tuna (2003)	Intercept	(1+k)ΔREV-ΔREC	PPE	TA$_{-1}$	ΔSALE$_{+1}$
Czech Sample	0.0165	0.0367***	-0.0878***	-0.0572***	0.0136***
Poland Sample	0.0517	0.0054	-0.1171***	-0.0605***	-0.0094*
Hungary Sample	0.0089	0.0125	-0.1076***	-0.1089***	0.0161

Slovakia Sample	0.0267	0.0060	-0.1282***	-0.0725	0.0275*
Panel J: Kothari, Leone and Wasley (2005)	Intercept	ΔSALE-ΔREC	PPE	ROA-1	
Czech Sample	0.0135	0.0295***	-0.0795***	0.3018	
Poland Sample	0.0128	0.0297***	-0.0840***	-0.0344	
Hungary Sample	0.0052	0.0279**	-0.1006***	6.0370***	
Slovakia Sample	0.0329	-0.0177	-0.1243***	5.4868	

*Indicates statistical significance at 0.1 level.
**Indicates statistical significance at 0.05 level.
***Indicates statistical significance at 0.01 level.

where: TA_{it-1}: Total Accruals in year t-1; ΔREV_{it}: Annual change in revenues in year t; ΔREC_{it}: Annual change in receivables accounts in year t; PPE_{it}: Gross property, plant and equipment in year t; EXP_{it}: Operating expenses in year t; ΔEXP_{it}: Change in operating expenses excluding non-cash expenses in year t; CFO_{it}: Cash flow from operations in year t; ΔCFO_{it}: Change in cash flow from operations in year t; IA_{it}: Gross intangible assets in year t; $\Delta SALE_{it}$: Change in sales in year t; ΔPAY_{it}: Change in payables accounts in year t; $NCASH_{it-1}$: Non-cash expenses such as depreciation in year t-1; $GPPEGRW_{it}$: A rate of growth in gross property, plant and equipment in year t; ROA_{it-1}: Return on assets in year t; k: is a slope coefficient from regression ΔREC_{it} on ΔREV_{it}.

Source: The author.

CHAPTER 6

THE MEASUREMENT OF EARNINGS MANAGEMENT IN EMERGING EASTERN EUROPEAN COUNTRIES

Earnings management has received considerable attention in the literature as can be seen in the significant number of studies related to this subject (see previous chapters). Most of the papers published on the topic are based on the US, Asia or Western Europe. Earnings management in emerging European countries is still unexplored. It is obvious that fundamental changes have taken place in economic and societal structures in these countries, involving a process of transformation and globalisation. Inter alia, it would be interesting to investigate earnings management in emerging Eastern European countries. Therefore, the purpose of this chapter is straightforward, to investigate earnings management in developing Eastern European markets.

Our motivation to undertake this analysis is, as noted above, the research gap on earnings management in developing Eastern European countries. We find only a few studies, mainly theoretical, based on the sample from emerging Eastern European countries. Additionally, there are some peculiarities in these countries, such as the change from communism to new democratic regimes, rapid privatization, the institutional infrastructure, the culture, etc. which leads us to think that earnings management there may be different to earnings management in other countries. Additionally, we are interested in exploring the effect of entry into European Union and the world financial crisis on earnings management in these countries, because it has not been investigated yet, among other circumstances.

The study focuses on four developing Eastern European countries: the Czech Republic, Poland, Hungary and Slovakia, as explained in Chapter 4. Considering the above questions, our objectives are the following. Our first aim is to analyze whether firms from our emerging Eastern European countries manage earnings. In other words, we seek to answer: ***do the firms from emerging Eastern European countries manage earnings?***

We consider the particularity of Eastern European markets, such as: the effect of the collapse of old regimes and the development of new ones adapted to democratic and market-oriented societies; rapid privatization undertaken in the absence of the proper institutional infrastructure; massive transfer of public assets to private hands in many cases reinforced by the lack of transparency; start implementing anti-corruption policies, etc. Moreover, access to the European Union in 2004 and with it an increase in financial or political pressure, and the effect of the increasing phenomenon of

globalization are another two important elements which must be taken into consideration in terms of the circumstances of Eastern European markets. All these circumstances may create motivations for earnings manipulation.

The second objective is connected with the previous one; it focuses on the type of manipulation. ***Do they manipulate earnings to increase or to decrease the earnings?*** We study the sign of earnings manipulation. Legal, economic, cultural and political situations in Eastern European countries raise new challenges for firms. Companies must cope with the difficulties of adapting to a new global market. Now companies are doing business in this turbulent and risky environment. However, at the same time, this new, open European market gives many opportunities to develop and grow. Therefore, it could be interesting to investigate how developing Eastern European countries manage their earnings (signs of manipulation).

The third objective is to know ***whether the manipulation changes over the years.*** We are interested in how our emerging Eastern European countries respond to the dynamic environment, considering two important events: the entry into the European Union and the world financial crisis and their effects on managers' decisions as regards managing earnings.

On the one hand, Eastern European countries under the political pressure of the European Commission and incentivized by the benefits to be derived from EU membership, have implemented numerous legislative anti-corruption measures. During the transition period, new EU member countries were the most active in reviewing and amending key legislation for corruption prevention. These changes were probably perceived by the companies and led them to reduce earnings management. As the study of Wallace and Haerpfer (2000) points out, it is observed that manipulation declines with economic development. On the other hand, in this complex environment we can observe increased competition, higher risk of doing business, and instability, among others effects. This raises the question as to how the Eastern Europe economies are going to develop their capacity to confront increasing globalisation, and deal with a complicated market. Therefore, in response to this unstable and complex market environment companies from emerging Eastern European countries may use earnings management to cope with the new situation. Under these conditions, a general boost in economic activity may enable managers to improve the activities of their firms, and may result in changes in earnings management over time.

Finally, we intend to investigate ***whether earnings manipulation is similar or different among emerging Eastern European countries***. On the one hand, it seems that the common communist heritage, cultural or social similarities may have an influence on the way of managing earnings. We may expect Eastern European countries to be homogenous in this respect, as they are post-communist countries, they have just achieved access to the European Union, they are in transition to democratic politics and market economies, and rapid privatization has been undertaken. This gives an impression of the parallel within our four sample countries. The cultural, social, and legal circumstances also indicate the similarities.

On the contrary, taking a look at some economic data, such as unemployment or inflation rates (see details in Chapter 4), we may perceive differences between Eastern European countries. Poland, for example, has the highest unemployment rate, and the highest inflation; however, Poland is the only country which in 2009, during the world financial crisis, showed an increase in Gross Domestic Product. Consequently, diversity among developing countries can be observed, which may lead to dissimilar earnings manipulation within developing countries.

The remainder of this chapter is organized in the following manner. In the first section we present the sample selection. As mentioned, four developing Eastern European countries were selected: Poland, the Czech Republic, Hungary and Slovakia. The period of the investigation ranges from 2003-2009. In the next section, we explain the methodology employed. Our previous analyses (see Chapter 5) have evaluated the "goodness" of ten models in detecting earnings management.

Next, we test if our samples of Eastern European countries manage earnings. To test this, we compare our countries with a hypothetical sample where no earnings management is observed. Using the Mann-Whitney test we determine if significant differences between both samples are perceived. Afterwards, if manipulation is observed, we analyse the sign of the manipulation (upwards or downwards earnings). For it, we calculate the number of companies that showed positive and negative earnings management per country and year. We also calculate the mean of discretionary accruals in positively ranked firms and the mean of negatively ranked firms.

The following section focuses attention on the evolution of manipulation over the years (trend analysis). To test if the level of manipulation changes along the years, we use the Friedman non-parametric test, to look for any significant differences in the

level of discretionary accruals for the period (2003-2009). Finally, we compare the scope of earnings management within the Eastern European countries. We run the Kruskal Wallis non-parametric test using the absolute value of discretionary accruals. We also look for any significant differences by pairs of countries by running the Mann-Whitney non-parametric test. As a final point, conclusions are presented for the Eastern European countries.

6.1. SAMPLE SELECTION

All available companies from the Amadeus database were our starting point. As in previous chapter, in the present analysis we discard financial data from 2010 to 2011 which are unavailable for almost all variables. However, the dimension of the sample in this chapter has changed in the relation to the previous one. In Chapter 5 we evaluated ten different models to measure earnings management, which required 11 different variables to be included. Numerous models (and variables) led us to abandon a high number of firms (lack of data for any of the variables excluded the company). In consequence, the analysis period for Chapter 5 was reduced to 2003-2008 (year 2009 has fallen). In the present chapter, the model applied (Yoon and Miller model, 2002) requires fewer independent variables, seven to be estimated. As a result, we could have incorporated the data from 2009. Therefore, our period covers 2003-2009. We generate the sample retaining only firms for which data were available with regard to the variables considered for all the years of the study and for the prior period (2002) used to calculate changes in certain variables, as we explain below.

The sample comprises non-financial firms from the Czech Republic, Poland, Hungary and Slovakia. Our initial sample consists of 6,196. For each variable, we eliminated outliers, which are observations falling outside the range set by the mean value plus/minus three times the standard deviation. Therefore, the analysis covers the period 2003 to 2009 and the sample comprises a total of 4,627 companies[1], and 32,389 observations (7 years for each country). Hungary is the country with the least (798 observations) and Poland with the most (15,757). Our final sample is presented in Table 6.1.

[1] We may consider this sample representative, see sample size selection chart by Isaac and Michael, 1981, in previous chapter.

Table 6.1: Sample selection procedure

	Czech R.	*Poland*	*Hungary*	*Slovakia*	Total
Total number of firms available in Amadeus data base	3.006	2.609	183	398	6.196
Incomplete data (missing data)	(779)	(208)	(62)	(163)	(1212)
Extreme values	(178)	(150)	(7)	(22)	(357)
Total sample firms	**2.049**	**2.251**	**114**	**213**	**4.627**
Number of observations	14.343	15.757	798	1491	32.389

Source: The author.

The picture of the securities exchanges and financial sectors in Eastern European countries is still relatively unfavourable. The Eastern European securities exchanges are, in comparison with their Western counterparts, underdeveloped and less important (Köke and Schröder, 2006). In our research we have included the following number of listed companies from the Eastern European countries: 16 listed companies from the Czech Republic, 65 listed companies from Poland, 8 listed companies from Hungary, and 39 listed companies from Slovakia. Therefore, our samples comprise mostly non-listed companies.

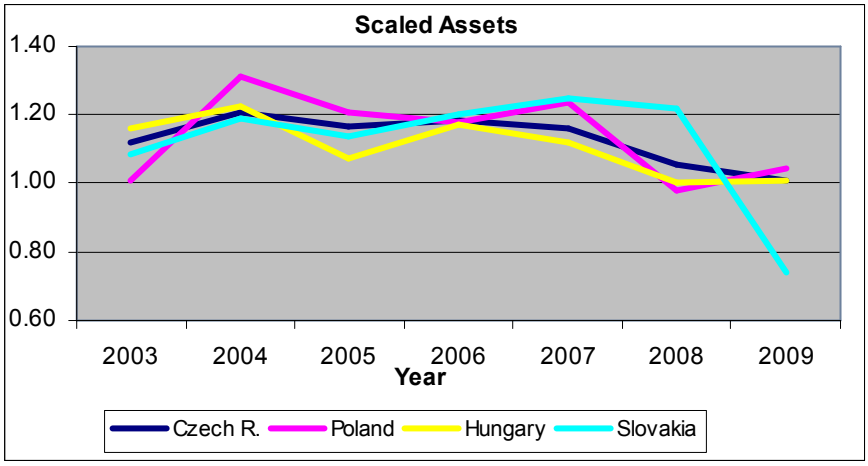
In Eastern European countries the IFRS is required for consolidated financial statements of listed companies, since it has been made mandatory by the EU. Some listed companies also apply IFRS to prepare separate financial statements because EU member states are allowed to decide about it. We work with non consolidated financial statements prepared under local GAAP to avoid the impact of regulatory change on the results.

6.2. SAMPLE CHARACTERISTICS

We describe our sample and present some graphics focusing on some of the main variables (total assets, sales, ROA).

We may observe in Figure 6.1 a systematic growth in ***total scaled assets*** between 2003 and 2004 for all countries. Then, the increase in assets is also observed in a period of 2005-2007 for Slovakian companies, between 2005 and 2006 for Hungarian firms, between 2006 and 2007 for Polish firms, and finally between 2008 and 2009 for Czech, Polish and Hungarian companies.

Figure 6.1: Assets (mean) by country

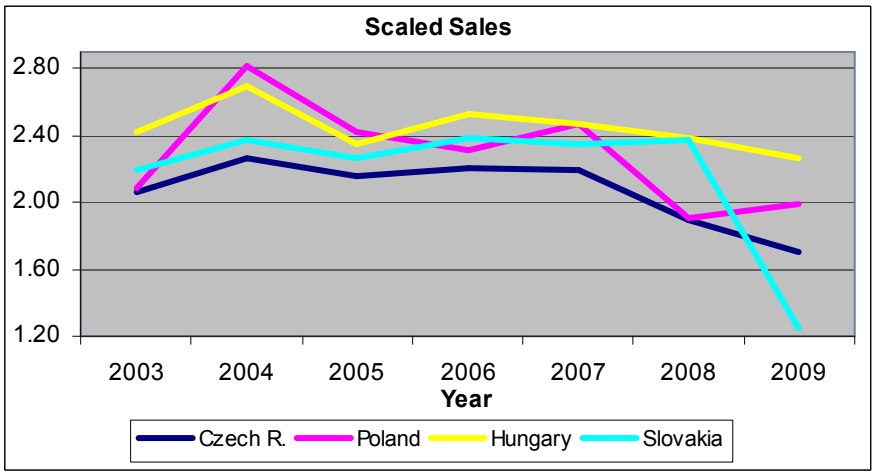


Source: The author.

On the other hand, from 2004 to 2005; and from 2007 to 2008 we may observe decrease in scaled total assets for all countries (for Slovakian companies it is observed even between 2007 and 2009). Last but not least, Slovakia shows a significant drop in total assets between 2008 and 2009, and the value of assets does not recover as in other countries. Finally, companies from the Czech Republic show the lowest fluctuations of total assets among our developing Eastern European countries.

Figure 6.2 shows the graphics on ***sales scaled by lagged total assets*** for each country. We may observe similar tendencies in sales as we have pointed out for the total lagged assets. Certain fluctuations between 2003 and 2008 for all countries are detected, with similar particularities as described in assets.

Figure 6.2: Sales (mean) by country

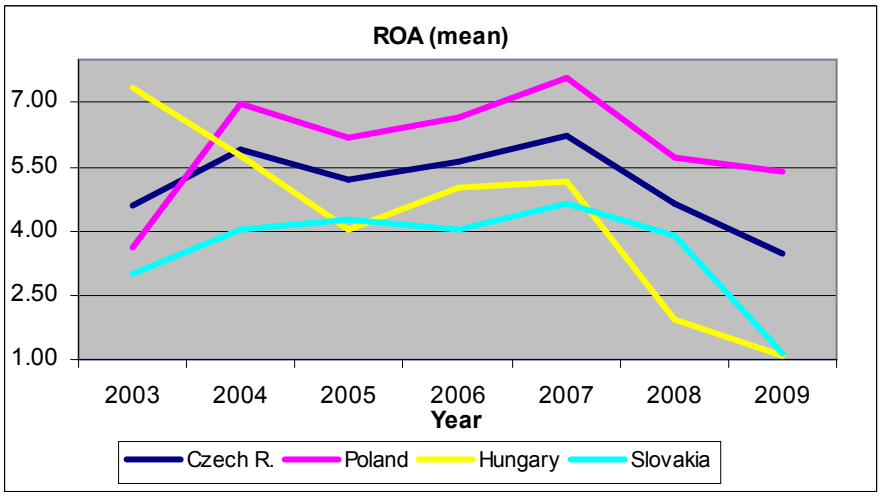


Source: The author.

The highest values are observed in 2004 for all samples, and the lowest values in 2008. However, between 2008 and 2009, the Czech Republic, Hungary and Slovakia continue decreasing in total values of sales. Only Polish companies recover the values of 2008 and their value of sales starts to increase. Moreover, again Slovakian companies show a significant decrease in values in the last year, much higher than the other three countries' samples.

Finally, Figure 6.3 presents the evolution of the ***return on assets (ROA).*** The results indicate initially an increase in ROA for the Czech Republic, Poland and Slovakia. We then observe some fluctuations between 2004 and 2007 (in 2007 reaching the highest values). Finally, a significantly decrease in ROA is observed in the final two years. On the other hand, Hungarian companies show very high results at the beginning of our investigation period. Afterwards, a sudden decrease is observed between 2003 and 2005. In the following years (2006-2007) a slight increase is perceived. Ultimately, starting from 2007, we perceive a deep drop of the ROA, the same as in other countries.

Figure 6.3: ROA (mean) by country



Source: The author

Focusing on some main descriptive variables (total assets, sales, ROA) we clearly identify that Eastern European companies enjoyed solid and significant growth, with the exception of 2008 and 2009. Between these years companies may have been affected by the first impact of the world financial crisis. As Nissanke (2010) points out, by mid-2007, in the United States, over-dependence on market forces and mechanisms without proper and workable regulatory mechanisms and systems in place to govern the globalization process, led to the appearance of large cracks threatening the stability of

the world economy on two fronts: a sharp hike in primary commodity prices and the global financial crisis. Many primary commodities registered a steep rise in prices since 2002, reaching an all-time high in 2007-2008, with extreme fluctuations. Berglöf, Korniyenko, and Zettelmeyer (2009) confirm the existing effects of the global financial crisis on growth in emerging European countries.

6.3. METHODOLOGY: ESTIMATION OF DISCRETIONARY ACCRUALS

We use the Yoon and Miller model (2002) to estimate the parameters, as our analysis in chapter 5 suggests that the Yoon and Miller model (2002) is the most reliable model in detecting earnings management for our emerging Eastern European countries.

The Yoon and Miller model (2002) is defined by seven different variables: total assets, change in revenues, change in receivables and payables accounts, change in operating expenses, non-cash expenses, and property, plant and equipment (as a rate of growth), see equation *(1)*. Details on the descriptive statistics on all variables are presented in Annex 6.1[2].

$$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{\Delta EXP_{it} - \Delta PAY_{it}}{A_{it-1}} + \alpha_3 \frac{NCASH_{it-1} \times GPPEGRW_{it}}{A_{it-1}} + \varepsilon_{it} \quad (1)$$

where:

TA_{it} - Total Accruals in year t

A_{it-1} - Total Assets in year t -1

ΔREV_{it} - Annual change in revenues in year t

ΔREC_{it} - Annual change in receivables accounts in year t

ΔEXP_{it} - Change in operating expenses excluding non-cash expenses in year t

ΔPAY_{it} - Change in payables accounts in year t

$NCASH_{it-1}$ - Non-cash expenses such as depreciation in year t-1

$GPPEGRW_{it}$ - A rate of growth in gross property, plant and equipment in year t

ε_{it} - The error term

Source: Yoon and Miller (2002)

[2] To avoid the effect of size we scale the variables, where the scaling factor is lagged total assets.

Having estimated the parameters from the Yoon and Miller model (2002), we apply the values obtained to predict discretionary accruals. The prediction error is interpreted as the discretionary part of accruals.

Prior evaluations of the ability of two methodologies of the Yoon and Miler model (2002) (previous chapter), show that both, the cross-sectional and time-series versions of the Yoon and Miller model present reliable results for estimating the discretionary part of accruals for our Eastern European countries. However, as the size of the sample changes significantly in this chapter in comparison to the previous one (in this chapter a much more ample sample is applied, as explained previously) we again verify the robustness of two versions of the Yoon and Miler model (2002) to be able to opt for one of these estimated versions. Once estimates have been done, we select the version which is able to consistently detect earnings management.

Based on the adjusted R square, standard error of the estimated variables, as well as, the statistical significance of the variables, and the predicted sign, we conclude that the cross-sectional methodology is much more effective in detecting earnings management. We observe a higher level of adjusted R square, a lower level of standard errors, while significance values of parameters and the sign for almost all variables fulfill the expectations, for details see Annex 6.2.

Consequently, to predict discretionary accruals for the 2003-2009 study period we apply a cross-sectional version of the Yoon and Miller model (2002). After obtaining the discretionary accruals for each company, we then investigate whether companies from emerging Eastern Europe perform earnings management. We investigate how they manipulate (to increase/ decrease earnings). Do manipulations change over years? Finally, whether differences in earnings management are observed among different developing countries.

6.4. EARNINGS MANAGEMENT IN EMERGING EASTERN EUROPEAN COUNTRIES

The descriptive statistics for discretionary accruals obtained from the Yoon and Miller model (2002) of our four countries are shown in Table 6.2. To verify if we may

observe manipulation in Eastern European countries we generate the fictitious sample whose results of the discretionary accruals are equal to zero (no earnings management). The fictitious sample represents a situation where no manipulation of the earnings may be observed.

Table 6.2: Statistics on the discretionary accruals of Eastern European countries

	2003	2004	2005	2006	2007	2008	2009
Panel A: Czech Republic							
Mean	-0.0318	-0.0210	-0.0279	-0.0043	-0.0059	-0.0388	-0.0580
Standard deviation	0.1478	0.1599	0.1409	0.1389	0.1663	0.1348	0.1220
Median	-0.0422	-0.0310	-0.0401	-0.0206	-0.0200	-0.0464	-0.0587
Panel B: Poland							
Mean	-0.0323	-0.0059	-0.0325	-0.0248	-0.0190	-0.0470	-0.0544
Standard deviation	0.1799	0.1625	0.1531	0.1760	0.1427	0.1404	0.1143
Median	-0.0380	-0.0221	-0.0399	-0.0362	-0.0316	-0.0461	-0.0529
Panel C: Hungary							
Mean	0.0470	-0.0242	-0.0259	0.0201	-0.0315	-0.0567	-0.0564
Standard deviation	0.3247	0.1783	0.1158	0.1905	0.1054	0.1143	0.1020
Median	-0.0244	-0.0495	-0.0444	-0.0159	-0.0348	-0.0486	-0.0558
Panel D: Slovakia							
Mean	-0.0478	-0.0069	-0.0494	-0.0294	-0.0618	-0.0551	-0.0972
Standard deviation	0.1098	0.1113	0.0841	0.1233	0.1643	0.1477	0.1058
Median	-0.0508	-0.0286	-0.0480	-0.0424	-0.0708	-0.0608	-0.0969

Source: The author.

Then, using this sample, we investigate whether the level of discretionary accruals of our fictitious sample shows significant differences with the discretionary accruals obtained for each country. If the results show significant differences, it means that companies from developing Eastern European countries manage earnings. If no significant differences are observed, it indicates that the manipulated part of accruals of our Eastern European samples is the same as our fictitious sample, close to zero (or equal to zero), and no earnings management is detected. After verifying that the variables do not follow a normal distribution (see Annex 6.3) we apply the Mann-Whitney non parametric test to compare the fictitious sample and our samples of Eastern European countries. The results obtained are shown in Table 6.3.

Table 6.3: Results on Mann-Whitney non-parametric test

Countries Pairs	Mann-Whitney Results (Z value)
Czech R.- No Earnings Management sample	-162.085***
Poland - No Earnings Management sample	-164.220***
Hungary - No Earnings Management sample	-128.610***
Slovakia - No Earnings Management sample	-131.149***

* significance at 10%
** significance at 5%
*** significance at 1%
Source: The author.

We may observe that there is a statistically significant difference in manipulation between all countries and our non-earnings management sample. It means that, in fact, companies from the Czech Republic, Poland, Hungary and Slovakia, manipulate earnings.

Previous empirical studies on emerging countries indicate as well that firms heavily engaged in earnings management, for instance, Yoon and Miller (2002) and Kim and Yi (2005) in Korean firms; Martinez (2005) in Brazilian firms; Razzaque, Rahman and Salat (2006) in Bangladesh; Lee and Xue (2004) Lau (2004) Yu, Du and Sun (2006) Chen, Lee and Li (2008) Shen, Coakley and Instefjord (2008) in Chinese firms; Rahman, Dowds and Cahan (2005) Ahmad-Zaluki (2008) in Malaysian firms; Caramanis and Lennox (2008) in Greece; Matis (2010) in Romania; and Swiderski, Goncharov and Bissessur (2010) in the Czech Republic, Hungary and Poland, among other studies[3]. Nevertheless, emerging Eastern European countries barely were investigated.

Therefore, we think that in these countries there are some peculiarities which lead managers to manipulate their earnings. We signalize some of the possible reasons for such activity.

Firstly, developing ***Eastern European countries are still in transition*** from the centralized, developing economy into the market economy. After the collapse of the Soviet Union from 1989 to 1991, many new countries emerged as independent states which had been members of the Soviet Union and Warsaw Pact. They used to be ruled by a communist regime and their economical structure consisted of autarky in foreign trade, common ownership by the means of production and land (Canbazoglu and Kaiser, 2006). They have adapted many structures; nevertheless, many things have still

[3] For details, see Chapter 4.

not been achieved. In these circumstances, the transition process to market-oriented economy has a significant impact on managers' behaviour. The transition impacted more than political, economic, and social structures of the transitioning societies (Surzhko-Harned and Turkina, 2010). It may have influence on managers' decisions.

Secondly, ***high competition*** affected by a ***changing environment*** may have an important effect on managers' decisions to opt for earnings manipulation. Intense competition induces earnings manipulation and accounting manipulations (Lee and Liu, 2013). The authors point out that by doing so, firms become competitive and thus are more likely to survive.

Moreover, managers of developing Eastern European countries are ***under pressure to reach certain objectives***, which may lead them to earnings management. They now operate in a new, stricter and at the same time more demanding environment. On one hand, companies try to adapt to new economic circumstances. On the other, they must fulfill the companies' objective.

Another incentive for earnings manipulation may come from the possible bonus opportunities perceived by managers coming out from the still existent ***process of privatization*** of companies. Privatization is a part of the transition from communism into the open-market. Schmidt and Schnitzer (1993) analyze the impact of different governance structures on management incentives, the efficiency of restructuring, and the social costs of the adjustment process in the transition period of Eastern European countries. The model shows that immediate privatization leads not only to high social costs, but also to strong bonus incentives. Managers may take advantage in terms of attracting investment, and perceive specific contractual incentives.

Furthermore, ***European Union membership*** may also have an influence on the existence of managers' decisions regarding earnings management. In order to comply with European Union regulations managers may have to manage earnings. The European Union norms and requirements play an important role in the activity of companies. Given the nature of the complexity of the transition in these post-communist societies, in most cases the implementation of all changes required by the EU managers may have been tempted to fulfil the regulation at any cost, including earnings management activities. According to Moravcsik (1998) the enlarged membership helps an increase in opportunities for cross-border trade and capital movements", but at the same time it creates opportunities for earnings management. As Dijmarescu (2001)

points out, membership is not a matter of the timing of the negotiations in the sense that some applicants started their negotiations. It is rather a matter of readiness, determination, and changes made by the candidate countries in the adherence to the free market and the rule of law, irrespective of political decisions reached in the EU toward its eastward extension (Dijmarescu, 2001). Therefore, this determination may lead to the existence of earnings management.

Finally, ***characteristics of the firms*** may be another important factor in terms of explaining our results regarding the existence of earnings management in Eastern European countries. The companies of developing countries have limited resources. They have less purchasing power, and lower opportunities to compete with well-established Western European firms.

6.5. SIGN OF EARNINGS MANIPULATION IN DEVELOPING EASTERN EUROPEAN COUNTRIES

A wide range of possible aspects may to some extent explain the existence of earnings management. We are led to the question of the direction of the manipulation, as these turbulent, risky and certainly different circumstances of the environment may affect firms' activities. Managers of the firms may manage earnings upward (positive sign of discretionary accruals), or downward (negative sign of discretionary accruals).

Companies may manage earnings to decrease them, in terms of, for example, "saving" some of the earnings for future periods and to secure the existence of the companies. In this situation, managers are cautious and give prevalence to the survival and sustained activity of the company (long-term existence of the company) instead of presenting the real, less beneficial image of their companies. As Schmidt and Schnitzer (1993) point out, in the transition period the environment of the enterprises will be very noisy, input and output prices will change rapidly, political decisions will have a major impact on the profitability of many markets, and macroeconomic instability will impose additional risks. This noise is reflected in the accounting data, which is therefore a poor measure of management performance.

On the other hand, new opportunities caused by the transition into the market-oriented economies and European Union membership may push companies to

drastically pursue their goals, achieve objectives and in consequence become much more competitive in this wide and global market. This may be an incentive for managers to upwardly manage earnings. Firms may want to look stronger and more competitive by increasing earnings. The image of being a stable, well-established, solid company is vital to operating on the European market. Hence, we measure the signs of such earnings manipulation.

The results of the means (Table 6.2) indicate the negative values of the discretionary accruals, which suggest earnings are decreased.

We calculate the number of companies that showed positive and negative earnings management per country and year. We also calculate the mean of discretionary accruals in positively ranked firms and the mean of negatively ranked firms[4]. Table 6.4 reports the correspondence (percentage) of the positive and negative discretionary accruals by the samples and over years.

Table 6.4: Results of the earnings management: positive vs. negative discretionary accruals

	2003	2004	2005	2006	2007	2008	2009	Mean
Panel A: Czech Republic								
Zero or positive %	30.01%	36.26%	32.21%	40.95%	38.21%	27.38%	21.47%	**32.36%**
Negative %	69.99%	63.74%	67.79%	59.05%	61.79%	72.62%	78.53%	**67.64%**
Panel B: Poland								
Zero or positive %	30.96%	39.63%	29.05%	30.83%	35.14%	24.21%	22.30%	**30.30%**
Negative %	69.04%	60.37%	70.95%	69.17%	64.86%	75.79%	77.70%	**69.70%**
Panel C: Hungary								
Zero or positive %	42.11%	28.95%	32.46%	37.72%	35.09%	23.68%	23.68%	**31.95%**
Negative %	57.89%	71.05%	67.54%	62.28%	64.91%	76.32%	76.32%	**68.05%**
Panel D: Slovakia								
Zero or positive %	22.07%	36.62%	23.47%	27.70%	23.00%	24.88%	12.21%	**24.28%**
Negative %	77.93%	63.38%	76.53%	72.30%	77.00%	75.12%	87.79%	**75.72%**

Source: The author.

The percentage of the observations with negative discretionary accruals ranges from about 59% to 78% for the Czech sample; for the Polish sample, from 60% to 78%;

[4]This was done to gain a more nuanced analysis, since it is possible that the results would show a larger number of positive (negative) DA but the mean of the DA in positively ranked firms would at the same time be lower (higher) than the mean in the DA in negatively ranked firms.

the Hungarian sample between 58% and 76%, and for the Slovakian sample it ranges from 63% to 88%. These results indicate that two thirds of cases[5] show the negative sign of discretionary accruals, which indicates a decrease in earnings. This distribution clearly suggests that European emerging firms tend to manipulate their earnings downwards.

Previous studies on emerging countries show contrary results, as most studies show that firms manage earnings to increase them. The firms tend to choose income-increasing strategies (Yoon and Miller, 2002; Lee and Xue, 2004; Shen, Coakley and Instefjord, 2008; Chen, Lee and Li, 2008; Caramanis and Lennox, 2008; Kao, Wu and Yang, 2009, among others). This may be the result of completely different environmental backgrounds as these studies are mainly based on developing Asian markets. Nevertheless, the unique empirical study based on the emerging Eastern European countries, Swiderski, Goncharov and Bissessur (2010), confirms our results indicating that firms decrease earnings to avoid reporting high earnings figure.

Additionally, we may observe that in the last two years, 2008-2009, the proportion of the percentage of the negative to positive discretionary accruals increases. Habib, Bhuiyan and Islam (2012) explain that during a bad economic situation (between 2008 and 2009 we saw the first impact of the world financial crisis) companies use more income-decreasing rather that in positive economic circumstances[6]. Qiang (2013) adds, that this is because, during recession, firms are likely to be exposed to disadvantages in that period and expect to rebound in the future. Hence, they employ more earnings management decreasing.

Furthermore, to evaluate the level of downwards and upwards manipulation, we compare the absolute value of means (the magnitude of means without considering its sign) of positive and negative discretionary accruals, see Table 6.5. The dependent variable is the absolute value of discretionary accruals because we want to measure the magnitude of manipulation without regard to its sign.

[5] In 2009 the percentage even increases, for the Czech sample to 79%, the Polish sample to 78%, the Hungarian sample to 76%, and for Slovakian sample even overcome in 10 points this high portion of the negative to positive earnings management reaching 88% of negative sign of discretionary accruals.

[6] We explain it in detail in the posterior analysis.

Table 6.5: Summary of the means of the positive and negative discretionary accruals

	2003	2004	2005	2006	2007	2008	2009	Mean
Panel A: Czech Republic								
Mean positive	0.1091	0.1106	0.1030	0.1065	0.1049	0.0926	0.0817	**0.1012**
Mean negative	0.0923	0.0958	0.0902	0.0811	0.0744	0.0883	0.0962	**0.0883**
Difference	0.0169	0.0148	0.0129	0.0254	0.0305	0.0043	-0.0145	**0.0129**
Panel B: Poland								
Mean positive	0.1026	0.1311	0.1075	0.1143	0.1110	0.0852	0.0757	**0.1039**
Mean negative	0.0928	0.0959	0.0898	0.0867	0.0893	0.0892	0.0918	**0.0908**
Difference	0.0098	0.0352	0.0177	0.0276	0.0216	-0.0040	-0.0161	**0.0131**
Panel C: Hungary								
Mean positive	0.2257	0.1781	0.0989	0.1696	0.0697	0.0684	0.0751	**0.1265**
Mean negative	0.0829	0.1066	0.0859	0.0704	0.0862	0.0955	0.0972	**0.0892**
Difference	0.1427	0.0716	0.0131	0.0992	-0.0165	-0.0271	-0.0221	**0.0373**
Panel D: Slovakia								
Mean positive	0.0971	0.1019	0.0590	0.1038	0.1377	0.1191	0.0896	**0.1012**
Mean negative	0.0888	0.0697	0.0827	0.0804	0.1214	0.1128	0.1232	**0.0970**
Difference	0.0082	0.0322	-0.0237	0.0234	0.0163	0.0064	-0.0336	**0.0042**

Source: The author.

The results indicate that the absolute values of positive discretionary accruals are higher than the absolute values of negative discretionary accruals (the mean of positive discretionary accruals is higher than the mean of negative discretionary accruals). Only the last two years show higher values of negative means of discretionary accruals over the positive.

The results indicate that between 2003 and 2007 Czech, Polish and Hungarian firms demonstrated higher values of positive means. In the final two years of our sample period, we observed fluctuations in the values, for example the Czech sample in 2008 shows higher values of positive means. Nevertheless, in 2009 the negative means reached a higher value than the positive means. On the other hand, between 2008 and 2009, the Polish and Hungarian samples showed persistence of the negative sign, which means higher values of negative discretionary accruals than positive ones. And finally, the Slovakian sample shows some fluctuations over the years, with higher values of positive means. Only in 2005 and in 2009 can we observe a higher level of the negative sign of means of discretionary accruals; in the other years, the positive sign is more than the negative.

In light of the above, we can observe negative earnings management for our Eastern European emerging countries in most cases (more than 66%). However, the level of the manipulation indicates that upwards manipulation is much higher than downwards manipulation. The managers of our samples are more likely to round down their results, but only slightly. Taking the above considerations into account, we ran estimations to evaluate the dimensions of negative and positive manipulation. We calculated the dimensions of the manipulation due to positive and negative earnings management by multiplying the means for each year and each sample (see Table 6.5) by the percentage of the observations with negative or positive discretionary accruals (Table 6.4). The results are reported in Table 6.6.

Table 6.6: Dimensions of the manipulations by positive and negative sign of discretionary accruals

	2003	2004	2005	2006	2007	2008	2009	Mean
Panel A: Czech Republic								
Positive DA	0.0328	0.0401	0.0332	0.0436	0.0401	0.0253	0.0175	**0.0332**
Negative DA	0.0646	0.0611	0.0611	0.0479	0.0459	0.0641	0.0755	**0.0600**
Panel B: Poland								
Positive DA	0.0318	0.0519	0.0312	0.0352	0.0390	0.0206	0.0169	**0.0324**
Negative DA	0.0641	0.0579	0.0637	0.0600	0.0579	0.0676	0.0713	**0.0632**
Panel C: Hungary								
Positive DA	0.0950	0.0516	0.0321	0.0640	0.0245	0.0162	0.0178	**0.0430**
Negative DA	0.0480	0.0757	0.0580	0.0439	0.0559	0.0729	0.0742	**0.0612**
Panel D: Slovakia								
Positive DA	0.0214	0.0373	0.0139	0.0288	0.0317	0.0296	0.0109	**0.0248**
Negative DA	0.0692	0.0442	0.0633	0.0582	0.0935	0.0847	0.1082	**0.0745**

Source: The author.

We can observe that the dimensions of the manipulation by decreasing earnings are significantly higher than manipulation by increasing earnings (in all the samples, the manipulation by negative discretionary accruals exceeds that of positive discretionary accruals). Moreover, we detected the highest manipulation by decreasing earnings in the Slovakian sample, followed by the Polish sample. In contrast, the highest manipulation by increasing earnings we observed was in Hungarian firms, followed by the Czech sample of companies.

These findings confirm an important decreasing of earnings in developing Eastern European countries. We can explain the negative sign of discretionary accruals

by managers smoothing good results to avoid reporting high earnings. Emerging Eastern European countries, as new members of the EU, have taken significant steps in the development and economic growth of their companies. They appear to be very competitive firms; however, the ***strong desire to survive*** in the very competitive and global market, has lead managers of companies from developing countries to decrease earnings and to maintain some non-reported earnings, instead of reporting high revenues and being viewed as large strong companies.

Additionally, the European market shows very tight competition. Western European companies are well-established and much stronger than developing Eastern European companies. We think that emerging Eastern European companies may want to decrease their firm's value outwardly and seem ***to appear weaker*** than is the reality. Consequently, they may opt for downward earnings management to decrease the value of their firms and fill in the "gaps" of the European markets. Raoli (2013) points out that managers of companies characterized by a decrease in the firm's market value engage in decreasing earnings management, demonstrating that managers of undervalued companies may sustain the undervaluation in order to help themselves. Therefore, managers may "help themselves", perhaps, by ***finding a niche*** and avoiding direct competition with strong and well-established Western European companies.

Besides, we may also expect that firms may engage in decreasing earnings management for ***tax reasons***. There are differences between tax regulation within the European Union trade and national/ local tax regulation. Companies may take advantage of the gaps in the regulations or simply use the context of the period of adjustment to the EU regulations and pay taxes at a reduced rate for a limited period of time, or avoid taxes if certain requirements are secured, among others (see Yin, 2003; Desai and Dharmapala, 2005). New members' countries have a period to fulfill the harmonization requirements with the norms and standards of the EU (including tax regulations). Although EU legislation stipulates that new members have to transpose EU regulations into national legislation in a relatively short period of time (http://ec.europa.eu).

Moreover, managers may manage earnings downward in order to ***build "cookie jar" reserves*** for the future when unmanaged current earnings exceed earnings targets (see for example, Healy 1985; Levitt 1998; Nelson, Elliott and Tarpley, 2003). Thanks to entrance into the new open market (EU), new opportunities come up. The

European market certainly creates great opportunities for making international negotiations and to extend current trades. Therefore, in some circumstances Eastern European companies may exceed their earnings targets. These findings suggest that when the current year's unmanaged earnings exceed target earnings, managers have an incentive to report lower current earnings and create cookie jar reserves, thereby enabling them to smooth income and save income that can then be available for future periods (Ronen and Sadan, 2001; Nelson, Elliott and Tarpley, 2003).

However, the opposite situation may also occur resulting in decreased earnings. Intensification of European competition caused by the membership of new Eastern European countries may produce a negative effect on Eastern European companies. They may suffer instability in terms of competition, employment, flow of capital, or technology. Unmanaged earnings may be below an earnings target and there could be ***little chance of meeting the target***. In these circumstances, managers have motivation to manage earnings downward as they cannot reach the proposed target. Managers choose further downward earnings management which may permit them to make it easier to meet or beat future periods' earnings targets. Similar situations were observed for example in Healy (1985) and Bernstein (1993).

Finally, decreasing earnings management may be observed in the companies which use it to ***lower owners' expectations,*** see for example studies of Degeorge, Patel, and Zeckhauser (1999), Matsunaga and Park (2001), Matsumoto (2002), Bartov, Givoly, and Hayn (2002), Kasznik and McNichols (2002), Graham, Harvey, and Rajgopal (2005), Baik and Jiang (2006), Cotter, Tuna, and Wysocki (2006). Managers may settle for less competitive expectations to make them more easily achieved. Therefore, they may use decreasing earnings to show that companies' forecasts were completed.

6.6. ANALYSIS OF EARNINGS MANAGEMENT OVER THE YEARS IN EMERGING EASTERN EUROPEAN COUNTRIES

We think that manipulation may change over the years. These changes may be in response to many aspects of the environment in which companies are operating, such as: market fluctuations, economic cycle, and macroeconomic conditions, among others.

A dynamic environment is one of the relevant factors which may influence managers' decisions (Li and Ding, 2008). Thompson (1967) and Terreberry (1968) add that a complex environment is important for managers' decisions. Kothari, Leone and Wasley (2005) point out, as well, that environmental uncertainty is likely to affect firms' performance.

Firms' environment is changing. Managers must respond to these changes in the markets. We think that managers try to cope with the fluctuations of the market and they also respond to these fluctuations by variations in earnings management. In addition, our analysis period includes two important moments: European Union membership and the first impact of the world economic crisis.

On the one hand, we perceive shrinking possibilities of managing results, as candidate states implement numerous legislative measures thanks to political pressure from the European Commission. During the transition period, new EU member countries were active in reviewing and amending key legislation to adapt to new European requirements. The EU Commission proposed principles for improving regulations, such as: the development and implementation of national anti-corruption strategies or programmes covering both preventive and repressive measures; the creation of competent and visible control bodies; the development of targeted investigative techniques, statistics and indicators; clear and transparent rules on party financing, and external financial control of political parties (Dionisie and Checchi, 2010).

Added to this, the first impact of the world financial crisis was observed between 2008 and 2009. Therefore, in a period of crisis, when investors are pessimistic about earnings news, managers rely on more earnings management and report similar earnings level as in previous periods (they may manipulate more if they are not able to reach established earnings). This is partly due to increased worries about potential losses of investors. Conrad, Cornell, and Landsman (2002) describe that during periods of crisis, managers manipulate their earnings more in order to fulfil companies' objectives. Managers may try to smooth the effect of fluctuation of the markets because, as explained by Baulkaran and Asem (2012), the market reacts adversely to changes in earnings.

For all the above, we are motivated to study earnings management in emerging Eastern European countries over the years, with the objective of knowing whether

manipulation varies over time, as we expect, due to European Union accession and the impact of the economic and financial crisis, among other factors.

Companies manipulate their reported earnings (Table 6.2). We looked for any significant differences in the level of discretionary accruals in our developing Eastern European countries over years. After verifying that the variables do not follow a normal distribution (see Annex 6.4), and taking into consideration the absolute value of discretionary accruals, we have run Friedman's test[7] to see if earnings management varies over the year in the different countries. The results are presented in Table 6.7.

Table 6.7: Non-parametric Friedman's test results

		Czech Republic	Poland	Hungary	Slovakia
Chi-Square		77.251***	87.184***	15.534**	61.087***
Mean Rank	2003	4.07	3.85	4.35	3.73
	2004	4.13	4.34	4.38	3.57
	2005	4.12	4.02	3.99	3.57
	2006	3.89	3.91	3.8	3.66
	2007	3.66	4.06	3.54	4.48
	2008	4.00	3.83	3.74	4.33
	2009	4.13	3.98	4.21	4.66

* significance at 10%
** significance at 5%
*** significance at 1%
Source: The author.

Our results partly confirm our expectations. The test proves the significance of the results (Chi-Square significant at 1%) and verifies that the evidence suffices to conclude that there is a difference in manipulation over the years.

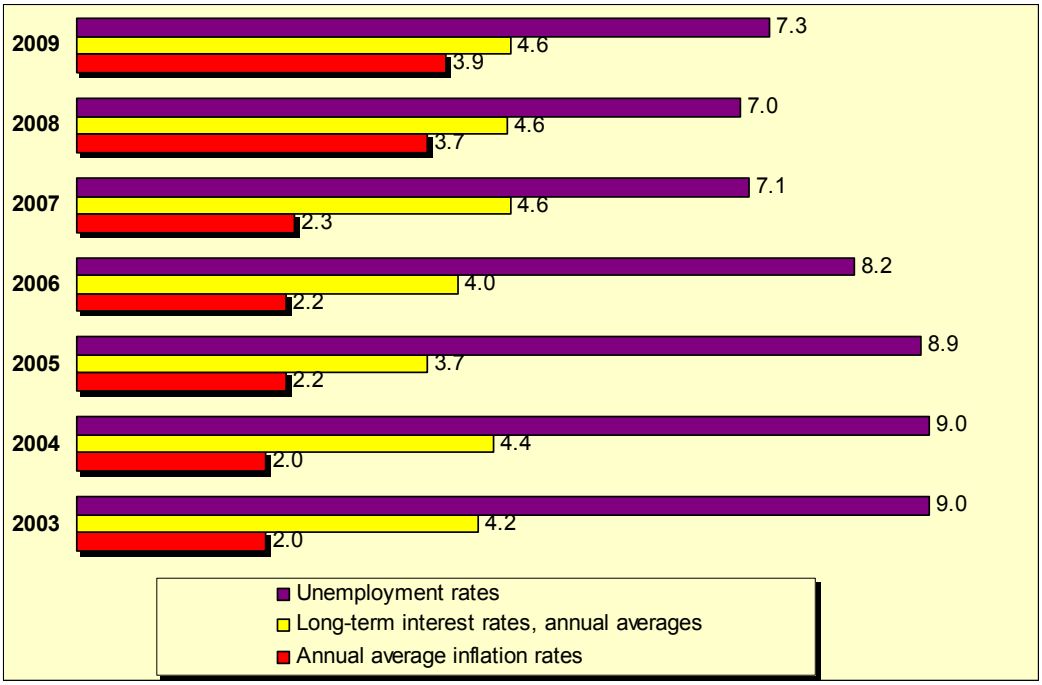
Our results can be explained by various elements, such as: globalisation, strengthening of the competition, and that firms' environment is changing. The managers of emerging country firms must respond to these changes in the markets. We think that managers try to cope with ***the fluctuations of the market*** and they also respond to these fluctuations by variations in earnings management. Richardson (2000) shows that earnings management is changing due to the level of some firms' risk and

[7] Friedman's Test is a non-parametric test used to test for differences between groups (see, for example Stevens, 1986; Hinkle, Wiersma and Jurs, 1988; Hayes *et al.*, 1992).

the instability of companies. Kothari, Leone and Wasley (2005) point out, as well, that environmental uncertainty is likely to affect firms' performance.

Furthermore, taking into consideration some economic data, see Figure 6.4, we again confirm that the ***economic environment*** has changed along our analysis period. Economic data reflects the general condition of the European market[8]. We may observe that the unemployment rate decreases 1.7 points in a period of seven years. Annual average inflation rates decrease significantly, reaching even double the values of the beginning of our period. Finally, long-term interest rates decrease over the years. Hence, changes of economic circumstance may have influenced the observed changes in earnings manipulation over the years in Eastern European countries reflecting the general situation of the market and managers' activities in response to those changes. Managers try to cope with these situations, and also to fulfill the expectations of their owners to reach targets. They can not predict future tendencies, so manipulation changes over the years, setting the requirements of new conditions and necessities in order to achieve established goals.

Figure 6.4: Changes in Economic data calculated for whole European Union

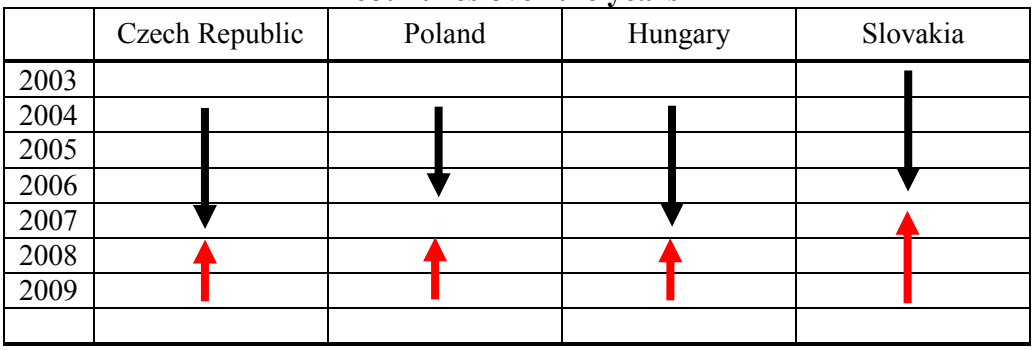


Source: The author, based on eurostat.com

[8] Following eurostat data base, we select: unemployment rate, annual average inflation rate, long-term interest rate, which indicate the situation of the specific market.

Additionally, we observe that two important moments may particularly have had a significant influence on managers' decisions: European Union membership and the impact of the economic crisis. Hence, we detected two main trends in our results: a gradual decrease in manipulation in our countries (mean ranks) between 2003 and 2007, and a rise in manipulation between 2008 and 2009, see Figure 6.5.

Figure 6.5: Tendencies of the earnings management in Eastern European countries over the years



Based on Friedman test.
Source: Callao, Jarne and Wroblewski (2012).

The first trend might be a result of ***joining the European Union*** (the Polish sample only between 2004 and 2006, and in Slovakian companies between 2003 and 2006). Entry into the global market no doubt had a significant impact on these new members. They had to implement different legislation, prevent corruption and create competent and visible anti-corruption bodies. Adopting these new legislations might be one of the reasons why manipulation has changed over the years.

Additionally, before European Union membership the local culture permitted more ***flexibility in terms of accounting rules*** (always taking into account fulfillment of tax regulations) and managers' decisions. Kempen (2010) explains that managers make certain choices to reflect an improved economic position of the company. This It is due to the accounting regulation which permits the manager to make judgments and in practice to choose methods and estimations that do not reflect the true economic position of the company but provide a more positive image (Healy and Wahlen, 1999). Emerging Eastern European countries thanks to the growing prominence of business transparency, kept on introducing regulations and extending the scope and scale of high quality information over years. European Union membership influenced significantly in the development and adoption of more transparent regulations and control (see for example, Olson, 1992; Schopflin, 1994; Svendsen, 2003; Knack and Kisunko, 2011).

Furthermore, ***market valuation incentives*** may additionally impact on managers' decisions. This is in accordance with the study of Kim and Yi (2005). They confirmed that emerging Chinese market capital markets create incentives for firms to manage reported earnings to satisfy the expectations of various market participants that are often expressed in earnings numbers.

Companies from Eastern Europe are affected not only by their own national market regulatory body, but also by ***European control***. Nowadays the European open market requires higher quality earnings from companies (from new members of the European Union as well) and more transparency. As Ball and Shivakumar (2005) point out, there is a clear contrast between the emerging and still developing Eastern market and the high-demanding Western European market. To some extent, this may explain why we observed less earnings management in Eastern European companies in our first observed period (between 2003 and 2007).

In addition, the transition process from a socialist economy to a market-oriented economy (from a former Soviet Union country to a capitalist country) is an ongoing process with significant steps, such as: the process of privatization of companies in the nineties, preparation for EU membership (2003 to 2004), European Union accession in May 2004, and, finally, between 2005 and 2007, the process of regulation in European rules and standards. This ***transformation required improving transparency***, which may limit the possibilities for earnings management, resulting in less manipulation, which confirms our results.

However, since 2007 the situation has changed. ***The global crisis*** which started in late 2007 and early 2008 impacted on the economic environment worldwide. It became more and more difficult to obtain good results from doing business in the global European market because companies were struggling with the financial crisis as well as the competition. This may explain the second trend we observed in our results, namely more manipulation between 2008 and 2009 in the Czech Republic and Hungary, and from one year before in Slovakia, between 2007 and 2009.

Advanced economies were battling to maintain their activities and negotiations, shaken by the instability of the markets caused by the recession. Emerging economies were also impacted as the ***deterioration in the economic environment*** caused considerable concern around the globe. The emerging region of Eastern Europe was hit with full force in late 2008 and it is counted among the most adversely affected areas on

a global scale (Bolli, 2009). These negative developments dramatically slowed down the convergence of Eastern Europe towards the Euro Area, and the crisis challenged managers to maintain the stability of their companies. As Habib, Bhuiyan and Islam (2012) explain, when the economic situation is bad, companies rely more on manipulation to weather the storm than they do in positive economic circumstances. Consequently, we can observe more manipulation in emerging Eastern European countries, as our results confirmed.

6.7. COMPARATIVE ANALYSIS OF EARNINGS MANAGEMENT AMONG EMERGING EASTERN EUROPEAN COUNTRIES

Finally, the emerging Eastern European market seems to be homogeneous. The four countries considered give the impression of having the same conditions and circumstances, since they are all post-communist countries. Moreover, since the four countries are in a transition phase to democratic politics and market economies (access to the EU), we may expect earnings management to be similar in all four. The cultural, social and legal aspects of each country may have some influence on the perception of manipulation but we do not expect this perception to differ greatly.

When old regimes collapse and new ones adapt to democratic and market-oriented societies, the outcome is a weak and inconsistent legal framework combined with few controls and the persistence of the culture of state intervention. This facilitates the emergence of corruption as one of the key governance problems in this region. The rapid privatization undertaken in many post-communist countries in the absence of proper institutional infrastructure and safeguards to ensure fairness and transparency further expanded the scope for corruption. The massive transfer of public assets to private hands in many cases reinforces rather than undermines corrupt networks (Knack, 2006).

Nevertheless, the developing Eastern European countries that joined the EU in 2004 have been some what more successful at improving their overall governance systems during their long transition period, and this - rather than external pressure or political will in the run-up to accession - may be one reason why their anti-corruption measures appear more effective and resilient.

However, considering the macroeconomic background of our emerging Eastern European countries, we may perceive differences between them. Poland and the Czech Republic have lower inflation rates, lower unemployment, and higher GDP (see Chapter 4), showing better resistance and stability in comparison to Slovakia and Hungary. Since there are macroeconomic differences among countries, we may find differences in earnings management among countries.

Based on the above arguments, we compare earnings management among the four countries to know whether it is similar or if there are significant differences.

We ran the non-parametric Kruskal-Wallis test using the absolute value of discretionary accruals (previously we have verified that the absolute values of the discretionary accruals of our companies from sample countries do not follow the normal distribution, see Annex 6.4). We were additionally interested in investigating whether the level of discretionary accruals shows significant differences by pairs of countries. To this end, we used the non-parametric Mann-Whitney test.

First, the results of the non-parametric Kruskal-Wallis test are presented in Table 6.8. The results of the Kruskal-Wallis test reveal that there are significant differences in manipulation among emerging Eastern European countries. The mean ranks indicate that we observed the lowest manipulation in Czech and Polish companies; followed by Hungarian firms; we detected the highest manipulation in the Slovakian sample.

Table 6.8: Results on Kruskal Wallis non-parametric test

		Kruskal-Wallis Results
Chi-Square		30.647***
Mean Rank	Czech R.	16092.93
	Poland	16143.23
	Hungary	16769.69
	Slovakia	17416.34

* significance at 10%
** significance at 5%
*** significance at 1%
Source: The author.

Although the four emerging countries we considered give the impression of having the same conditions and circumstances—they are all post-communist countries, countries in a transition phase into democratic and market-oriented economies, with

recent European Union membership—the above results confirm that there are still differences between them.

These differences can be explained by ***the cultural, social and legal factors*** of each country may have a significant influence on the perception of manipulation, as mentioned. It seems that our countries may differ considerably in the nature and speed of both social and economic development (Riboud, Sanchez-Paramo and Silva-Jauregui, 2001).

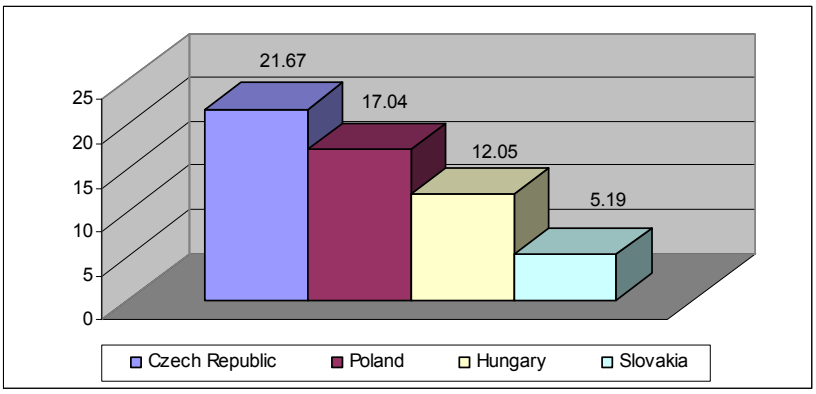
Apart of them, we perceive some institutional factors and macroeconomic differences between the Eastern European countries. For example, the results we obtained might also be explained by the difference in the level of ***investor protection***. As La Porta *et al.* (2000) point out, investors who provide funds gain certain rights or powers that are generally protected through regulations and laws. Strong investor protection is a particularly important manifestation of heightened security of property rights against political interference; and in effect it limits the level of earnings management (see Leuz, Nanda and Wysocki, 2003). The World Bank Group (2011) conducted an interesting project, in which they measure investor protection in different countries, where higher levels of the index confirm better investor protection. They rank countries worldwide based on investor protection, and Poland and the Czech Republic are in higher positions than Slovakia and Hungary[9]. This may explain our mean ranks in the Kruskal-Wallis test. We detected higher ranks for manipulation in Slovakia and Hungary, consistent with the lower investor protection index, whilst the lower ranks in manipulation we identified for the Czech Republic and Poland correspond to the higher investor protection index.

Another important element may come from the ***growth and development of the market*** in each country. In a more developed market we may expect a lower level of earnings management. In Figure 6.6 we present the market capitalization of each of our Eastern European countries.

Each of the four of our sample countries are ranked inversely to their earnings-management scores. The higher their score in market capitalization, the lower their level of earnings management. Both the Czech Republic and Poland have a more developed market and lower earnings manipulation (Kruskal-Wallis ranks) in comparison to Hungary and Slovakia.

[9] For details see www.worldbank.org

Figure 6.6: The market value of the Eastern European countries



Source: World Bank Database (2008).

Another possible reason is a ***response to the negative effects of the economy*** in each country. As mentioned, in our analysis period we observe two important periods: European Union membership and impact of the economic crisis. Bartov, Givoly and Hayn (2002) and Rajgopal, Shivakumar, and Simpson (2007) clarify firms' response to positive and negative economic changes. They have opportunities and the ability to take advantage of such opportunities (to manage earnings more or less depending on the situation). Our four emerging countries do show difference in response to changes in their environment. Poland and the Czech Republic show better resistance, stability and flexibility in response to greater uncertainty in their operating environments in comparison to Slovakia and Hungary. In these countries we find lower unemployment, inflation rate, higher foreign investments, etc[10].

At the same time, greater uncertainty leaves more room for managers' activities. Hence, managers have the flexibility to express their imperfect business assessments through earnings management. As a result, we have observed lower earnings manipulation in Poland and the Czech Republic. Slovakia and Hungary are ranked with a higher score in the Kruskal-Wallis test, which suggests a higher level of earnings management; yet at the same time, both countries show significantly higher rates of unemployment, inflation or lower level of foreign investments, or gross domestic product. This confirms that each emerging country reacts differentially to its economic circumstances. Our view is also supported by the study of Johl, Jubb and Houghton (2003) who investigated the emerging Malaysian market. They confirm that the Asian

[10] For details see World Bank Database, www.worldbank.org

financial crisis indeed had an influence on managers' decisions in relation to managing earnings.

Finally, within the other macroeconomic indicator, Poland and the Czech Republic have lower ***inflation rates, lower unemployment, and higher GDP***[11], showing better resistance and stability in comparison to Slovakia and Hungary. Our results show a lower level of earnings management in Poland and the Czech Republic than Slovakian and Hungarian firms.

Moreover, after running the Mann-Whitney U Test, see Table 6.9. We observed that there is a statistically significant difference in manipulation among four (of six) pairs of developing countries: Czech Republic and Hungary; Czech Republic and Slovakia; Poland and Slovakia; and Poland and Hungary. However, we can conclude that there are no statistically significant differences between the Czech and Polish pair and the Hungarian and Slovakian pair.

These differences may stem from various reasons. An important dimension of earnings management motivation is the ***taxation implications*** of the decisions. Any researcher studying earnings management fully appreciates that accounts may be modified for the purposes of taxation and that this might have a bearing on the most profitable way to operate the business (see Haller, 1992; Radcliffe, 1993; Freedman, 1995; James, 2009, among others). Before 1989 (fall of communism), accounting systems in Eastern Europe were driven by the communist system and political conditions. Accounting changes were initiated in 1989 to ensure a market information bias; however, a tax-orientated preparation of accounting information can still be perceived (see Jaruga, Walinska and Baniewicz, 1996; Mackevicius, Strouhal and Zverovich, 2008).

The tax and financial reporting systems are closely connected in all of our four countries. As a consequence of the strong influence of taxation on accounting, many tax rules are used for financial-reporting purposes, and conservatism has a persistent influence on accounting practice. Accounting rules are conservative provided that managers have the incentive and ability to inflate transaction characteristics (Frydlender and Pham, 1996; Gao, 2012). However, as the literature points out, we may find differences within emerging European countries. Vellam (2004) provides an analysis of

[11] For details see Chapter 4.

these difficulties for transition-economy companies. The study confirms that Polish firms, used to the legalistic and formal structure of Polish accounting rules, faced significant challenges in applying 'investor-oriented' directives. Sucher and Jindrichovska (2004) present similar observations for Czech companies. The accounting system in both countries is much closer to the system in Western European countries, since their accounting models are not as tax-based.

Table 6.9: Results on Mann-Whitney non-parametric test

Countries Pairs	Mann-Whitney Results		
Czech Republic-Poland	Z	-0.446	
	Mean Rank	Czech Republic	15027.1
		Poland	15071.8
Czech Republic-Hungary	Z	-2.019**	
	Mean Rank	Czech Republic	7554.08
		Hungary	7875.08
Czech Republic-Slovakia	Z	-5.272***	
	Mean Rank	Czech Republic	7855.75
		Slovakia	8511.52
Poland- Hungary	Z	-1.821*	
	Mean Rank	Poland	8262.77
		Hungary	8578.63
Poland- Slovakia	Z	-4.959***	
	Mean Rank	Poland	8566.66
		Slovakia	9235.74
Hungary - Slovakia	Z	-1.590	
	Mean Rank	Hungary	1114.98
		Slovakia	1161.07

* significance at 10%
** significance at 5%
*** significance at 1%
Source: The author.

The relationship between accounting and taxation has also been examined in detail by Hoogendoorn (1996). He compared the link between accounting and taxation in thirteen European countries. He found that it was possible to identify two essentially different types of relationship, which he referred to as 'independence' and 'dependence' structures. Hoogendoorn (1996) argued that the essential feature of 'independence' is

that companies may use different accounting policies for their commercial accounts and their tax calculations. Of course, there is never complete independence between accounting and taxation and each one influences the other. Nevertheless, with that reservation, Hoogendoorn (1996) considered the UK position to be one of independence. The other countries in this category were the Czech Republic, Denmark, Ireland, Netherlands, Norway and Poland (including two of our sample countries). Dependence was considered to exist where either the commercial accounts were based on tax rules, or where taxable income was determined by commercial accounts. This is where we locate our other two sample countries: Hungary and Slovakia. This may confirm our findings: there are no significant differences between the Czech Republic and Poland, or similarly between Hungary and Slovakia. The study of Swiderski, Goncharov and Bissessur (2010) based on Czech, Hungarian and Polish firms also confirms evidence suggesting that firms respond differently to tax incentives.

Another reason may result from the difference between ***economic development levels*** from one country to another. Poland and the Czech Republic are countries with faster-growing economies than Hungary and Slovakia. Their gross domestic product, foreign investments, etc, are above Hungary and Slovakia. Additionally, among our four emerging European countries, Poland and the Czech Republic present higher market capitalization[12] and at the same time they present lower earnings manipulation in comparison to our other two Eastern European countries: Hungary and Slovakia. This is because, a high level of market capitalization improves the environment for capital inflows by pursuing macroeconomic stabilization, better business environments, and stronger institutional and economic fundamentals (Torre and Schmukler, 2006) thereby educing managers' earnings management activities. Therefore, firms operating in different market capitalization environments have different access to assets, and capital. In consequence, the firms may also significantly vary in terms of the obtained earnings results (Hamel, 2013). Managers may exercise their judgment to improve their results taking into consideration the economic circumstances (for example the level of market capitalization).

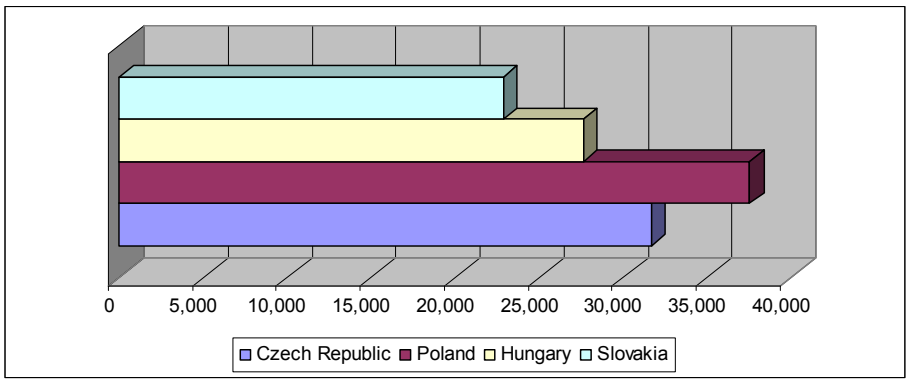
Finally, the companies in emerging European countries are ***small and medium-sized enterprises***. However, it seems that those in Poland and the Czech Republic are slightly larger than those in the other two countries. Figure 6.7 shows the mean of the

[12] See World Bank Database, www.worldbank.org

total assets for each of our sample countries. Polish and Czech companies are somewhat larger than Hungarian and Slovakian ones.

As demonstrated above, we can find significant differences among these Eastern European countries. Therefore, these environmental circumstances and characteristics of the firms are different among emerging European countries. There are different levels of investor protection, market development, inflows of foreign investment, size, etc., within developing European countries. Therefore, managers manage earnings differently. Nonetheless, we did observe some similarities between Poland and the Czech Republic, and between Hungary and Slovakia.

Figure 6.7: Mean of total assets of the Eastern European countries



Source: The author based on the Amadeus database.

6.8. FINAL CONCLUSIONS ON EARNINGS MANAGEMENT IN EMERGING EASTERN EUROPEAN COUNTRIES

We have confirmed that firms from emerging European countries manage their earnings, and they do so to decrease them. We can explain the negative sign of discretionary accruals by managers smoothing good results to avoid reporting high earnings. Emerging Eastern European countries, as recent members of the European Union (EU), have taken significant steps in the development and economic growth of their companies. They appear to be very competitive firms; however, the strong desire to survive on the very competitive and global market has lead managers to decrease earnings and to maintain some non-reported earnings, instead of reporting high revenues and being viewed as large strong companies.

We also observe that this manipulation varies over the years, and there are two trends: from 2003 to 2007 we observed a decrease in earnings management mainly affected by the process of European Union accession; and between 2008 and 2009 a rise in the level of earnings management affected by economic crisis.

Finally, Kruskal-Wallis and Mann-Whitney tests confirm that there is a significant difference in discretionary accruals among the countries. Therefore, the former communist countries do not show similar earnings manipulation. These countries experienced dramatic change when they found themselves within the Former Soviet Union. Despite sharing a common communist heritage they show different earnings management.

Our findings contribute to the recent debate among practitioners, regulators and academics about the determinants of earnings management in developing countries. Investors and analysts try to look for clues and new tendencies in earnings manipulation. New emerging economies may help us to understand how managers cope with the pressure in highly competitive European markets. It is important for investors to obtain a true and fair view of this reality, as Europe is no longer only defined by Western European countries. Opportunities for manipulation will appear and the investor needs to fulfil their information needs. The change in the underlying business reality (incorporation of Eastern European countries into the global European market) is accompanied by possible new ways and incentives for earnings management. In addition, the study may be useful for academics, as it investigates new markets opening new discussions and debates on the comparison of both European markets (Western and Eastern).

Although we have filled in some gaps in our knowledge, other issues are still pending. Potential questions could include a comparative study of earnings management between Eastern and Western Europe to understand both markets. The issue of earnings management in Europe as a whole has so far remained unanswered.

Additionally, investigating the factors and incentives for manipulation in Eastern European countries can help to answer many questions in relation to the reasons for such earnings manipulation. We have verified and confirmed that Eastern European countries manage their earnings. Nevertheless, the reasons are still unknown. We believe this manipulation may stem from low investor protection, accounting and tax

connection, influence of economic crisis, information asymmetry, or the characteristics of the firms: size of the company, industry belongings, among others.

To sum up, the empirical findings reported in this chapter indeed demonstrate important implications for the topic of earnings management; however many questions remain unanswered. In the following chapters we examine these issues.

Annex 6.1: Financial data: scaled values for our sample of four Eastern European countries

Panel A: Scaled Revenues							
	Years						
	2003	2004	2005	2006	2007	2008	2009
Czech Republic							
Mean	2.1756	2.4079	2.2910	2.3467	2.3198	2.0152	1.8098
Std. dev.	2.3015	2.1231	2.1985	2.7485	2.3705	1.8701	1.8451
Median	1.7247	1.9652	1.8577	1.9153	1.8686	1.6759	1.4230
Poland							
Mean	2.1196	2.8652	2.4685	2.3579	2.5120	1.9435	2.0276
Std. dev.	2.1023	2.7125	2.3177	2.1255	2.1382	1.6697	1.8463
Median	1.6368	2.2763	2.0025	1.9364	2.0888	1.5897	1.6243
Hungary							
Mean	2.5076	2.7757	2.4273	2.6191	2.5421	2.4647	2.3523
Std. dev.	1.7185	2.0298	1.8432	1.7944	1.8617	1.8611	1.8994
Median	2.1031	2.3214	1.9768	2.1618	2.1649	2.0015	1.8478
Slovakia							
Mean	2.2224	2.4276	2.3028	2.4346	2.3809	2.4136	1.2729
Std. dev.	1.9781	2.4301	2.1453	2.1765	2.2655	2.3381	1.2484
Median	1.6274	1.8653	1.6975	1.9417	1.7686	1.7901	0.9455

Panel B: Scaled assets							
	Years						
	2003	2004	2005	2006	2007	2008	2009
Czech Republic							
Mean	1.1224	1.2067	1.1667	1.1811	1.1606	1.0562	1.0083
Std. dev.	0.4555	0.6220	0.3383	0.3016	0.4377	0.3970	0.2606
Median	1.0217	1.1262	1.1038	1.1252	1.1013	1.0111	0.9884
Poland							
Mean	1.0061	1.3099	1.2067	1.1788	1.2340	0.9774	1.0416
Std. dev.	0.5489	0.3299	0.3754	0.3983	0.3445	0.2904	0.2522
Median	0.9153	1.2375	1.1288	1.1039	1.1662	0.9240	1.0141
Hungary							
Mean	1.1591	1.2237	1.0722	1.1728	1.1200	1.0041	1.0109
Std. dev.	0.5036	0.3654	0.2474	0.3304	0.2605	0.2099	0.2469
Median	1.0496	1.1508	1.0397	1.0949	1.0947	0.9940	0.9738
Slovakia							
Mean	1.0831	1.1925	1.1369	1.2009	1.2481	1.2178	0.7387
Std. dev.	0.2539	0.3129	0.2779	0.2705	0.9934	0.3832	0.1632
Median	1.0298	1.1111	1.0822	1.1494	1.0820	1.1522	0.7368

Panel C: Scaled fixed assets							
	Years						
	2003	2004	2005	2006	2007	2008	2009
Czech Republic							
Mean	0.4662	0.4980	0.4797	0.4685	0.4562	0.4390	0.4249
Std. dev.	0.3001	0.3692	0.3305	0.2866	0.2811	0.3538	0.2610
Median	0.4472	0.4713	0.4608	0.4617	0.4475	0.4203	0.4188

Poland							
Mean	0.4613	0.6112	0.5677	0.5470	0.5758	0.4584	0.5076
Std. dev.	0.3371	0.3718	0.3895	0.4050	0.3699	0.3055	0.3289
Median	0.4378	0.5879	0.5399	0.5179	0.5567	0.4397	0.4865
Hungary							
Mean	0.3887	0.4353	0.3763	0.3670	0.3473	0.3257	0.3104
Std. dev.	0.2810	0.3160	0.2672	0.2767	0.2665	0.2495	0.2377
Median	0.3570	0.3996	0.3243	0.2999	0.2744	0.2819	0.2494
Slovakia							
Mean	0.4933	0.5372	0.5196	0.5539	0.5324	0.5497	0.3466
Std. dev.	0.2590	0.2768	0.2924	0.3059	0.3961	0.3338	0.1928
Median	0.4994	0.5482	0.5086	0.5396	0.5139	0.5219	0.3445

Panel D: Scaled accounts receivables							
	Years						
	2003	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Czech Republic							
Mean	0.2129	0.2424	0.2206	0.2681	0.2844	0.2348	0.2171
Std. dev.	0.2593	0.2693	0.2552	0.2675	0.3560	0.2079	0.2078
Median	0.1485	0.1833	0.1456	0.2098	0.2221	0.1849	0.1667
Poland							
Mean	0.2904	0.3464	0.3146	0.3128	0.3106	0.2394	0.2447
Std. dev.	0.3667	0.2986	0.2765	0.2821	0.2856	0.2078	0.2130
Median	0.2261	0.2802	0.2544	0.2518	0.2433	0.1909	0.1913
Hungary							
Mean	0.3107	0.3122	0.2990	0.3264	0.3100	0.2541	0.2348
Std. dev.	0.3387	0.2539	0.2326	0.2657	0.2681	0.1806	0.1813
Median	0.2392	0.2307	0.2589	0.2867	0.2494	0.2246	0.1970
Slovakia							
Mean	0.2594	0.2841	0.2789	0.2849	0.2899	0.2854	0.1688
Std. dev.	0.2188	0.2658	0.2205	0.2489	0.2735	0.3313	0.1525
Median	0.2045	0.2139	0.2192	0.2190	0.2101	0.1992	0.1308

Panel E: Scaled accounts payables							
	Years						
	2003	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Czech Republic							
Mean	0.2097	0.2203	0.1885	0.2295	0.2372	0.1914	0.1737
Std. dev.	0.2989	0.2654	0.2405	0.2546	0.3363	0.2036	0.2330
Median	0.1141	0.1355	0.1063	0.1589	0.1703	0.1286	0.1114
Poland							
Mean	0.2505	0.2916	0.2602	0.2494	0.2471	0.1909	0.1908
Std. dev.	0.2991	0.3062	0.3018	0.2728	0.2785	0.2232	0.2018
Median	0.1681	0.1998	0.1743	0.1738	0.1620	0.1208	0.1236
Hungary							
Mean	0.2381	0.2360	0.2173	0.2203	0.2229	0.1780	0.1764
Std. dev.	0.2460	0.2514	0.2143	0.2259	0.2333	0.1746	0.1768
Median	0.1438	0.1548	0.1502	0.1364	0.1435	0.1157	0.1102
Slovakia							
Mean	0.2674	0.2813	0.2664	0.2692	0.2743	0.2797	0.1419
Std. dev.	0.2506	0.2885	0.2255	0.2212	0.3293	0.3857	0.1250

Median	0.1892	0.2095	0.2204	0.2163	0.1980	0.1777	0.1121

Panel F: Scaled operating expenses							
	Years						
	2003	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Czech Republic							
Mean	2.0860	2.2945	2.1944	2.2438	2.2136	1.9385	1.7489
Std. dev.	2.2732	2.0616	2.1658	2.7184	2.3316	1.8437	1.8224
Median	1.6155	1.8418	1.7478	1.8030	1.7554	1.5967	1.3382
Poland							
Mean	2.0406	2.7425	2.3665	2.2513	2.3911	1.8555	1.9440
Std. dev.	2.0630	2.6512	2.2748	2.0888	2.0967	1.6351	1.8188
Median	1.5448	2.1604	1.8974	1.8169	1.9669	1.5034	1.5322
Hungary							
Mean	2.3737	2.6850	2.3601	2.5396	2.4696	2.4160	2.3198
Std. dev.	1.7070	1.9996	1.8325	1.7885	1.8586	1.8564	1.9038
Median	2.0029	2.1844	1.8949	2.1571	2.0859	1.9820	1.7764
Slovakia							
Mean	2.1565	2.3453	2.2241	2.3583	2.2852	2.3449	1.2498
Std. dev.	1.9438	2.3869	2.1123	2.1416	2.2100	2.3172	1.2314
Median	1.5597	1.7920	1.6770	1.8437	1.6796	1.7304	0.9638

Panel G: Scaled non-cash expenses							
	Years						
	2003	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Czech Republic							
Mean	0.0511	0.0549	0.0535	0.0531	0.0498	0.0459	0.0468
Std. dev.	0.0449	0.0552	0.0460	0.0513	0.0422	0.0380	0.0392
Median	0.0429	0.0454	0.0454	0.0448	0.0429	0.0394	0.0400
Poland							
Mean	0.0546	0.0677	0.0626	0.0585	0.0585	0.0480	0.0509
Std. dev.	0.1125	0.0511	0.0744	0.0883	0.0443	0.0783	0.0384
Median	0.0445	0.0586	0.0528	0.0490	0.0508	0.0403	0.0443
Hungary							
Mean	0.0501	0.0525	0.0481	0.0489	0.0453	0.0406	0.0385
Std. dev.	0.0380	0.0381	0.0297	0.0323	0.0330	0.0312	0.0287
Median	0.0432	0.0469	0.0467	0.0452	0.0413	0.0328	0.0286
Slovakia							
Mean	0.0601	0.0634	0.0606	0.0680	0.0645	0.0698	0.0479
Std. dev.	0.0390	0.0394	0.0343	0.0403	0.0419	0.0423	0.0316
Median	0.0526	0.0551	0.0551	0.0617	0.0594	0.0642	0.0424

Source: The author.

Annex 6.2: Comparison of the cross-sectional and time-series analysis of Yoon and Miller model (2002) for our samples

Panel A: Results of adjusted R² for cross-sectional Yoon and Miller model

Measurement model: Yoon and Miller (2002)	$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{\Delta EXP_{it} - \Delta PAY_{it}}{A_{it-1}} + \alpha_3 \frac{NCASH_{it-1} \times GPPEGRW_{it}}{A_{it-1}} + \varepsilon_{it}$							
	Years							
	2003	2004	2005	2006	2007	2008	2009	**Mean**
Czech Republic	0.2859	0.2362	0.3259	0.3598	0.3372	0.0881	0.1841	**0.3028**
Poland	0.5605	0.2551	0.1325	0.1552	0.2967	0.3271	0.4231	**0.3584**
Hungary	0.1399	0.1001	0.2458	0.0297	0.2478	0.0919	0.4710	**0.2210**
Slovakia	0.4243	0.2954	0.3867	0.2518	0.3905	0.2413	0.4167	**0.4011**
								0.3208

Panel B: Results of adjusted R² for time-series Yoon and Miller model

Measurement model: Yoon and Miller (2002) $\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{\Delta EXP_{it} - \Delta PAY_{it}}{A_{it-1}} + \alpha_3 \frac{NCASH_{it-1} \times GPPEGRW_{it}}{A_{it-1}} + \varepsilon_{it}$	
	R²
Czech Republic	0.2535
Poland	0.3130
Hungary	0.1319
Slovakia	0.1742
Mean	**0.2182**

Panel C: Parameters of the cross-sectional Yoon and Miller model (2002): estimation results, standard deviation (error), p-value (significance)

Measurement model: Yoon and Miller (2002) Model $\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{\Delta EXP_{it} - \Delta PAY_{it}}{A_{it-1}} + \alpha_3 \frac{NCASH_{it-1} \times GPPEGRW_{it}}{A_{it-1}} + \varepsilon_{it}$				
	Intercept	ΔREV-ΔREC	ΔEXP-ΔPAY	NCASH-1xGPPEGRW
2003				
Czech Republic	-0.0318	-0.3742***	0.4279***	0.2374***
Std dev.	0.0033	0.0153	0.0155	0.0758
Poland	-0.0323	-0.7323***	0.7842***	0.2216***
Std dev.	0.0038	0.0170	0.0168	0.0417
Hungary	0.0470	-0.4969***	0.4995***	-0.8691
Std dev.	0.0318	0.1217	0.1108	1.1139
Slovakia	-0.0478	-0.5429***	0.5828***	-0.0184
Std dev.	0.0079	0.0443	0.0466	0.3860
2004				
Czech Republic	-0.0210	-0.3074***	0.3648***	0.5451***
Std dev.	0.0038	0.0176	0.0184	0.0471
Poland	-0.0059	-0.4313***	0.4891***	-0.5023***
Std dev.	0.0042	0.0184	0.0191	0.0795
Hungary	-0.0242	-0.1388***	0.1683***	0.1884
Std dev.	0.0204	0.0421	0.0439	0.5861
Slovakia	-0.0069	-0.3651***	0.4044***	-1.1767***
Std dev.	0.0088	0.0574	0.0580	0.3735
2005				
Czech Republic	-0.0279	-0.4382***	0.4755***	-0.0350

Std dev.	0.0033	0.0155	0.0156	0.1008
Poland	-0.0325	-0.2957***	0.3342***	-0.1812***
Std dev.	0.0035	0.0169	0.0184	0.0506
Hungary	-0.0259	-0.4737***	0.4810***	-0.6858
Std dev.	0.0114	0.0773	0.0785	0.6801
Slovakia	-0.0494	-0.4790***	0.5229***	-0.2642
Std dev.	0.0062	0.0486	0.0487	0.2529
2006				
Czech Republic	-0.0043	-0.4720***	0.5084***	-0.8119***
Std dev.	0.0033	0.0169	0.0169	0.1448
Poland	-0.0248	-0.2802***	0.3315***	-0.0920
Std dev.	0.0040	0.0158	0.0166	0.0762
Hungary	0.0201	-0.3080**	0.3170**	-0.8287
Std dev.	0.0224	0.1314	0.1347	1.4605
Slovakia	-0.0294	-0.4716***	0.5129***	-0.5811
Std dev.	0.0104	0.0598	0.0622	0.4400
2007				
Czech Republic	-0.0059	-0.4599***	0.4798***	0.2435**
Std dev.	0.0039	0.0144	0.0149	0.1120
Poland	-0.0190	-0.4379***	0.5055***	-0.1710*
Std dev.	0.0037	0.0160	0.0167	0.0958
Hungary	-0.0315	-0.4723***	0.5106***	-0.6981
Std dev.	0.0106	0.0761	0.0805	0.5811
Slovakia	-0.0618	-0.0290	0.2173***	-0.5867
Std dev.	0.0120	0.0414	0.0502	0.4991
2008				
Czech Republic	-0.0388	-0.2026***	0.2369***	0.0220
Std dev.	0.0031	0.0167	0.0175	0.1206
Poland	-0.0470	-0.5176***	0.5940***	0.0061
Std dev.	0.0030	0.0175	0.0181	0.1170
Hungary	-0.0567	-0.3012***	0.3350***	0.4139
Std dev.	0.0114	0.1109	0.1101	0.6363
Slovakia	-0.0551	-0.2823***	0.2823***	1.2831**
Std dev.	0.0122	0.0373	0.0362	0.5226
2009				
Czech Republic	-0.0580	-0.3586***	0.3868***	-0.3894***
Std dev.	0.0028	0.0177	0.0182	0.1143
Poland	-0.0544	-0.5182***	0.5708***	-0.0037
Std dev.	0.0024	0.0136	0.0141	0.0151
Hungary	-0.0564	-0.4916***	0.5066***	0.6417
Std dev.	0.0100	0.0484	0.0504	0.7820
Slovakia	-0.0972	-0.5427***	0.5483***	0.4064
Std dev.	0.0122	0.0455	0.0452	0.4581

*Indicates statistical significance at 0.1 level.
**Indicates statistical significance at 0.05 level.
***Indicates statistical significance at 0.01 level.

NDA_{it} : Non-discretionary accruals in year t; A_{it-1} : Total Assets in year t -1; ΔREV_{it} : Annual change in revenues in year t; ΔREC_{it} : Annual change in receivables accounts in year t; ΔEXP_{it} : Change in operating expenses excluding non-cash expenses in year t; ΔPAY_{it} : Change in payables accounts in year t; $NCASH_{it-1}$: Non-cash expenses such as depreciation in year t-1; $GPPEGRW_{it}$: A rate of growth in gross property, plant and equipment in year t.

Panel D: Parameters of the time-series Yoon and Miller model (2002): estimation results, standard deviation (error), p-value (significance)

Measurement model: Yoon and Miller Model (2002) $\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{\Delta EXP_{it} - \Delta PAY_{it}}{A_{it-1}} + \alpha_3 \frac{NCASH_{it-1} \times GPPEGRW_{it}}{A_{it-1}} + \varepsilon_{it}$				
	Intercept	ΔREV-ΔREC	ΔEXP-ΔPAY	NCASH-1xGPPEGRW
Czech Republic	-0.0287	-0.3799***	0.4206***	0.4019***
Std dev.	0.0013	0.0062	0.0063	0.0300
Poland	-0.0351	-0.4698***	0.5357***	0.0570***
Std dev.	0.0013	0.0063	0.0065	0.0157
Hungary	-0.0208	-0.3021***	0.3278***	-0.2252
Std dev.	0.0068	0.0293	0.0296	0.3226
Slovakia	-0.0463	-0.2456***	0.2937***	0.3199*
Std dev.	0.0037	0.0183	0.0189	0.1646

*Indicates statistical significance at 0.1 level.
**Indicates statistical significance at 0.05 level.
***Indicates statistical significance at 0.01 level.

NDA_{it} : Non-discretionary accruals in year t; A_{it-1} : Total Assets in year t -1; ΔREV_{it} : Annual change in revenues in year t; ΔREC_{it} : Annual change in receivables accounts in year t; ΔEXP_{it} : Change in operating expenses excluding non-cash expenses in year t; ΔPAY_{it} : Change in payables accounts in year t; $NCASH_{it-1}$: Non-cash expenses such as depreciation in year t-1; $GPPEGRW_{it}$: A rate of growth in gross property, plant and equipment in year t.

Panel E: Predicted sign for cross-sectional version of Yoon and Miller model

Measurement model: ***Yoon and Miller (2002)*** $\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{\Delta EXP_{it} - \Delta PAY_{it}}{A_{it-1}} + \alpha_3 \frac{NCASH_{it-1} \times GPPEGRW_{it}}{A_{it-1}} + \varepsilon_{it}$					
	% of variables which have predicted sign of the estimated parameters				
	Czech Republic	Poland	Hungary	Slovakia	**Total**
ΔREV-ΔREC (-)	100,00%	100,00%	100,00%	100,00%	**100,00%**
ΔEXP-ΔPAY (+)	100,00%	100,00%	100,00%	100,00%	**100,00%**
NCASH-1xGPPEGRW (-)	42,86%	71,43%	57,14%	71,43%	**60,72%**

Panel F: Predicted sign for time-series version of Yoon and Miller model

Measurement model: ***Yoon and Miller (2002)*** $\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{\Delta EXP_{it} - \Delta PAY_{it}}{A_{it-1}} + \alpha_3 \frac{NCASH_{it-1} \times GPPEGRW_{it}}{A_{it-1}} + \varepsilon_{it}$					
	% of variables which have predicted sign of the estimated parameters				
	Czech Republic	Poland	Hungary	Slovakia	**Total**
ΔREV-ΔREC (-)	100.00%	100.00%	100.00%	100.00%	**100.00%**
ΔEXP-ΔPAY (+)	100.00%	100.00%	100.00%	100.00%	**100.00%**
NCASH-1xGPPEGRW (-)	0.00%	0.00%	100.00%	0.00%	**25.00%**

Source: The author.

Annex 6.3: Results on Normality test of our four samples

Tests of Normality							
		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Country	Statistic	df	Sig.	Statistic	df	Sig.
DA	Czech R.	.122	14,343	.000	–	–	–
	Hungary	.142	15,757	.000	–	–	–
	Poland	.165	798	.000	.665	798	.000
	Slovakia	.107	1,491	.000	.907	1,491	.000
a. Lilliefors Significance Correction							

Source: The author.

Annex 6.4: Results on Normality test of our four samples (absolute values of discretionary accruals)

Tests of Normality							
		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Country	Statistic	df	Sig.	Statistic	df	Sig.
DA	Czech R.	.210	14,343	.000	–	–	–
	Hungary	.224	15,757	.000	–	–	–
	Poland	.244	798	.000	.488	798	.000
	Slovakia	.142	1,491	.000	.788	1,491	.000
a. Lilliefors Significance Correction							

Source: The author.

CHAPTER 7

COMPARATIVE STUDY: EARNINGS MANAGEMENT IN EASTERN VS WESTERN EUROPEAN COUNTRIES

Our analysis in the previous chapter has focused on the earnings management in Eastern European countries, specifically on four countries: Poland, Hungary, Slovakia and the Czech Republic. The results confirmed that Eastern European companies manage earnings.

The purpose of this chapter is to compare earnings management behaviour between Eastern and Western European countries. In Europe we may find many differences, therefore such investigation could prove essential, especially in the topic of earnings management where such investigations are absent. Comparative study may help to understand both markets (Western and Eastern). It can help to reveal characteristics of both parts of Europe. In the light of the results from previous chapter, we are interested in responding to the following questions: may we find differences in earnings management between Western and Eastern European countries? May we find similar/ different scope and sign of earnings management between Eastern and Western European countries? Does earnings management change over time in the same/ different way in European countries?

In Europe, for one side, we can observe globalisation as a "mega-trend". Globalisation is becoming increasingly significant, especially now at the beginning of a new century, when countries are trying to eliminate borders. Globalisation provides great opportunities for business. Companies can easily connect with counter partners and negotiate different issues. It entails a significant reduction of trade barriers. Free trade agreements are a typical characteristic and a force of this development, among other characteristics and opportunities.

On the other hand, indeed we may still observe important differences between Western and Eastern European countries (also known as communist Europe). Such differences may come from different reasons. Kneiding (2007), for example, indicates that these differences come from ***environmental factors*** such as: entrepreneurial culture, the financial and welfare systems, the legal framework and financial institutions. Herrberg and Moxon-Browne (1995) underline the importance of the ***collapse of communist regimes*** in Eastern Europe and their subsequent gradual transition towards market economics and political pluralism. It has created a new insecurity in both parts of the European continent. It has brought a new set of problems for Western European countries: mass migration, high unemployment, and political volatility, among others (Herrberg and Moxon-Browne, 1995). As Sitter (2003)

clarifies, more than a decade after the collapse of communism in Eastern European countries the question of party system consolidation and stability remains somewhat contentious. Svedsen (2003) adds, that even though the former Eastern Bloc countries have started implementing market-based reforms since 1989, the stock of trust has presumably not changed yet as it may take centuries to build.

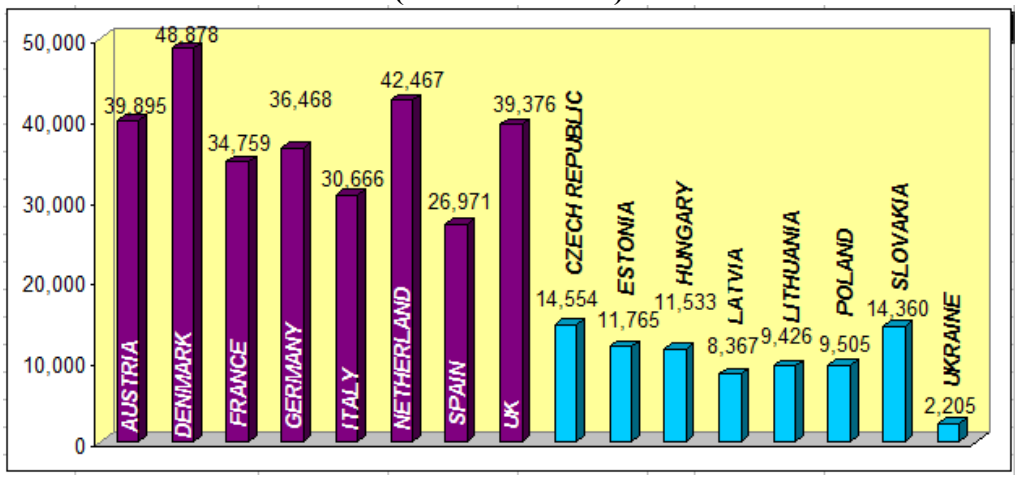
Apart from proper cultural differences and the collapsed of communism, our third important event which also marked the actual situation in Europe is the ***entry into the European Union*** by Eastern European countries (as we mentioned before). The European Union creates a significant influence and pressure on relations between Eastern and Western European countries. It also creates integrity. However, the method of just implementing the EU model in newly integrated countries, without seriously taking local realities into consideration, is not a viable one. The history, culture, religion, economic and social development in Eastern European countries had obviously took a different course from that of Western Europe.

Another important reason for our study is, as mentioned, the lack of comparative studies of Eastern and Western European countries on earnings management. There is an immense literature on comparative topics of East vs. West. The studies on differences between the two parts of Europe became especially salient after 1989, see studies of Kohn and Slomczynski (1990), Gerlich, Plasser and Ulram (1992), Jowitt (1992), Miguel and Berlund (1992), McIntosh *et al.*, (1994), Schöpflin (1994), Evans and Whitefield (1995), Bardi and Schwartz (1996), Sztompka (1996), Hayo (1997), Barnes and Simon (1998), Hofferbert and Klingemann (1999), Kitschelt (1999), Miller, White and Heywood (1998), Rose, Mishler and Haerpfer (1998), Tóka (2000). These studies focus on different economic and social aspects of both parts of Europe. Either way, an explanation of earnings management can be attractive.

Finally, taking some economic data into consideration, we can also confirm that there are differences between Eastern and Western European countries. A comparative study may be helpful to understand why we observe such variation within European countries. We present some economic statistics such as Gross Domestic Product per capita (Figure 7.1), interest rate (Figure 7.2), inflation rate (Figure 3), and minimum wage (Figure 7.4). The figures reveal important differences between the blocs of Eastern and Western Europe. The present data only confirms the significant economic "hole" between the two parts of Europe, as data from 2009 is positively affected by EU

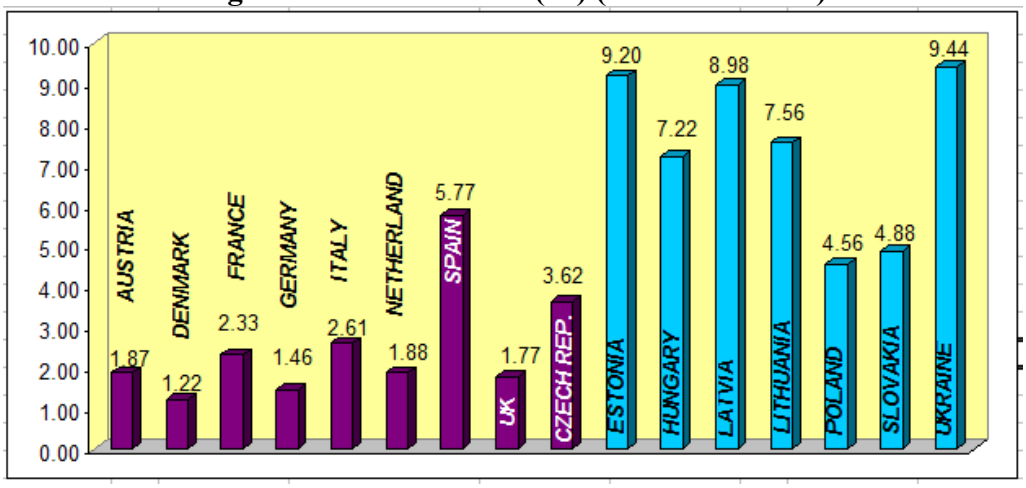
membership, economic transformation and the development of Eastern European countries. Before this year, the gap was considerable.

Figure 7.1: Gross Domestic Product per capita in US Dollars (December 2009)



Source: www.tradingeconomics.com

Figure 7.2: Interest rate (%) (December 2009)

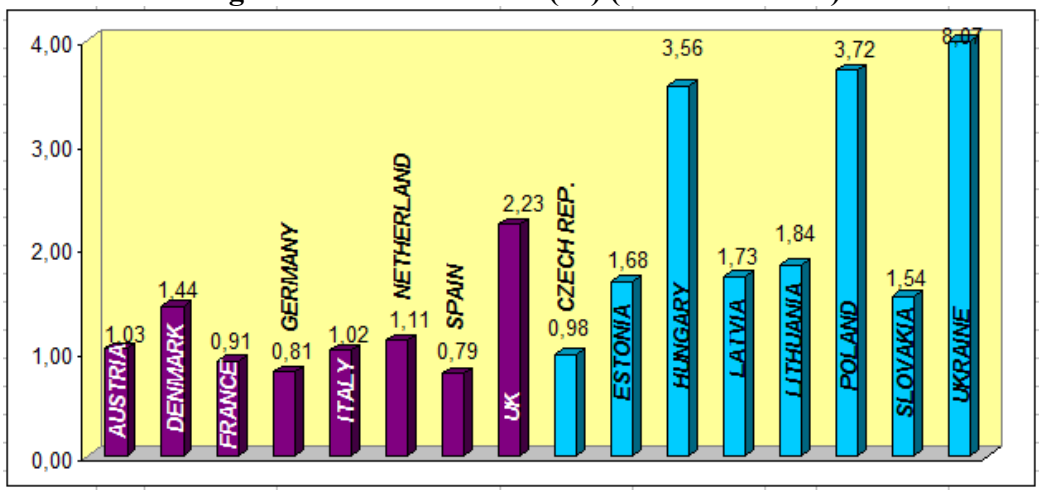


Source: http://www.ecb.europa.eu

These characteristics prove once again that Eastern European countries are facing difficulties, and that they are still not at the same level as Western European countries. They continue to adapt to the EU model. Given the above economic circumstances, cultural, and historical differences, it could be expected that there are also possible differences in earnings management between Eastern and Western European countries. All these reasons take us to the conclusion of the necessity and importance of a comparative study related to earnings management. Eastern and

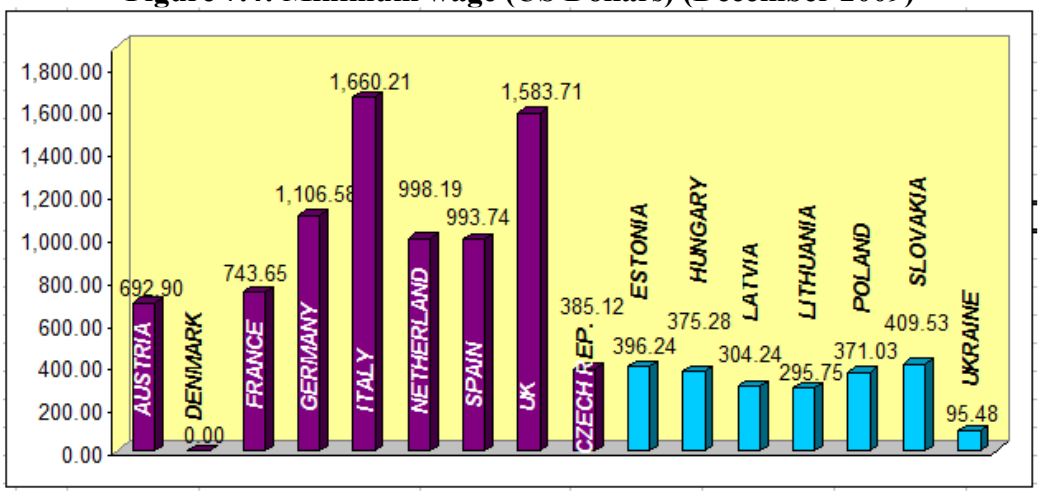
Western European countries are so different; hence, earnings management can also be different.

Figure 7.3: Inflation rate (%) (December 2009)



Source: http://www.inflation.eu

Figure 7.4: Minimum wage (US Dollars) (December 2009)



Source: DoingBusiness Research, 2012.

The objective of this chapter is to draw a comparative study of Eastern and Western European countries. We are particularly interested in whether earnings management in Eastern and Western European countries is different. We determine whether Eastern European countries follow Western European trends in terms of earnings management: magnitude of manipulation, sign, tendencies over time, or not.

The chapter is structured in the following manner. First, the Western European country sample is explained. We select four countries: Germany, France, the UK and Spain. Then, we measure earnings management in our Western European countries

sample. In the following section, we compare and test whether there are differences in earnings management between Western and Eastern European countries. We incorporate the results of Eastern European countries from Chapter 6. Next, we measure the sign and the magnitude of earnings management of Eastern and Western European countries. Finally, we compare earnings management behaviour over time. We look for any significant differences in the level of discretionary accruals for our study period of 2003-2009. Based on the obtained results, we draw the conclusion.

7.1. SAMPLE SELECTION: WESTERN EUROPEAN COUNTRIES

We select four Western European countries: France, Germany, Spain and United Kingdom. It is the same number of countries as for the Eastern European countries research (that of the previous chapter). Our sample countries were incorporated into the structures of the EU long ago. France and Germany have been EU member states in the beginning, the UK was incorporated in 1973, and Spain in 1986. Therefore, our sample includes the most 'important' EU member states with long EU experience and from different integration moments. We are interested in comparing the scope of earnings management with our Eastern European members of the European Union (The Czech Republic, Poland, Hungary and Slovakia).

Our four sample countries belong to two different accounting models: Anglo-Saxon (UK) and Euro-Continental (France, Germany Spain) accounting models. The literature points out the important influence of the accounting model on earnings-management. In the accounting system in the UK we may observe the following main characteristics. It is marked by a conceptual framework that safeguards shareholder interests. Accounting values of flexibility and professionalism prevail in Anglo-Saxon accounting traditions (Gray, 1988; Jarne, 1997; Alexander and Archer, 2000; D'Arcy, 2001; Lewis and Salter, 2006; Callao *et al.*, 2010). Financial reporting is independent of the tax system. The capital market has a major role in enhancing financing through equity. Pressures from a dynamic capital market (shareholders, financial analysts, and the financial press) are prominent (Othman and Zeghal, 2006).

On the other hand, the accounting system in France, Germany or Spain, as in most Continental European countries, relies upon the "Accounting Plan" and codified

rules that have the purpose of satisfying stakeholders' information needs. Their accounting system is characterized by values of uniformity and statutory control. Accounting earnings are connected to fiscal rules (Gray, 1988; Frydlender and Pham, 1996; Jarne, 1997; Alexander and Archer, 2000; D'Arcy, 2001; Lewis and Salter, 2006; Callao *et al.*, 2010). Hence, earnings-management practices detected in these countries are expected to be affected by specific socio-economic features of the Anglo-Saxon and the Euro-Continental environments.

The earnings management literature discusses additionally the effect of distinct legal traditions on the scope of earnings management. Ball, Kothari and Ashok (2000), for example, show that earnings management looks different in common-law countries compared to earnings management in countries with a code law system. La Porta *et al.* (1997), Ball, Kothari and Robin (2000), and Leuz, Nanda and Wysocki (2003) confirm that different legal traditions may have a significant influence on the existence and scope of earnings management. They find that outsider economies (they called in this manner a representative of common law countries, the UK) with strong enforcement display the lowest level of earnings management. On the other hand, insider economies (Germany, also French code law) with weak enforcement display the highest level of earnings management. Daske and Gebhardt (2006) provide support that there is less earnings management in common law countries than in code law countries. In comparison to code law countries, common law countries are typically characterised by an active capital market with a large base of financial investors and a high risk of litigation. In code law countries, capital markets are usually less active and companies are mainly financed by financial institutions such as banks or governments (Maijoor and Vanstraelen, 2006).

Our four countries represent three distinct legal traditions in Europe: French code law (France and Spain), German code law (Germany) and English common law (UK) (David and Brierley, 1985; LaPorta *et al.,* 1998; Beck, Demirgüc-Kunt and Levine, 2003; Funken, 2003; Jaakko and Tapani, 2005; Deakin, 2008; Armour, *et al.*, 2009; Bernitz, 2010; Smits, 2010). Different legal traditions recognize different sources of law and thus prescribe different theories and methods for the administration of the companies. These differences may have an impact on diverse areas of the company such as: starting a business: number of procedures, time, cost, and minimum capital requirement; differences in protecting investors and getting credit could also be

attributed to legal origin; distinct ways of supervising of markets; protecting the rights of workers; the differences in paying taxes, among others (see Grossfeld, 1990) but it has an additional impact on earnings management, as mentioned previously.

In addition, we chose the countries: Germany, France, Spain and the UK for our comparative analysis because they represent four of the five most economically developed European countries. The annual world economic league tables from the Centre for Economic and Business Research (CEBR) shows that Germany, France and the UK are the top ranked economies in Europe, see Table 7.1. They rank countries in terms of real GDP growth, inflation points and currency points. In these circumstances, we may compare our Eastern European results on earnings management with high ranked European economies and their earnings management behaviour.

Table 7.1: World Economic League Table (2002-2012)*

Rank	Country	Points
1	United States	16,245
2	China	8,221
3	Japan	5,960
4	**Germany**	3,430
5	**France**	2,614
6	**United Kingdom**	2,477
7	Brazil	2,253
8	Italy	2,078
9	Russia	2,030
10	India	1,842
11	Canada	1,821
12	Australia	1,542
13	**Spain**	1,324
14	Mexico	1,177
15	Korea	1,130
…		
18	Netherlands	771
20	Switzerland	631
22	Sweden	524
23	Norway	500
24	Poland	490
25	Belgium	484
28	Austria	395

*The ranking points involve three elements for each country: real GDP growth, inflation points and currency points.
Source: Centre for Economic and Business Research (CEBR), http://www.cebr.com/

Beside, these sample countries are representative countries from Western European markets taking earnings management literature of European markets' into consideration (see Chapter 1). Our sample countries are the top four countries from Europe in the research of earnings management (see Table 7.2).

Table 7.2: Investigation of earnings management in Europe

Country	Total of Studies
Spain	18
United Kingdom	14
Germany	12
France	10
Finland	9
Netherlands	8
Belgium	8
Italy	6
Sweden	5
Greece	5
Denmark	4
Portugal	4
Austria	3
Ireland	2
Norway	1
Switzerland	1
Luxemburg	1
Rumania	1
	112

The research identified 207 articles testing for earnings management using proxies for discretionary behaviour. The research covered studies such as: journals, conferences, congresses, other publications: PhD Thesis, Master Thesis, and some working papers, between 1985 and 2013. Within all studies, 112 papers used sample based on European countries, as we have presented above.

Source: The author.

Finally, these four countries have been widely used as representative sample Western European countries for investigation[1], see studies of Neve, *et al.* (2006) Maijoor and Vanstraelen (2006)[2], Demoly, *et al.* (2009), Hoffmann-La Roche (2009), Ball (2009), Lusoli and Miltgen (2009), Diminescu, *et al.* (2009), Snaije (2010), Algan, *et al.* (2010), Sandberg (2010), Kanavos, Van den Aardweg, and Schurer (2012), Zhang, *et al.* (2012).

Our initial sample consists of 49,212 of total available firms in database. We once again observe missing data in our study period of 2002-2009. Using the same procedure as for our Eastern European sample, we have eliminated the outliers[3] (the

[1] For example, the study on Emerging digital service, Phonetics for students, Information and communication technologies, Earnings management within Europe: the effects of member state audit environment, audit firm quality and international capital markets, Inventory of policy on counterterrorism, The economic situation of first and second-generation immigrants, among others.

[2] It is an earnings management study. It is based on three of our four sample countries (France, Germany and UK).

[3] We take data which lies within three standard deviation of the mean.

descriptive statistics are presented in Annex 7.1). Our final sample includes 42,381 firms (Table 7.3), which make up 339,048 firm-year observations (for each firm we have seven observations: 7 years). Our research is based on non-consolidated financial statements.

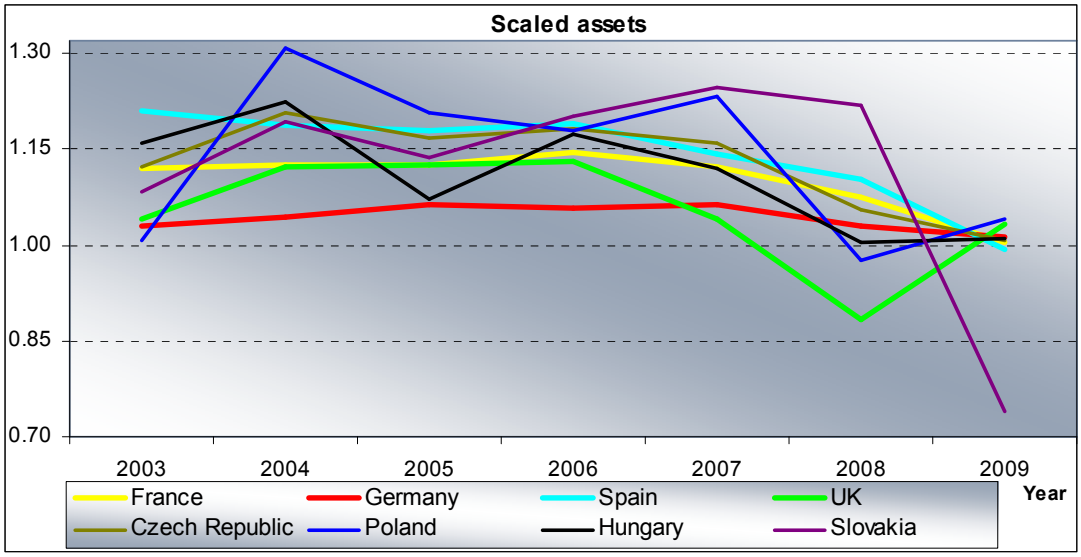
Table 7.3: Sample selection

	France	*Germany*	*Spain*	*UK*	**Total**
Total number of firms available in Amadeus data base	20,828	2,477	13,335	12,572	49,212
Incomplete data (missing data)	(1,316)	(489)	(1,132)	(916)	(3,853)
Extreme values	(456)	(79)	(1,532)	(911)	(2,978)
Total sample firms	**19,056**	**1,909**	**10,671**	**10,745**	**42,381**
Total observation	152,448	15,272	85,368	85,960	339,048

Source: The author.

Focusing on some of the main variables (total assets, sales, ROA) we can compare Eastern and Western European samples countries'. First, Figure 7.5 presents scaled total assets.

Figure 7.5: Scaled assets by country: comparing Eastern and Western European countries



Source: The author.

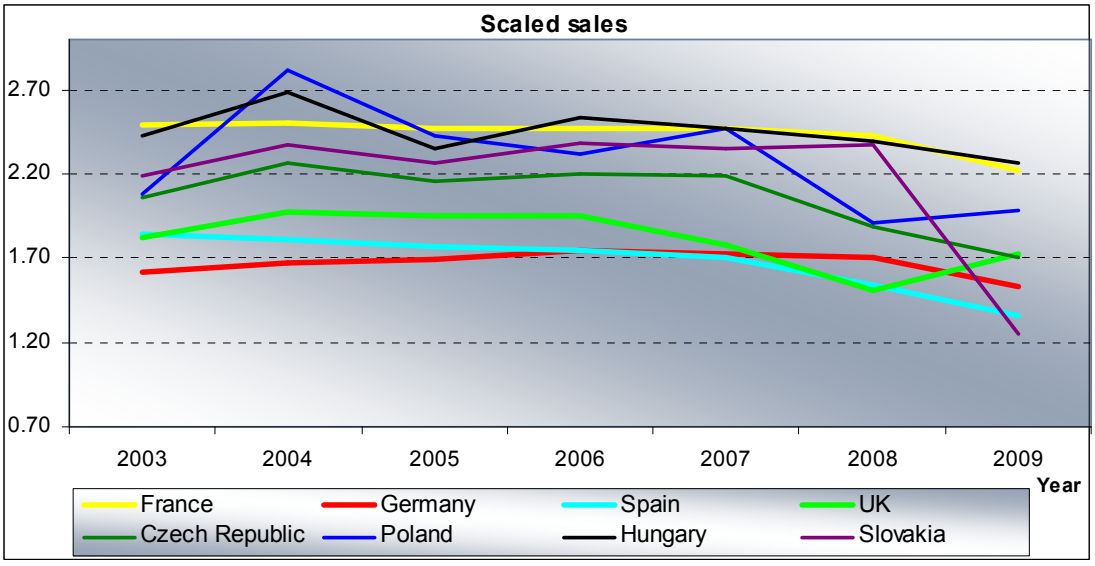
We can observe that Eastern European companies comparing with their Western counterparts do present significant fluctuations over the years in scaled assets. Considerable variations are observed. On the other side, all four Western European countries showed rather stable values of scaled assets, with the exception of the UK

sample, which decreased significantly between 2006 and 2008, and then increased also notably.

Finally, we also observed that the scaled values of assets of Eastern European countries were above that of values of Western European countries. It may indicate that they are still growing companies[4].

Figure 7.6 shows the graphic on scaled sales. We perceived fluctuations in sales for Eastern European companies between 2004 and 2005; and in the last two years a significant decrease was observed (with the exception of Polish sample, which increased in 2009). Western European countries presented stable values of sales over years. Only between 2008 and 2009 did they show a decrease in values. The unique Western European country, which recovered value of sales from the trend of decline in 2008 and started to grow is UK.

Figure 7.6: Scaled sales by country: comparing Eastern and Western European countries



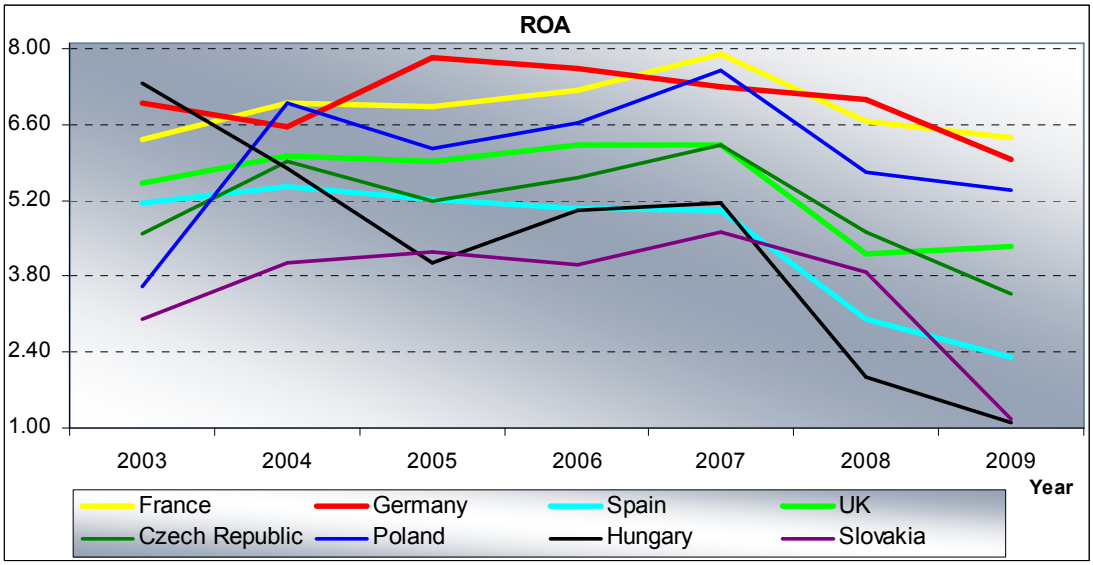
Source: The author.

In Figure 7.7 we observe the evolution of ROA. Five of our eight sample countries: France, Spain, the UK, the Czech Republic and Poland showed similar trends. First, between 2003 and 2007 we observed a slight and gradual increase in ROA (Poland only showed this trend between 2004 and 2007). Then in 2008 we have observed a significant drop in values. They recovered slightly in 2009 (the Czech Republic is the only one which did not recover values and persisted in decreasing).

[4] Scaled value is the relation of the value from the period *t* to the previous period *t-1*.

The other three countries: Germany, Slovakia and Hungary present different trends. Between 2003 and 2005 Hungary showed a very high fall in ROA values, then a slight increase. Between 2008 and 2009 the values of ROA of these countries continued to decline. The Slovakian sample presented a moderate improvement of values of ROA between 2003 and 2007. In the final stage of our analysis period the ROA values decreased and did not recover.

Figure 7.7: ROA (mean) by country: comparing Eastern and Western European countries



Source: The author.

Finally, it is important to highlight, in 2008 all European countries were impacted by the global financial crisis, and ROA values started to decrease consequently for all eight of our sample countries. Nevertheless, in 2009 in our samples countries we can observe three different trends. The first trend took in countries which in 2009 started to recover ROA values (the UK). The second trend involved countries whose ROA persisted in decreasing, but less so than before 2009 (France, Germany, Poland, Spain, and Hungary). And finally, a pair of countries continued to experience plummeting ROA values (the Czech Republic and Slovakia).

In the description of our European countries, we may conclude that Western European companies are well established on the market. They have better resistance to economic fluctuations. They experienced less variations in the financial data, showing much more equilibrate variations. On the other hand, Eastern European countries are much more susceptible to economic changes, but their economic data indicates that they

increase gradually in the scope of activities and the size of assets (lines are above those of Western European samples).

7.2. COMPARING EARNINGS MANAGEMENT IN EASTERN AND WESTERN EUROPEAN COMPANIES

The abundant literature on earnings management based on Western European samples shows different aspects and approaches related to earnings management in the Western European market (see details in Chapter 1). In the previous chapter, we confirmed that Eastern European countries manipulate their earnings. This section focuses on a comparative study of Eastern and Western European countries[5]. The analysis centres on the existence of possible differences or similarities between Western and Eastern European markets related to discretionary accruals.

We measure discretionary accruals in Western European countries using a cross-sectional version of the Yoon and Miller model (2002)[6], the same methodology as we have used for Eastern European countries[7], see equation *1*. In Annex 7.2 based on the R^2, standard error of estimated variables, the p-value (which represents the statistical significance of variables), as well as the predicted sign, we confirm that the Yoon and Miller model (2002) is a reliable and solid model to measure the discretionary part of accruals for Western European countries.

After making an estimation of discretionary accruals for Western European countries, whose descriptive statistics are presented in Table 7.4, we may confirm that companies of our four Western European samples (France, Germany, Spain and UK) manage earnings, as we expected. The results for our four Western European samples are significantly different from zero.

[5] Observations: first, we detect that Western European sample is much bigger than Eastern one. The Eastern European sample shows a total of 4,627 companies, and the Western sample a total of 43,099 companies. Second, the profile of the companies is quite different. Eastern European companies are still small companies. On the other hand, Western European countries are big companies. See Annex 7.1 of descriptive statistics on total assets and revenues.

[6] In Chapter 5 we have carried out wide robustness analyses. We have selected a cross-sectional version of the Yoon and Miller model (2002) for our analysis to detect and measure earnings management.

[7] In Chapter 6 we have obtained already the results on earnings management for Eastern European countries.

$$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{\Delta EXP_{it} - \Delta PAY_{it}}{A_{it-1}} + \alpha_3 \frac{NCASH_{it-1} \times GPPEGRW_{it}}{A_{it-1}} + \varepsilon_{it}$$

where: *(1)*

TA_{it} - Total Accruals in year t

A_{it-1} - Total Assets in year t -1

ΔREV_{it} - Annual change in revenues in year t

ΔREC_{it} - Annual change in receivables accounts in year t

ΔEXP_{it} - Change in operating expenses excluding non-cash expenses in year t

ΔPAY_{it} - Change in payables accounts in year t

$NCASH_{it-1}$ - Non-cash expenses such as depreciation in year t-1

$GPPEGRW_{it}$ - A rate of growth in gross property, plant and equipment in year t

ε_{it} - The error term

Source: Yoon and Miller (2002)

Additionally, the results show managing earnings to decrease them. Earnings management literature confirms decreasing earnings practices. Jones (1991) discovered income decreasing earnings management in industries objected to import relief investigations, and Key (1997) found downward earnings management in firms in the cable television industry at the time of congressional hearings on whether to deregulate the industry. Liberty and Zimmerman (1986) examined incentives to decrease earnings in periods surrounding union negotiations. Fudenberg and Tirole (1995) suggested that concern about job security creates an incentive for managers to decrease earnings in consideration of both current and future relative performance, among other studies.

To test whether differences in earnings management between Western and Eastern European countries exist, first, we calculate the value of discretionary accruals in absolute terms for firms in each country.

Table 7.4: Summary statistics of the discretionary accruals over years

	2003	2004	2005	2006	2007	2008	2009
Panel A: France							
Mean of discretionary accruals	-0.0277	-0.0220	-0.0178	-0.0157	-0.0112	-0.0252	-0.0441
Standard deviation of DA	0.1405	0.1270	0.1162	0.1175	0.1133	0.1097	0.1089
Median of DA	-0.0314	-0.0247	-0.0215	-0.0199	-0.0152	-0.0274	-0.0398
Panel B: Germany							
Mean of discretionary accruals	-0.0566	-0.0495	-0.0494	-0.0482	-0.0399	-0.0529	-0.0602
Standard deviation of DA	0.0972	0.0921	0.0957	0.0918	0.0862	0.0844	0.0876
Median of DA	-0.0529	-0.0469	-0.0489	-0.0509	-0.0401	-0.0476	-0.0553
Panel C: Spain							
Mean of discretionary accruals	0.0151	0.0168	0.0121	0.0183	0.0086	-0.0244	-0.0566
Standard deviation of DA	0.3455	0.2207	0.1845	0.1679	0.1622	0.1337	0.1190
Median of DA	-0.0217	-0.0158	-0.0161	-0.0100	-0.0120	-0.0300	-0.0506
Panel D: UK							
Mean of discretionary accruals	-0.0372	-0.0210	-0.0256	-0.0207	-0.0253	-0.0513	-0.0401
Standard deviation of DA	0.1172	0.1244	0.1156	0.1167	0.1035	0.1009	0.1126
Median of DA	-0.0407	-0.0283	-0.0285	-0.0247	-0.0279	-0.0455	-0.0383

Source: The author.

After verifying that the variable does not follow a normal distribution (see Annex 7.3), we run the Kruskal Wallis non-parametric test using the absolute value of discretionary accruals. The results are presented in Table 7.5. Obtained results reveal a statistically significant difference in earnings management between different European countries every year.

Table 7.5: Results on Kruskal Wallis non-parametric test on Eastern and Western European countries

		Kruskal-Wallis Results						
	Year	***2003***	***2004***	***2005***	***2006***	***2007***	***2008***	***2009***
	Chi-Square	100,813*	300,304*	289,781*	223,733*	312,960*	204,562*	169,761*
Mean Rank	***Czech R.***	25,724.71	26,299.51	26,731.49	26,057.75	25,037.51	25,563.39	25,570.07
	Poland	24,703.07	27,391.19	26,091.74	25,928.91	27,213.75	24,920.29	24,661.50
	Hungary	27,890.72	29,145.06	26,935.11	26,109.75	26,189.63	25,149.80	26,452.45
	Slovakia	25,976.81	25,010.22	25,356.38	26,246.44	31,483.61	29,139.46	31,346.20
	France	23,218.96	23,113.72	22,755.53	22,873.13	22,900.03	22,684.75	22,984.24
	Germany	24,262.56	23,750.33	24,833.40	25,062.76	23,764.36	23,197.54	23,861.06
	Spain	23,800.44	23,462.26	24,038.30	23,921.80	23,525.61	22,669.20	23,583.65
	UK	23,712.28	23,449.36	23,883.83	23,889.45	23,451.94	22,484.43	23,549.50

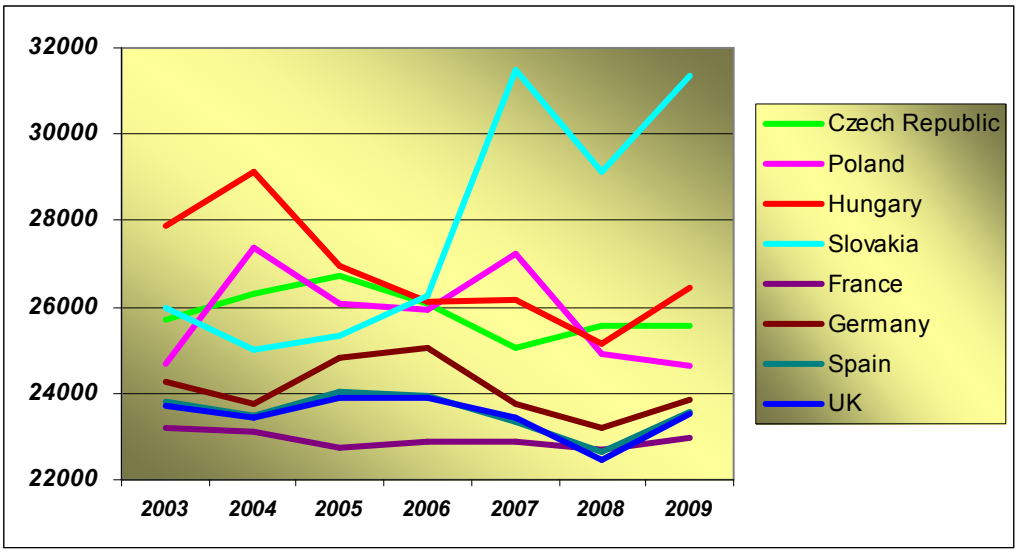
* significance at 1%

We incorporate the results for Eastern European countries from Chapter 6.

Source: The author.

We may report that mean ranks of each year indicate that we observe the lowest manipulation in Western European countries. Within Western European countries, we may observe the lowest manipulation in France, with the exception of 2008, where the UK and Spanish samples show a lower rank than France. Additionally, from the Western European countries, companies from Germany show the closest level of manipulation to the Eastern European countries. Over all years German companies present the highest manipulation within the Western European countries, see Figure 7.8. Nevertheless, it is still significantly below the Eastern European companies. Finally, the highest manipulation is observed for Hungary between 2003 and 2006; and then for Slovakia between 2007 and 2009.

Figure 7.8: Mean ranks graphics on earnings management among European countries based on Kruskal Wallis non-parametric



Source: The author.

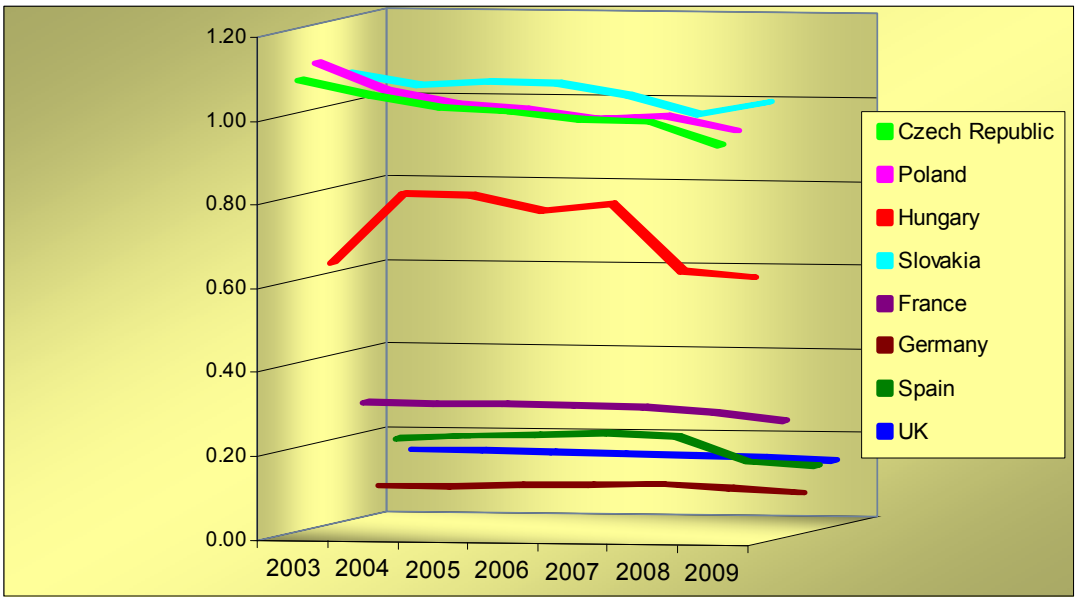
We may explain observed trends with various possible causes. According to Aussenegg, Inwinkl, and Schneider (2008), developing firms exhibit higher levels of earnings management. They investigate earnings management in 15 different European countries capturing different dimensions of earnings management. They stressed the point that earnings management takes place whenever firms or decision makers in firms have the incentive to give a certain impression of the company's economic position. Since developing firms might be riskier, they may be more likely get into a position that necessitates earnings management to meet certain earnings targets. As explained by the authors, this does not necessarily mean that they try to overstate their earnings on a

period by period basis. It may also be possible that they design their accruals in order to smooth earnings between periods.

The ***profile of the companies*** of Eastern European countries is different than that of the Western European companies. They are smaller (Annex 7.1 presents descriptive statistics on total assets and revenues of Eastern and Western European companies[8]), but they are growing. We may observe that Eastern European companies demonstrate steady progress. We observe solid and significant growth in all financial indicators (with the exception of 2009, see previous Figure 7.5, 7.6, 7.7).

Another possible explanation may come from the ***leverage of the companies***. Previous literature points out that there is a positive relation between debt and earnings management, consistent with the firm's closeness to restrictive covenants. Managers of more leveraged companies have stronger incentives to manage earnings (see for example, DeFond and Jiambalvo, 1994; DeAngelo, DeAngelo and Skinner, 1994; Jaggi and Lee, 2002; Dichev and Skinner, 2002). We measured the leverage of our European samples companies, see Figure 7.9. The results indicate that our Eastern European companies have significantly higher debt in comparison to Western European companies. This may explain to some extent the obtained results of earnings management.

Figure 7.9: Leverage of European companies*



*Leverage is measured as a relation between total debt of each company to the total assets.
Source: The author.

[8] Total assets and revenues are often use, by the literature, to measure the dimensions and magnitude of the companies. Other measure to evaluate the dimension of the companies is, for example, a total of the employees.

To contrast our results, we perform cluster analysis. By cluster analysis, we look to figure out, whether the results of our eight sample companies can be divided into distinct groups. We perform a wide cluster analysis. Using the absolute values of discretionary accruals of companies of each of our eight sample countries we perform cluster procedure from two different perspectives: a cluster analysis by year, and a cluster analysis by the combined period of 2003-2009.

Cluster analysis by year

We perform a cluster analysis by each year in a period of 2003-2009. Seven different clusters are performed. Table 7.6 provides the results. Each panel represents the results for each year. We can observe that each year's analysis shows a different number of clusters. In 2008 it is divided into 8 groups; in 2005 and 2006 into 5 groups; and finally in 2003, 2004, 2007 and 2009 only in 4 clusters. All clusters' average earnings management scores are statistically significant (all seven years).

We detect additionally that all clusters over different years (no matter whether there are four, five, or eight clusters in each year) are closely parallel, containing well clustered data by countries. We can observe that 95% to 100% of the observations of companies from one country are clearly matched into the same cluster. Only companies from France in 2008 are separated into two different groups (19.6% and 78.9%), but still they are clustered separately from the other countries. It may confirm that earnings management of companies from one country remains significantly similar or at least comparable over time.

Table 7.6: Cluster analysis by year. Number of firms and the percentage of each country by cluster division

Panel A: Year 2003

	Cluster									
	1		**2**		**3**		**4**		Total	**%**
	No.	%	No.	%	No.	%	No.	%		
Czech R.	2,049	100.0%							2,049	100%
Poland	2,251	100.0%							2,251	100%
Hungary	114	100.0%							114	100%
Slovakia	213	100.0%							213	100%
France	534	2.8%					18,522	97.2%	19,056	100%
Germany	1,909	100.0%							1,909	100%
Spain			10,671	100.0%					10,671	100%
UK	26	0.2%			10,719	99.8%			10,745	100%
	7,096		**10,671**		**10,719**		**18,522**		47,008	

Panel B: Year 2004										
	Cluster									
	1		2		3		4		Total	%
	No.	%	No.	%	No.	%	No.	%		
Czech R.	2,049	100.0%							2,049	100%
Poland	2,251	100.0%							2,251	100%
Hungary	114	100.0%							114	100%
Slovakia	213	100.0%							213	100%
France	112	0.6%					18,944	99.4%	19,056	100%
Germany	1,909	100.0%							1,909	100%
Spain			10,671	100.0%					10,671	100%
UK	116	1.1%			10,629	98.9%			10,745	100%
	6,764		**10,671**		**10,629**		**18,944**		47,008	

Panel C: Year 2005												
	Cluster											
	1		2		3		4		5		Total	%
	No.	%	No.	%	No.	%	No.	%	No.	%		
Czech R.	34	1.7%	2,015	98.3%							2,049	100%
Poland	2,251	100.0%									2,251	100%
Hungary					114	100.0%					114	100%
Slovakia					213	100.0%					213	100%
France	300	1.6%							18,756	98.4%	19,056	100%
Germany	3	0.2%	1,906	99.8%							1,909	100%
Spain					10,671	100.0%					10,671	100%
UK	209	1.9%					10,536	98.1%			10,745	100%
	2,797		**3,921**		**10,998**		**10,536**		**18,756**		47,008	

Panel D: Year 2006												
	Cluster											
	1		2		3		4		5		Total	%
	No.	%	No.	%	No.	%	No.	%	No.	%		
Czech R.	2,049	100.0%									2,049	100%
Poland	32	1.4%	2,219	98.6%							2,251	100%
Hungary	5	4.4%	109	95.6%							114	100%
Slovakia	2	0.9%	211	99.1%							213	100%
France	573	3.0%							18,483	97.0%	19,056	100%
Germany	2	0.1%	1,907	99.9%							1,909	100%
Spain					10,671	100.0%					10,671	100%
UK	67	0.6%					10,604	99.4%			10,671	100%
	2,730		**4,446**		**10,671**		**10,604**		**18,483**		47,008	

Panel E: Year 2007										
	Cluster									
	1		2		3		4		Total	%
	No.	%	No.	%	No.	%	No.	%		
Czech R.	2,049	100.0%							2,049	100%
Poland	2,251	100.0%							2,251	100%
Hungary	114	100.0%							114	100%
Slovakia	213	100.0%							213	100%
France	605	3.2%					18,451	96.8%	19,056	100%
Germany	1,909	100.0%							1,909	100%
Spain					10,671	100.0%			10,671	100%
UK	40	0.4%	10,705	99.6%					10,745	100%
	7,181		**10,705**		**10,671**		**18,451**		47,008	

Panel F: Year 2008																
	Cluster															
	1		2		3		4		5		6		7		8	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Czech R.	19	0.9%			2,030	99.1%										
Poland	29	1.3%					2,222	98.7%								
Hungary	114	100.0%														
Slovakia	213	100.0%														
France	277	1.5%	3,741	19.6%											15,038	78.9%
Germany	10	0.5%							1,899	99.5%						
Spain											10,671	100.0%				
UK													10,745	100.0%		
	662		**3,741**		**2,030**		**2,222**		**1,899**		**10,671**		**10,745**		**15,038**	

Panel G: Year 2009										
	Cluster									
	1		2		3		4		Total	%
	No.	%	No.	%	No.	%	No.	%		
Czech R.	5	0.2%	2,044	99.8%					2,049	100%
Poland	4	0.2%	2,247	99.8%					2,251	100%
Hungary	114	100.0%							114	100%
Slovakia	213	100.0%							213	100%
France	364	1.9%					18,692	98.1%	19,056	100%
Germany	1	0.1%	1,908	99.9%					1,909	100%
Spain					10,671	100.0%			10,671	100%
UK	10745	100.0%							10,745	100%
	11,446		**6,199**		**10,671**		**18,692**		47,008	

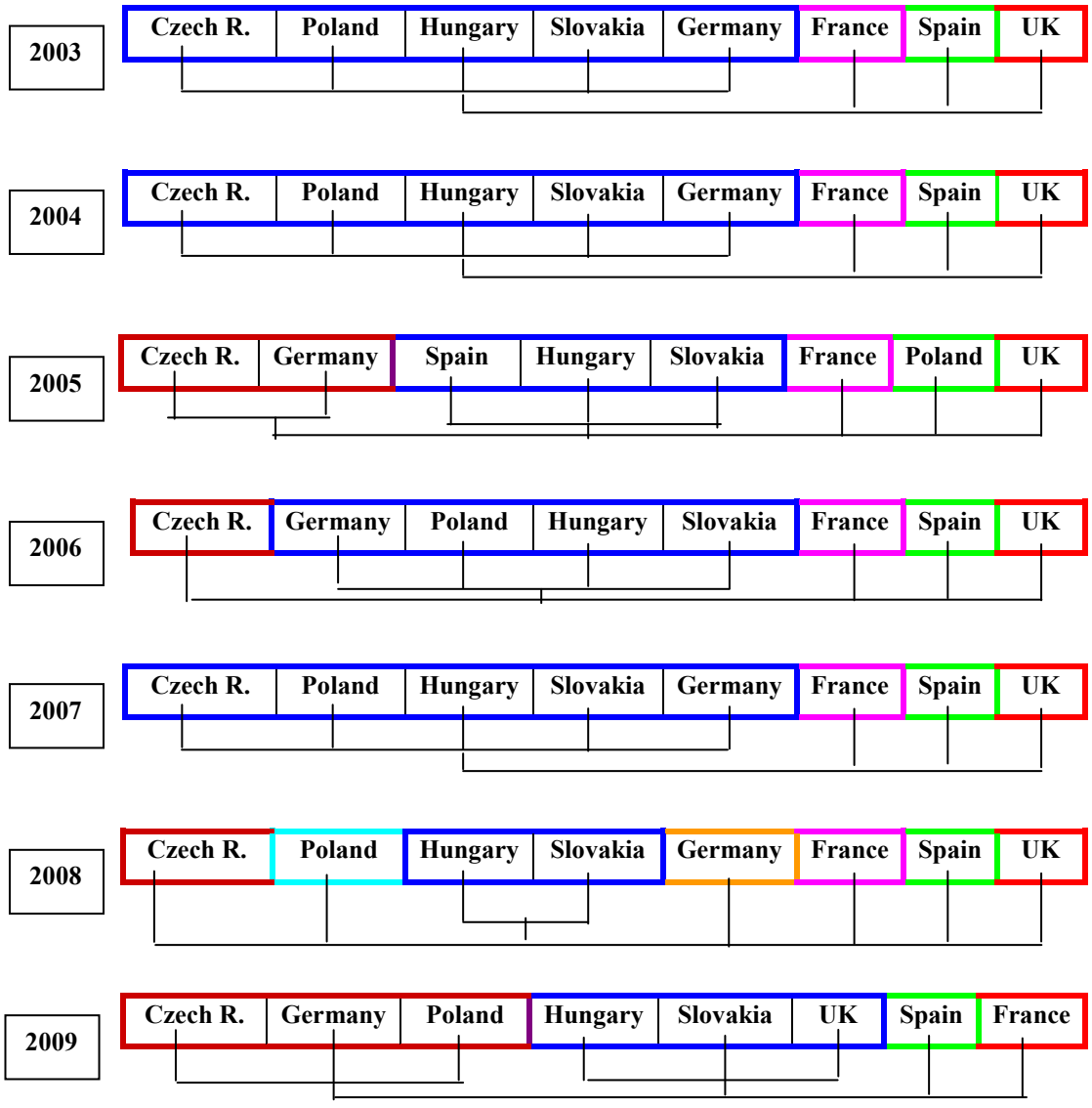
All analyses are significant at 1%.

Source: The author.

Finally, we can identify a group of countries with similar earnings management characteristics. We may observe that France, Spain and the UK were always assigned into separate and individual clusters over all period years (with the exception of 2005 where Spain was clustered together with Hungary and Slovakia; and in 2009 UK was

clustered together with as well Hungary and Slovakia). It means the scope of earnings management in each country is different. Germany, our last Western European country, was always clustered with Eastern European countries (only in 2008 was it clustered separately). In 2003, 2004 and 2007 Germany was matched with all four Eastern European countries; in 2006 with Poland, Hungary and Slovakia; in 2009 with Poland and the Czech Republic; and finally in 2005 with the Czech Republic. This may indicate that the earnings management behaviour of managers of Eastern European companies is most similar to that of managers of German companies. Figure 7.10 draws all of these relations.

Figure 7.10: Cluster analysis by year. Dendogram of countries



Source: The author.

We can also identify that in Eastern European countries, Hungary and Slovakia are always clustered together over all years. Poland and the Czech Republic also present similar behaviour, as they are jointly clustered in most of the cases[9]. In 2003, 2004, and in 2007 all Eastern European countries are grouped in the same cluster, presenting the Eastern European block as a one cluster.

Observing the descriptive statistics, see Table 7.7 we may confirm the results obtained previously from the Kruskal Wallis test. The highest manipulation is observed in Eastern European countries over years, in particular in Slovakia and Hungary. On the other hand, the lowest earnings management occurs in France, followed by the UK, and then Spain.

Within the particularities of the results of the means, for example, the French companies are divided in two clusters in 2008, both separately from the other countries. One cluster contains most of the companies, having as it does a very low mean of earnings management (0.04). The other cluster encloses a small number of companies with the extreme results of earnings management (the mean is 0.16, where the average mean of French companies is at 0.6–0.7 level). This is easily explained as the low number of companies with very high earnings management results compensating the other cluster containing 80% of the companies, having the mean below the average. Hence, France remains as the country showing the lowest scope of manipulation over time.

Another singularity of the results may be observed in 2005. In this particular year Poland is clustered separately from the other Eastern European countries. It is for the first time, showing the highest mean of the earnings management (odd results). In the same year, incomprehensibly, Spanish companies are clustered together with Hungary and Slovakia, as a result, lowering the general mean of this cluster. The rest of the results are consistent and clear, as explained before.

[9] It confirms additionally our results from Chapter 6, where similar tendencies were observed for Poland and the Czech Republic with similar earnings management, Slovakia and Hungary also behave correspondingly.

Table 7.7: Cluster analysis by year. Descriptive statistics

		Clusters							
Year		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
2003	*Mean*	0.1304	0.0839	0.0800	0.0707	–	–	–	–
	Std. Deviation	0.2038	0.0845	0.0797	0.0616				
		Czech R., Poland, Hungary, Slovakia, Germany	Spain	UK	France				
2004	*Mean*	0.1190	0.0766	0.0750	0.0740	–	–	–	–
	Std. Deviation	0.1750	0.0737	0.0735	0.0740				
		Czech R., Poland, Hungary, Slovakia, Germany	Spain	UK	France				
2005	*Mean*	0.1784	0.0810	0.0789	0.0722	0.0670	–	–	–
	Std. Deviation	0.2269	0.0701	0.0825	0.0649	0.0619			
		Poland	Czech R., Germany	Hungary, Slovakia, Spain	UK	France			
2006	*Mean*	0.1887	0.0795	0.0782	0.0755	0.0624	–	–	–
	Std. Deviation	0.2414	0.0725	0.0814	0.0763	0.0546			
		Czech R.	Poland, Hungary, Slovakia, Germany	Spain	UK	France			
2007	*Mean*	0.1159	0.0701	0.0651	0.0602	–	–	–	–
	Std. Deviation	0.1571	0.0703	0.0548	0.0527				
		Czech R., Poland, Hungary, Slovakia, Germany,	UK	Spain	France				
2008	*Mean*	0.3249	0.1687	0.0830	0.0802	0.0702	0.0659	0.0649	0.0439
	Std. Deviation	0.3090	0.0511	0.0708	0.0684	0.0603	0.0501	0.0492	0.0304
		Hungary, Slovakia	France (19% of extreme results)	Czech R.	Poland	Germany	Spain	UK	France
2009	*Mean*	0.0977	0.0852	0.0760	0.0729	–	–	–	–
	Std. Deviation	0.1170	0.0759	0.0591	0.0618				
		Hungary, Slovakia, UK	Czech R., Poland, Germany,	Spain	France				

Source: The author.

Cluster analysis by combined period of 2003-2009

We perform cluster analysis for a study of the combined period of 2003-2009. Table 7.8 presents the cluster results. The results are significant. The analysis shows the number of companies in each group to correspond percentage in total of companies from each country.

Table 7.8: Cluster analysis of combined period of 2003-2009. Number of firms and the percentage of each country by cluster division

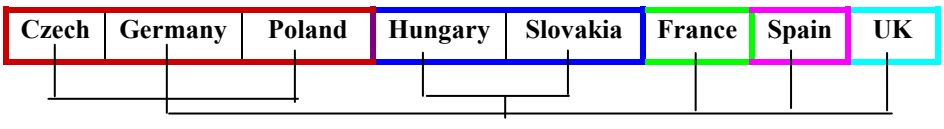
	Cluster											
	1		2		3		4		5		Total firms	%
	No.	%	No.	%	No.	%	No.	%	No.	%		
Czech R.	40	0.3%	14,303	99.7%							14,343	100%
Poland	63	0.4%	15,694	99.6%							15,757	100%
Hungary	798	100.0%									798	100%
Slovakia	1,491	100.0%									1,491	100%
France									133,392	100.0%	133,392	100%
Germany	2	0.0%	13,361	100.0%							13,363	100%
Spain					74,697	100.0%					74,697	100%
UK	247	0.3%					74,968	99.7%			75,215	100%
	2,641		***43,358***		***74,697***		***74,968***		***133,392***		***329,056***	

Significant at 1%.

Source: The author.

We identify five different clusters. Again results of earnings management of the companies from one country were clustered in the same cluster with high percentage of 99% to even 100%. This result confirms previous analysis. The Czech Republic, Poland and Germany are assigned in the same cluster; with Hungary and Slovakia in another one. On the other hand, Spain, France and the UK are in separate, individual clusters, see dendogram Figure 7.11.

Figure 7.11: Cluster analysis by combined period of 2003-2009



Source: The author.

Table 7.9 presents the descriptive statistics of the cluster. We confirm the previous results. Higher levels of manipulation are observed in Eastern European countries, in particular in Slovakia and Hungary; followed by the cluster of Czech

Republic, Poland and Germany. The lowest earnings management is seen in France, followed by the UK, and then Spain.

Table 7.9: Cluster analysis by combined period of 2003-2009
Descriptive statistics

2003-2009	Cluster				
	1	**2**	**3**	**4**	**5**
Mean	0.1193	0.0857	0.0794	0.0755	0.0671
Std. Deviation	0.1068	0.0849	0.0756	0.0744	0.0629
	Hungary, Slovakia	Czech R., Poland, Germany	Spain	UK	France

Source: The author.

To confirm our results, we also performed cluster analyses using positive or negative values of the discretionary accruals of each company (real values of discretionary accruals estimated for each company). We have again used two cluster procedures: cluster analysis by each year; and cluster analysis by the combined period of 2003-2009. The results show similar conclusions. For details, see Annex 7.4. These large cluster analyses confirmed significant difference between Eastern and Western European countries (with the exception of Germany).

In the existent heterogeneity of the European countries we perceived that Eastern European countries have to a certain extent followed the activity of German managers in the way of management earnings. In almost all clusters' analyses, Eastern European countries came up in the same cluster with German companies. It may demonstrate a certain similarity and proximity of German companies and Eastern European countries. This situation may come from different reasons.

First, the ***heritage of Eastern European accounting has its origin in German accounting tradition***. Accounting in Eastern Europe has many similarities with that in Germany. In the absence of sophisticated equity capital markets, there was an emphasis on creditor protection and tax collection, and a preference for national charts of accounts, mainly based on the pioneering work of Schmalenbach in Germany in the 1920s. Many occupied countries in Eastern and Central Europe were forced to adopt the German model. Business transactions were regulated by means of Commercial Codes based on the German model (see for example, Bailey, 1988; Nobes and Parker, 2008). In Poland, for example, during the first period, economic development was slow and

characterized by governmental intervention. Industrial finance was dominated by the banks, both state-owned and private. Relevant legislation on accounting, audit and companies was consolidated in the Commercial Code of 1934, which was influenced by the German code (see for example, Jaruga, Walinska, and Baniewicz, 1996; Jaruga and Szychta, 1997). Other Eastern European countries show a similar accounting history. Therefore, it can be a possible cause of similarities between Germany and Eastern European countries.

Second, Eastern European countries ***exhibit a similarly strong connection between accounting and taxation*** as does Germany. Thanks to historical influence Eastern European countries strongly rely on the German example of tax regulations. Germany is an example of a European country that shows an important connection between accounting and taxation. The principle of prudence is the most important item in the German accounting environment. The main feature of this system is still the link between accounting and taxation (Haller, 1992). One example in the case of Germany is that this principle is assisted by the eligibility of the conformity principle that allows companies to choose a particular accounting treatment or policy in order to choose a particular tax treatment (Haller, 1992).

Amat, Blake and Oliveras (1993) provide empirical research related to the impact of the tax-accounting link over the European accounting environment and its effect on the scope of earnings management. Amat, Blake and Oliveras (1993) conduct a comparative analysis between financial and tax regulations in Germany, Spain and the UK, countries which have a different approach regarding the relationship between accounting and taxation. They find that (1) Germany has a binding link between accounting and taxation; this is attributable to a broader set of user needs for which a conservative approach to accounting is appropriate; (2) in the UK the relationship between accounting and taxation is low and there is no formal link between them; (3) in Spain the relationship between accounting and taxation has been strong, but there has been a major change in their relationship as a result of implementation of the EC Fourth Directive (Amat, Blake and Oliveras, 1993) (the same in France, our fourth sample country). Hence, it confirms that the German connection between tax and accounting is strong.

Third, Germany and Eastern European countries present ***the same legal tradition (civil-law)***. The French and Spanish legal traditions are also derived from

civil-law. Nevertheless, some authors distinguish different groups within civil-law. They show at least two more groups: French civil-law and German civil-law (see details Chapter 4). Therefore, we may explain that despite the fact that all three countries belong to the civil-law tradition we find differences between them, and in consequence, Eastern European countries show more similarities to Germany than to France or Spain's legal traditions. La Porta *et al.* (1997); Ball, Kothari and Robin (2000); and Leuz, Nanda and Wysocki (2003) point out that a similar scope of earnings management may be expected between countries from the same legal tradition. Germany and Eastern European countries use the same civil-law tradition. The civil-law countries, for example, tend to have less extensive disclosure requirements, not so strong private and public enforcement of securities regulation, weaker shareholders and creditor rights, and less investor protection, among others aspects (see La Porta *et al.*, 1998; La Porta *et al.*, 2006).

Another possible reason for the close correspondence between German managers' activities and Eastern European countries may be the ***similar culture***. As Arora and Fosturi (2000) point out, national culture has long been recognized as important in explaining behaviour. Aspects of national culture have been related to many areas of organizational behaviour such as foreign investment decisions, entry mode decisions (Arora and Fosturi, 2000), research and development decisions (Muralidharan and Phatak, 1999) and negotiation behaviour (Leung, 1988), among others. Germany, Poland, the Czech Republic, Hungary and Slovakia[10] are classified as Central European countries (see, for example, Pehe, 2002; Armstrong and Anderson, 2007) characterized by a similar culture. It may explain the similar behaviour as regards to earnings management between managers of Eastern European countries and Germany.

Finally, we think that simple ***geographical situation*** and the proximity of Germany and Eastern European countries can additionally explain this cluster association. Managers of Eastern European countries could have taken an example from their neighbour country.

Despite the similarities between Germany and Eastern European countries we also find significant differences between Eastern European countries and other three our

[10] Also Austria, Slovenia, Switzerland.

Western European sample countries: France, Spain and UK. Therefore, to be able to explain such differences, we perform additional cluster analyses. We ***specify fixed number of clusters,*** as in prior clusters' analyses the number of clusters was determined automatically. In consequence, previously we have observed how companies within different countries were grouped in different clusters and in different numbers of clusters. As observed, this analysis has always distributed France, Spain and UK in separate clusters. Now, we are interested in whether specifying a limited low number of clusters helps to regroup these three countries France, Spain and UK with some Eastern European countries, or at least clusters them together.

In consequence, we perform cluster analysis into the fixed number of three clusters (we think that our eight countries may be successfully clustered into three). As previously, we perform cluster analysis using two different procedures: cluster analysis by each year; and cluster analysis by the combined period of 2003-2009. We use absolute values of discretionary accruals (the same procedure as previously; using the absolute values we avoid the compensation effect of negative and positive values of discretionary accruals, in the previous section we evaluated the effect of sign of discretionary accruals).

Cluster analyses within three fixed specified clusters

Table 7.10 and Figure 7.12 provide the results for cluster analysis by year; and Table 7.11 and Figure 7.13 provide the results for combined period of 2003-2009.

Table 7.10: Cluster analysis by year within three clusters. Number of firms and the percentage of each country by cluster division

Panel A: Year 2003								
	Cluster							
	1		**2**		**3**		**Total firms**	**%**
	No.	%	No.	%	No.	%		
Czech R.	2,049	100.00%	0	0.00%	0	0.00%	2,049	100%
Poland	2,251	100.00%	0	0.00%	0	0.00%	2,251	100%
Hungary	114	100.00%	0	0.00%	0	0.00%	114	100%
Slovakia	213	100.00%	0	0.00%	0	0.00%	213	100%
France	50	0.30%	0	0.00%	19,006	99.70%	19,056	100%
Germany	1,909	100.00%	0	0.00%	0	0.00%	1,909	100%
Spain	10,671	100.00%	0	0.00%	0	0.00%	10,671	100%
UK	12	0.10%	10,733	99.90%	0	0.00%	10,745	100%
	17,269		**10,733**		**19,006**		47,008	

Panel B: Year 2004								
	Cluster							
	1		2		3		Total firms	%
	No.	%	No.	%	No.	%		
Czech R.	2,049	100.00%	0	0.00%	0	0.00%	2,049	100%
Poland	2,251	100.00%	0	0.00%	0	0.00%	2,251	100%
Hungary	114	100.00%	0	0.00%	0	0.00%	114	100%
Slovakia	213	100.00%	0	0.00%	0	0.00%	213	100%
France	64	0.30%	0	0.00%	18,992	99.70%	19,056	100%
Germany	1,909	100.00%	0	0.00%	0	0.00%	1,909	100%
Spain	10,671	100.00%	0	0.00%	0	0.00%	10,671	100%
UK	3	0.00%	10,742	100.00%	0	0.00%	10,745	100%
	17,274		**10,742**		**18,992**		47,008	

Panel C: Year 2005								
	Cluster							
	1		2		3		Total firms	%
	No.	%	No.	%	No.	%		
Czech R.	2,049	100.00%	0	0.00%	0	0.00%	2,049	100%
Poland	2,251	100.00%	0	0.00%	0	0.00%	2,251	100%
Hungary	114	100.00%	0	0.00%	0	0.00%	114	100%
Slovakia	213	100.00%	0	0.00%	0	0.00%	213	100%
France	59	0.30%	0	0.00%	18,997	99.70%	19,056	100%
Germany	1,909	100.00%	0	0.00%	0	0.00%	1,909	100%
Spain	10,671	100.00%	0	0.00%	0	0.00%	10,671	100%
UK	21	0.20%	10,724	99.80%	0	0.00%	10,745	100%
	17,287		**10,724**		**18,997**		47,008	

Panel D: Year 2006								
	Cluster							
	1		2		3		Total firms	%
	No.	%	No.	%	No.	%		
Czech R.	2,049	100.00%	0	0.00%	0	0.00%	2,049	100%
Poland	2,251	100.00%	0	0.00%	0	0.00%	2,251	100%
Hungary	114	100.00%	0	0.00%	0	0.00%	114	100%
Slovakia	213	100.00%	0	0.00%	0	0.00%	213	100%
France	76	0.40%	0	0.00%	18,980	99.60%	19,056	100%
Germany	1,909	100.00%	0	0.00%	0	0.00%	1,909	100%
Spain	10,671	100.00%	0	0.00%	0	0.00%	10,671	100%
UK	3	0.00%	10,742	100.00%	0	0.00%	10,745	100%
	17,286		**10,742**		**18,980**		47,008	

Panel E: Year 2007								
	Cluster							
	1		2		3		Total firms	%
	No.	%	No.	%	No.	%		
Czech R.	2,049	100.00%	0	0.00%	0	0.00%	2,049	100%
Poland	2,251	100.00%	0	0.00%	0	0.00%	2,251	100%
Hungary	114	100.00%	0	0.00%	0	0.00%	114	100%
Slovakia	213	100.00%	0	0.00%	0	0.00%	213	100%
France	34	0.20%	0	0.00%	19,022	99.80%	19,056	100%
Germany	1,909	100.00%	0	0.00%	0	0.00%	1,909	100%
Spain	10,671	100.00%	0	0.00%	0	0.00%	10,671	100%
UK	11	0.10%	10,734	99.90%	0	0.00%	10,745	100%
	17,252		**10,734**		**19,022**		47,008	

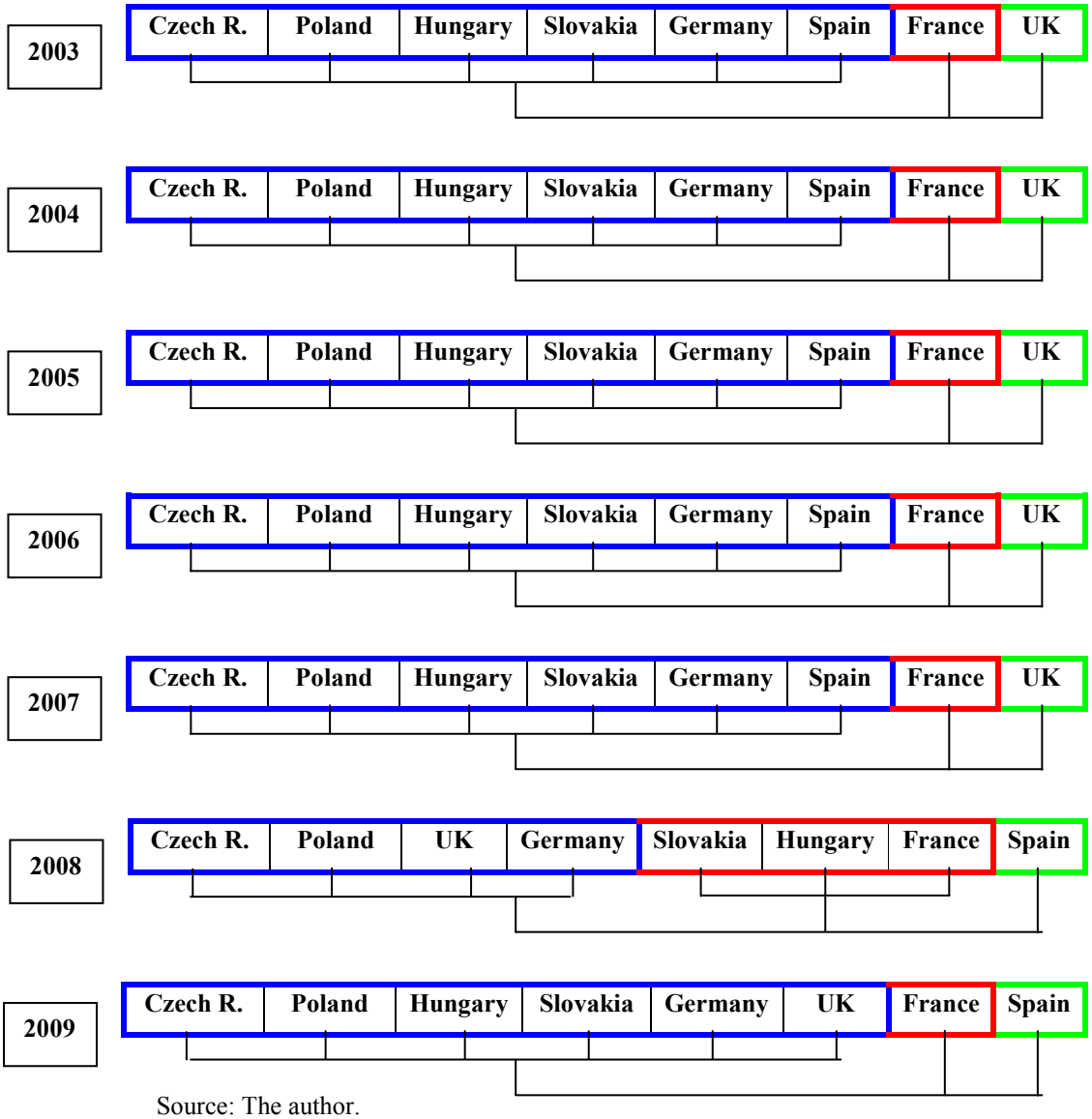
Panel F: Year 2008								
	Cluster							
	1		2		3		Total firms	%
	No.	%	No.	%	No.	%		
Czech R.	2,043	99.70%	0	0.00%	6	0.30%	2,049	100%
Poland	2,245	99.70%	0	0.00%	6	0.30%	2,251	100%
Hungary	0	0.00%	0	0.00%	213	100.00%	213	100%
Slovakia	0	0.00%	0	0.00%	114	100.00%	114	100%
France	0	0.00%	0	0.00%	19,056	100.00%	19,056	100%
Germany	1,909	100.00%	0	0.00%	0	0.00%	1,909	100%
Spain	0	0.00%	10,597	99.40%	74	0.60%	10,671	100%
UK	10,743	100.00%	0	0.00%	2	0.00%	10,745	100%
	16,940		**10,597**		**19,471**		47,008	

Panel G: Year 2009								
	Cluster							
	1		2		3		Total firms	%
	No.	%	No.	%	No.	%		
Czech R.	0	0.00%	2,049	100.00%	0	0.00%	2,049	100%
Poland	0	0.00%	2,251	100.00%	0	0.00%	2,251	100%
Hungary	0	0.00%	114	100.00%	0	0.00%	114	100%
Slovakia	0	0.00%	213	100.00%	0	0.00%	213	100%
France	0	0.00%	177	0.90%	18,879	99.10%	19,056	100%
Germany	0	0.00%	1,909	100.00%	0	0.00%	1,909	100%
Spain	10,671	99.90%	7	0.10%	0	0.00%	10,678	100%
UK	0	0.00%	10,745	100.00%	0	0.00%	10,745	100%
	10,671		**17,465**		**18,879**		47,008	

All analyses are significant at 1%.

Source: The author.

Figure 7.12: Cluster analysis by year. Dendogram of countries



Source: The author.

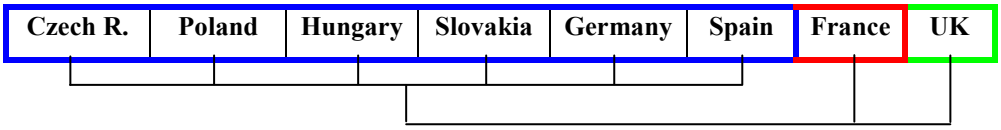
Table 7.11: Cluster analysis of combined period of 2003-2009 within three clusters. Number of firms and the percentage of each country by cluster division

	Cluster							
	1		2		3		Total firms	%
	No.	%	No.	%	No.	%		
Czech R.	14,343	100.00%	0	0.00%	0	0.00%	14,343	100%
Poland	15,757	100.00%	0	0.00%	0	0.00%	15,757	100%
Hungary	798	100.00%	0	0.00%	0	0.00%	798	100%
Slovakia	1,491	100.00%	0	0.00%	0	0.00%	1,491	100%
France	835	0.60%	0	0.00%	132,557	99.40%	133,392	100%
Germany	13,363	100.00%	0	0.00%	0	0.00%	13,363	100%
Spain	79,723	100.00%	0	0.00%	0	0.00%	79,723	100%
UK	67	0.10%	75,148	99.90%	0	0.00%	75,215	100%
	126,377		**75,148**		**132,557**		334,082	

Significant at 1%.

Source: The author.

Figure 7.13: Cluster analysis by combined period of 2003-2009



Source: The author.

We can identify that France and UK are always assigned separately over all our cluster analyses within our specified three clusters. Nevertheless, Spain is clustered together with Germany and the Eastern European countries. This means that the scope of earnings management in France and the UK is different than in the other six countries. Spanish managers seem to show similar in some extent earnings management behaviour to managers of German and Eastern European companies[11].

On the other hand, we still perceive that France and UK are clustered separately indicating a significant difference in earnings management between these two countries and our Eastern European countries (and also between Spain and Germany).

Table 7.12 and Table 7.13 present the descriptive statistics of cluster analysis by year and by the combined period of 2003-2009 within three fixed clusters. We still may observe the highest earnings management in the cluster of Eastern European countries together with Germany and Spain. On the other hand, France shows slightly lower level of manipulation than the UK; and both these clusters present significantly less manipulation than the previously mentioned cluster of Eastern European countries, Germany and Spain, which is in accordance with our previous results.

Table 7.12: Descriptive statistics of cluster analysis of discretionary accruals by year within three fixed clusters

		Clusters		
Year		**1**	**2**	**3**
2003	*Mean*	0.1096	0.0809	0.0808
	Std. Deviation	0.2829	0.0836	0.0896
		Czech R., Poland, Hungary, Slovakia, Germany, Spain	UK	France
2004	*Mean*	0.1042	0.0809	0.0753

[11] Only in 2008 and 2009 within the cluster analysis by years we observe that Spain is clustered separately and UK is coming along with some of the Eastern European countries.

	Std. Deviation	0.1823	0.0944	0.0790
		Czech R., Poland, Hungary, Slovakia, Germany, Spain	UK	France
2005	*Mean*	0.0981	0.0787	0.0717
	Std. Deviation	0.1513	0.0813	0.0748
		Czech R., Poland, Hungary, Slovakia, Germany, Spain	UK	France
2006	*Mean*	0.0953	0.0787	0.0703
	Std. Deviation	0.1442	0.0867	0.0739
		Czech R., Poland, Hungary, Slovakia, Germany, Spain	UK	France
2007	*Mean*	0.0904	0.0715	0.0693
	Std. Deviation	0.1366	0.0753	0.0755
		Czech R., Poland, Hungary, Slovakia, Germany, Spain	UK	France
2008	*Mean*	0.0811	0.0857	0.0793
	Std. Deviation	0.0775	0.0828	0.1037
		Czech R., Poland, Germany, UK	Spain	Hungary, Slovakia, France
2009	*Mean*	0.0922	0.0909	0.0756
	Std. Deviation	0.0904	0.1036	0.0674
		Spain	Czech R., Poland, Hungary, Slovakia, Germany, UK	France

Source: The author.

Table 7.13: Descriptive statistics of cluster analysis of discretionary accruals over combined period of 2003 -2009 within three fixed clusters

Period		Clusters		
		1	**2**	**3**
2003-2009	*Mean*	0.0992	0.0792	0.0724
	Std. Deviation	0.1710	0.0826	0.0713
		Czech R., Poland, Hungary, Slovakia, Germany, Spain	UK	France

Source: The author.

As a final test, we perform cluster analysis of eight countries into two fixed clusters. We are interested in investigating whether Spain persists in a group of Eastern and German countries, as previously observed. At the same time, we analyse whether France and the UK are clustered separately. We perform cluster analysis using three different procedures, as previously: cluster analysis by each year; cluster analysis by the combined period of 2003-2009; and cluster analysis of discretionary accruals means. We use absolute values of discretionary accruals.

Cluster analyses within two fixed clusters

Table 7.14 and Figure 7.14 provide the results for cluster analysis by year; and Table 7.15 and Figure 7.15 provide the results for the combined period of 2003-2009.

The results confirm the previous observation. Spain is clustered with Germany and Eastern European countries (with the exception of 2008). On the other hand, France and the UK are clustered together in a separate cluster. In 2005, 2007 and 2009 France is grouped individually and the UK joined the other six countries.

Table 7.14: Cluster analysis by year within two fixed clusters. Number of firms and the percentage of each country by cluster division

Panel A: Year 2003						
	Cluster					
	1		**2**		**Total firms**	**%**
	No.	%	No.	%		
Czech R.	2,049	100.00%	0	0.00%	2,049	100%
Poland	2,251	100.00%	0	0.00%	2,251	100%
Hungary	114	100.00%	0	0.00%	114	100%
Slovakia	213	100.00%	0	0.00%	213	100%
France	54	0.30%	19,002	99.70%	19,056	100%
Germany	1,909	100.00%	0	0.00%	1,909	100%
Spain	10,671	100.00%	0	0.00%	10,671	100%
UK	19	0.20%	10,726	99.80%	10,745	100%

	17,280		**29,728**		47,008	

Panel B: Year 2004						
	Cluster					
	1		**2**		**Total firms**	**%**
	No.	%	No.	%		
Czech R.	2,049	100.00%	0	0.00%	2,049	100%
Poland	2,251	100.00%	0	0.00%	2,251	100%
Hungary	114	100.00%	0	0.00%	114	100%
Slovakia	213	100.00%	0	0.00%	213	100%
France	63	0.30%	18,993	99.70%	19,056	100%
Germany	1,909	100.00%	0	0.00%	1,909	100%
Spain	10,671	100.00%	0	0.00%	10,671	100%
UK	8	0.10%	10,737	99.90%	10,745	100%
	17,278		**29,730**		47,008	

Panel C: Year 2005						
	Cluster					
	1		**2**		**Total firms**	**%**
	No.	%	No.	%		
Czech R.	2,049	100.00%	0	0.00%	2,049	100%
Poland	2,251	100.00%	0	0.00%	2,251	100%
Hungary	114	100.00%	0	0.00%	114	100%
Slovakia	213	100.00%	0	0.00%	213	100%
France	38	0.20%	19,018	99.80%	19,056	100%
Germany	1,909	100.00%	0	0.00%	1,909	100%
Spain	10,671	100.00%	0	0.00%	10,671	100%
UK	10,745	100.00%	0	0.00%	10,745	100%
	27,990		**19,018**		47,008	

Panel D: Year 2006						
	Cluster					
	1		**2**		**Total firms**	**%**
	No.	%	No.	%		
Czech R.	2,049	100.00%	0	0.00%	2,049	100%
Poland	2,251	100.00%	0	0.00%	2,251	100%
Hungary	114	100.00%	0	0.00%	114	100%
Slovakia	213	100.00%	0	0.00%	213	100%
France	73	0.40%	18,983	99.60%	19,056	100%
Germany	1,909	100.00%	0	0.00%	1,909	100%
Spain	10,671	100.00%	0	0.00%	10,671	100%
UK	8	0.10%	10,737	99.90%	10,745	100%
	17,288		**29,720**		47,008	

Panel E: Year 2007						
	Cluster					
	1		**2**		**Total firms**	**%**
	No.	%	No.	%		
Czech R.	2,049	100.00%	0	0.00%	2,049	100%
Poland	2,251	100.00%	0	0.00%	2,251	100%
Hungary	114	100.00%	0	0.00%	114	100%
Slovakia	213	100.00%	0	0.00%	213	100%
France	26	0.10%	19,030	99.90%	19,056	100%

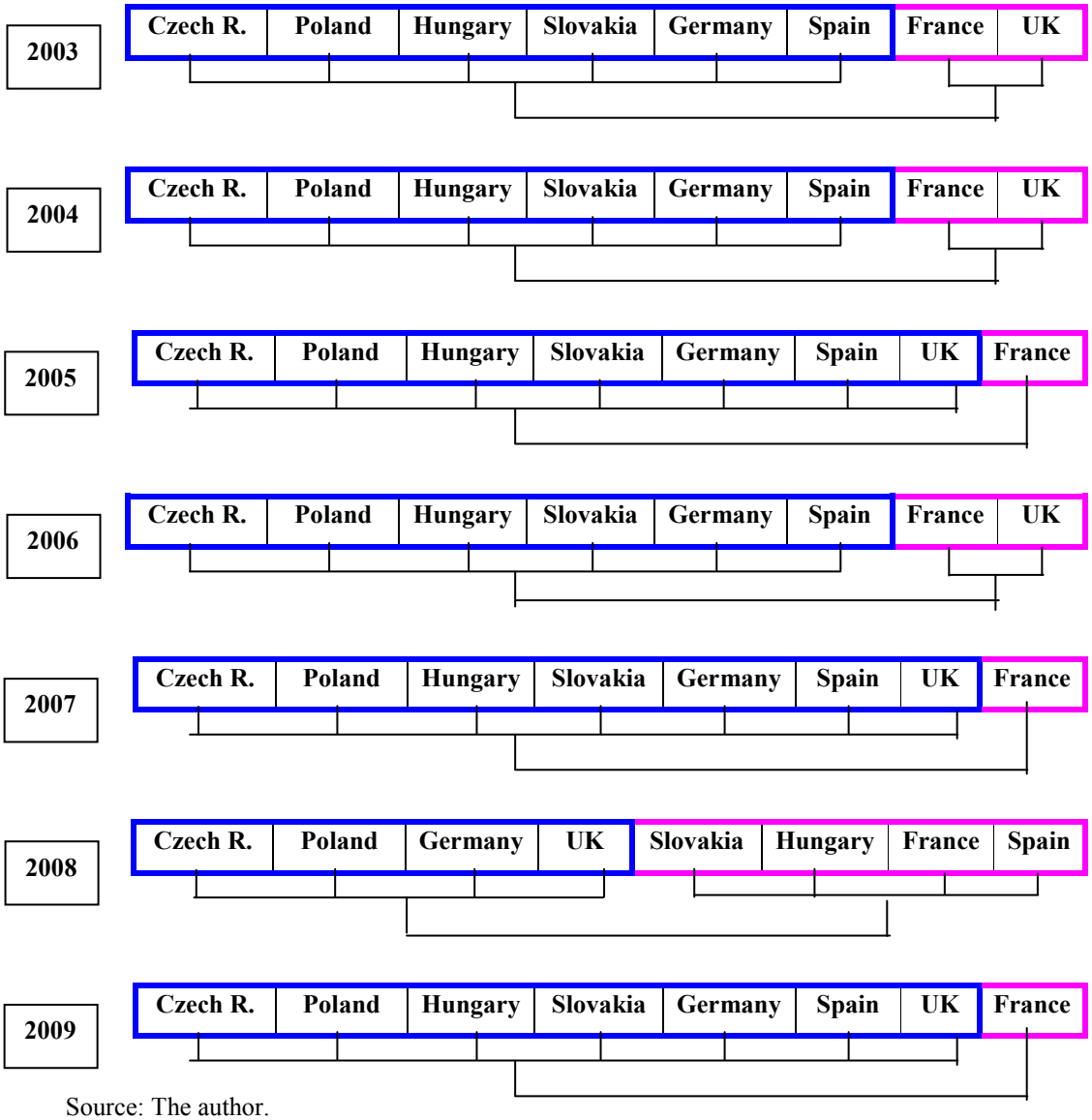
Germany	1,909	100.00%	0	0.00%	1,909	100%
Spain	10,671	100.00%	0	0.00%	10,671	100%
UK	10,745	100.00%	0	0.00%	10,745	100%
	27,978		**19,030**		47,008	

Panel F: Year 2008						
	Cluster					
	1		**2**		**Total firms**	**%**
	No.	%	No.	%		
Czech R.	3	0.10%	2,046	99.90%	2,049	100%
Poland	5	0.20%	2,246	99.80%	2,251	100%
Hungary	114	100.00%	0	0.00%	114	100%
Slovakia	213	100.00%	0	0.00%	213	100%
France	19,056	100.00%	0	0.00%	19,056	100%
Germany	0	0.00%	1,909	100.00%	1,909	100%
Spain	10,671	100.00%	0	0.00%	10,671	100%
UK	0	0.00%	10,745	100.00%	10,745	100%
	30,062		**16,946**		47,008	

Panel G: Year 2009						
	Cluster					
	1		**2**		**Total firms**	**%**
	No.	%	No.	%		
Czech R.	2,049	100.00%	0	0.00%	2,049	100%
Poland	2,251	100.00%	0	0.00%	2,251	100%
Hungary	114	100.00%	0	0.00%	114	100%
Slovakia	213	100.00%	0	0.00%	213	100%
France	124	0.70%	18,932	99.30%	19,056	100%
Germany	1,909	100.00%	0	0.00%	1,909	100%
Spain	10,671	100.00%	0	0.00%	10,671	100%
UK	10,745	100.00%	0	0.00%	10,745	100%
	28,076		**18,932**		47,008	

All analyses are significant at 1%.
Source: The author.

Figure 7.14: Cluster analysis by year. Dendogram of countries



Source: The author.

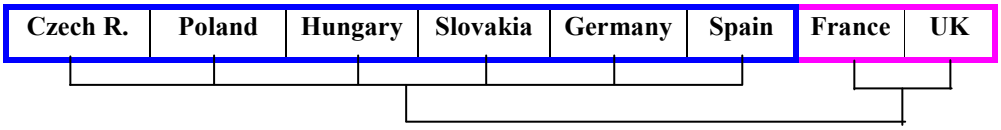
Table 7.15: Cluster analysis of combined period of 2003-2009 within two fixed clusters. Number of firms and the percentage of each country by cluster division

	Cluster					
	1		2		Total firms	%
	No.	%	No.	%		
Czech R.	14,343	100.00%	0	0.00%	14,343	100%
Poland	15,757	100.00%	0	0.00%	15,757	100%
Hungary	798	100.00%	0	0.00%	798	100%
Slovakia	1,491	100.00%	0	0.00%	1,491	100%
France	849	0.60%	132,543	99.40%	133,392	100%
Germany	13,363	100.00%	0	0.00%	13,363	100%
Spain	74,697	100.00%	0	0.00%	74,697	100%
UK	160	0.20%	75,055	99.80%	75,215	100%
	121,458		**207,598**		329,056	

Significant at 1%.

Source: The author.

Figure 7.15: Cluster analysis by combined period of 2003-2009



Source: The author.

Finally, descriptive statistics for two fixed clusters confirm, as expected, the significantly lower level of discretionary accruals in the cluster of French and UK companies in comparison to the Eastern European, German and Spanish companies, see Table 7.16 and Table 7.17.

Table 7.16: Descriptive statistics of cluster analysis of discretionary accruals by year within two fixed clusters

		Clusters	
Year		**1**	**2**
2003	*Mean*	0.1100	0.0805
	Std. Deviation	0.2834	0.0863
		Czech R., Poland, Hungary, Slovakia, Germany, Spain	France, UK
2004	*Mean*	0.1044	0.0772
	Std. Deviation	0.1830	0.0840
		Czech R., Poland, Hungary, Slovakia, Germany, Spain	France, UK
2005	*Mean*	0.0904	0.0724
	Std. Deviation	0.1290	0.0775
		Czech R., Poland, Hungary, Slovakia, Germany, Spain, UK	France
2006	*Mean*	0.0954	0.0733
	Std. Deviation	0.1445	0.0784

		Czech R., Poland, Hungary, Slovakia, Germany, Spain	France, UK
2007	*Mean*	0.0831	0.0696
	Std. Deviation	0.1172	0.0770
		Czech R., Poland, Hungary, Slovakia, Germany, Spain, UK	France
2008	*Mean*	0.0815	0.0814
	Std. Deviation	0.0959	0.0790
		Hungary, Slovakia, Spain, France	Czech R., Poland, Germany, UK
2009	*Mean*	0.0908	0.0766
	Std. Deviation	0.0977	0.0697
		Czech R., Poland, Hungary, Slovakia, Germany, Spain, UK	France

Source: The author.

Table 7.17: Descriptive statistics of cluster analysis of discretionary accruals over combined period of 2003 -2009 within two fixed clusters

		Clusters	
Period		**1**	**2**
2003-2009	*Mean*	0.0997	0.0745
	Std. Deviation	0.1717	0.0744
		Czech R., Poland, Hungary, Slovakia, Germany, Spain	France, UK

Source: The author.

Therefore, based on the detailed cluster analyses we have confirmed the heterogeneity observed in Western European countries, indeed, France and the UK show different earnings management behaviour than any other.

One possible explanation of heterogeneity in earnings management between France, the UK and other our sample countries (Eastern and Western European countries) may come from the existent ***differences within national audit environments***. Maijoor and Vanstraelen (2002) explain that national audit environments vary strongly among different European countries in terms of independence rules, auditor education and auditor liability. Hence, it can be expected that the restrictions imposed by national audit environments on earnings management may vary. Their results confirm that France is the country that has the highest number of laws and regulations intended to improve audit quality. In particular, France imposes restrictions on the minimal length of the audit mandate. Moreover, management advisory services and advertising are not allowed. Statutory auditors are subject to reviews by peers and regulators. The UK is classified as the country with the second strictest audit quality regime due to the high risk of litigation. On the other hand, Germany shows more flexible audit quality regimes (Maijoor and Vanstraelen, 2002). In particular, the results suggest that companies in countries with flexible audit quality regimes (Germany, or Spain[12] and other Eastern European countries that as mentioned follow the example of Germany) report significantly higher absolute values of discretionary accruals compared to companies in countries with strict audit quality regimes (France and the UK) (Maijoor and Vanstraelen, 2002, 2006).

These results help us to understand why France and the UK are always clustered separately (in different groups than Germany or Spain, and other Eastern European countries). The strict and low flexibility of audits significantly affects managers' decisions in terms of earnings management, and in effect creates differences among the European countries. Additionally, we have previously confirmed that the UK and France show the lowest level of earnings management[13]. This is in accordance with the results presented by Maijoor and Vanstraelen (2002), as strong audit quality limits the scope of earnings management.

Another possible reason may come from the ***different institutional environments*** in each of our Western European countries. Leuz, Nanda and Wysocki

[12] In detail, Spanish audit quality was analysed by García-Benau *et al.* (2004), see for more details.
[13] see Kruskal-Wallis test, Table 7.5.

(2003) build an aggregate earnings management measure, and compare it across a comprehensive sample of countries, including the UK, France, Spain and Germany. They found that earnings management practices differ significantly across countries, and that the divergences are linked to the different institutional environments in each country. Their evidence suggests that countries with a less dispersed ownership structure and weak investor rights (e.g. Germany) engage more in earnings management, even if there is strong legal enforcement. They argue explicitly that earnings management is more pervasive in countries where the legal protection of outside investors is weak, because in these countries insiders enjoy greater private control benefits and hence have stronger incentives to obfuscate firm performance (Leuz, Nanda, and Wysocki, 2003). Hence, we may explain why France and the UK are not clustered with Germany and other Eastern European countries.

We additionally observe that when we have fixed number of clusters (two or three) Spain arises in the same group with Germany and the Eastern European bloc of countries rather than with the UK or France. We may explain this by following the study of Leuz, Nanda, and Wysocki (2003), that countries with a ***less dispersed ownership structure*** show similar levels of earnings management. We may observe in Table 7.18 that Spain presents a similar ownership structure to Germany rather than to the UK or France. This may explain why Spain is re-grouped with Germany.

Table 7.18: Ownership concentration

Country	*Ownership concentration*
Greece	0.68
…	…
Germany	**0.50**
Spain	**0.50**
Switzerland	0.48
…	…
France	**0.24**
…	…
United Kingdom	**0.15**
…	…
United States	0.12

Ownership Concentration is measured as the median percentage of common shares owned by the largest three shareholders in the ten largest privately owned non-financial firms.

Source: Leuz, Nanda, and Wysocki, 2003.

At the same time, the possible similarity between Spain and Eastern European countries may be as a result of ***similar process of transformation*** of Eastern European countries' economies to the Spanish one. When we turn our attention to the 13 (mostly) Eastern European countries that have either recently joined the EU, or are in line to join, we may notice that Poland, for example, is the most similar to Spain in terms of labour productivity, geographical similarities, agricultural resemblance, inflation rate at that time, unemployment rate, interest rate, etc (at the time of EU ascension). Some authors even called Poland a new Spain. Caselli and Tenreyro (2005) ask: "Is Poland the Next Spain?". In this sense, Poland and other Eastern European countries may have some similarities with Spain, explaining the observed cluster association.

Kaitila (2010) explains that this similarity may exist in terms of ***the quality of European Union countries' export structure***. He analyses the EU27 countries' export structures in the period of 1999 to 2008. He observes clear similarity indicators by pairs of countries indicating that between 1999 and 2008 the strongest quality-adjusted similarity exists between Germany–Austria, Netherlands–Belgium, Sweden–Austria, Spain–Poland (our sample countries), Poland–Czech Republic (our sample countries), and Romania–Bulgaria. In this sense, we find similarities between Spain and Eastern European countries, as over the years, all five countries attempted to avoid the situation of being placed in the periphery of the continent and having to face challenges alone.

7.3. SIGN AND MAGNITUDE OF EARNINGS MANAGEMENT OF EUROPEAN COMPANIES

Sign of earnings management may help to understand the way managers manipulate earnings, as the positive sign of discretionary accruals indicates activity of managers to increase the level of reporting earnings and negative sign suggests the downward reporting of earnings. Therefore, the magnitude of discretionary accruals may help to understand the "dimension" of manipulation.

The obtained results indicate in general negative values of the discretionary accruals for Eastern as well as Western European countries (see again Table 7.4). Negative values of discretionary accruals suggest the downward manipulation of earnings by managers of European companies. To confirm this trend, we calculate the

number of companies that showed positive and negative discretionary accruals per country and year. We calculate the mean of discretionary accruals in positively ranked firms and the mean of negatively ranked firms. Finally, to evaluate the level/ dimension of discretionary accruals of both downwards and upwards earnings management, we compare the magnitudes of absolute means' values. Table 7.19 reports the correspondence (percentage) of positive and negative discretionary accruals by samples over the years[14].

Table 7.19: Results of the earnings management: positive vs. negative discretionary accruals

	2003	2004	2005	2006	2007	2008	2009	Mean
Panel A: Czech Republic								
Zero or positive %	30.01%	36.26%	32.21%	40.95%	38.21%	27.38%	21.47%	**32.36%**
Negative %	69.99%	63.74%	67.79%	59.05%	61.79%	72.62%	78.53%	**67.64%**
Panel B: Poland								
Zero or positive %	30.96%	39.63%	29.05%	30.83%	35.14%	24.21%	22.30%	**30.30%**
Negative %	69.04%	60.37%	70.95%	69.17%	64.86%	75.79%	77.70%	**69.70%**
Panel C: Hungary								
Zero or positive %	42.11%	28.95%	32.46%	37.72%	35.09%	23.68%	23.68%	**31.95%**
Negative %	57.89%	71.05%	67.54%	62.28%	64.91%	76.32%	76.32%	**68.05%**
Panel D: Slovakia								
Zero or positive %	22.07%	36.62%	23.47%	27.70%	23.00%	24.88%	12.21%	**24.28%**
Negative %	77.93%	63.38%	76.53%	72.30%	77.00%	75.12%	87.79%	**75.72%**
Panel E: France								
Zero or positive %	31.40%	34.91%	36.11%	36.77%	39.53%	32.66%	26.66%	**34.01%**
Negative %	68.60%	65.09%	63.89%	63.23%	60.47%	67.34%	73.34%	**65.99%**
Panel F: Germany								
Zero or positive %	14.61%	16.13%	17.23%	18.49%	19.80%	16.08%	12.57%	**16.42%**
Negative %	85.39%	83.87%	82.77%	81.51%	80.20%	83.92%	87.43%	**83.58%**
Panel G: Spain								
Zero or positive %	37.96%	40.69%	40.83%	44.08%	43.08%	33.80%	23.27%	**37.67%**
Negative %	62.04%	59.31%	59.17%	55.92%	56.92%	66.20%	76.73%	**62.33%**
Panel H: UK								
Zero or positive %	25.08%	32.21%	31.77%	33.45%	30.60%	22.04%	27.66%	**28.97%**
Negative %	74.92%	67.79%	68.23%	66.55%	69.40%	77.96%	72.34%	**71.03%**

We incorporate the results for Eastern European countries from Chapter 6.
Source: The author.

[14] Results of discretionary accruals for Eastern European countries proceed from the Chapter 6.

We can observe a very high percentage of observations with negative discretionary accruals for both markets: Eastern and Western European countries. The highest percentage of companies showing negative discretionary accruals is observed for German sample ranges from 80% to 87%, followed by Slovakia and the UK companies with the proportion of negative sign of discretionary accruals, ranging from 71% to 75%. Finally, France, Spain, the Czech Republic, Poland and Hungary show similar, also high, negative to positive percentages, rounding 62-69% for negative to 31-37% for positive means.

These results indicate that two thirds of the cases (or even much more, see German companies whose negative sign even increases to 80%) showed the negative sign of discretionary accruals, which indicates the downward manipulation of earnings. This distribution suggests that European firms tend to manipulate their earnings downwards to avoid reporting earnings.

To evaluate the level of downwards and upwards manipulation, we compare the absolute value of means (the magnitude of means without considering its sign) of positive and negative discretionary accruals, see Table 7.20.

The obtained results show differences between Eastern and Western European companies. We observe that between 2003 and 2007 Eastern and Western European companies show different results. Eastern European companies present higher values of positive discretionary accruals than they do negative ones. In the same period Western European companies showed much higher absolute values of negative discretionary accruals over the positive.

Different causes influence managers' decisions to decrease earnings. Literature points out those managers may decrease earnings ***to meet bonus targets*** (Healy, 1985) or ***to protect their job*** (Fudenberg and Tirole, 1995; Arya, Glover and Sunder, 2003). Another possible reason for decreasing earnings may come from the firm's environment. Firms often ***attempt to control fluctuations in reported earnings*** and steer them to levels they consider desirable (Tokuga and Sakai, 2011). Managers can manage reported figures to decrease earnings when achievement of earnings higher than planned is certain. Decreasing earnings enables a firm to avoid discounting in the capital market owing to business performance fluctuation and simultaneously brings about desirable consequences with respect to institutional contracts that firms have entered into with

stakeholders (financial covenants, delisting requirements, management compensation contracts, etc.) (Tokuga and Sakai, 2011).

Table 7.20: Summary of the means of positive and negative discretionary accruals

	2003	2004	2005	2006	2007	2008	2009	Mean
Panel A: Czech Republic								
Mean positive	0.1091	0.1106	0.1030	0.1065	0.1049	0.0926	0.0817	**0.1012**
Mean negative	0.0923	0.0958	0.0902	0.0811	0.0744	0.0883	0.0962	**0.0883**
Difference	0.0169	0.0148	0.0129	0.0254	0.0305	0.0043	-0.0145	**0.0129**
Panel B: Poland								
Mean positive	0.1026	0.1311	0.1075	0.1143	0.1110	0.0852	0.0757	**0.1039**
Mean negative	0.0928	0.0959	0.0898	0.0867	0.0893	0.0892	0.0918	**0.0908**
Difference	0.0098	0.0352	0.0177	0.0276	0.0216	-0.0040	-0.0161	**0.0131**
Panel C: Hungary								
Mean positive	0.2257	0.1781	0.0989	0.1696	0.0697	0.0684	0.0751	**0.1265**
Mean negative	0.0829	0.1066	0.0859	0.0704	0.0862	0.0955	0.0972	**0.0892**
Difference	0.1427	0.0716	0.0131	0.0992	-0.0165	-0.0271	-0.0221	**0.0373**
Panel D: Slovakia								
Mean positive	0.0971	0.1019	0.0590	0.1038	0.1377	0.1191	0.0896	**0.1012**
Mean negative	0.0888	0.0697	0.0827	0.0804	0.1214	0.1128	0.1232	**0.0970**
Difference	0.0082	0.0322	-0.0237	0.0234	0.0163	0.0064	-0.0336	**0.0042**
Panel E: France								
Mean positive	0.0900	0.0814	0.0784	0.0786	0.0758	0.0765	0.0678	**0.0784**
Mean negative	0.1505	0.1671	0.1661	0.1687	0.1968	0.1446	0.1332	**0.1610**
Difference	-0.0605	-0.0857	-0.0877	-0.0900	-0.1210	-0.0681	-0.0655	**-0.0826**
Panel F: Germany								
Mean positive	0.0813	0.0754	0.0825	0.0745	0.0720	0.0610	0.0735	**0.0743**
Mean negative	0.0968	0.0910	0.0970	0.0983	0.0897	0.0924	0.0928	**0.0940**
Difference	-0.0155	-0.0157	-0.0145	-0.0238	-0.0177	-0.0314	-0.0192	**-0.0197**
Panel G: Spain								
Mean positive	0.1681	0.1471	0.1344	0.1272	0.1136	0.0972	0.0777	**0.1236**
Mean negative	0.2024	0.2311	0.2331	0.3191	0.2910	0.1769	0.1397	**0.2276**
Difference	-0.0343	-0.0840	-0.0986	-0.1919	-0.1774	-0.0796	-0.0621	**-0.1040**
Panel H: UK								
Mean positive	0.0897	0.0935	0.0857	0.0871	0.0768	0.0679	0.0796	**0.0829**
Mean negative	0.1197	0.1437	0.1450	0.1506	0.1257	0.1184	0.1390	**0.1346**
Difference	-0.0300	-0.0502	-0.0593	-0.0635	-0.0489	-0.0505	-0.0594	**-0.0517**

We incorporate the results for Eastern European countries from Chapter 6.
Source: The author.

Therefore, companies may want to opt for ***"hiding" some of their earnings (decreasing earnings) for reporting in a future period*** when earnings are lower and the marginal impact of a higher report is greater. More specifically, managers decrease earnings in periods when business performance is favourable and earnings are comparatively high (Ronen and Sadan, 1981; Lambert, 1984).

In addition, decreasing earnings is additionally employed ***to assure investors of a steady earnings flow*** (George and Furstenberg, 2006). Investors generally believe that steady earnings in comparison to fluctuating earnings secure a higher dividend rate, and indicate lower risk, as earnings fluctuations are considered an important criterion for the firm's total risk. Those firms with higher decreasing earnings are exposed to fewer risks. Therefore, those firms with higher decreasing earnings are more appealing to investors and are more suitable for investments (Akhoondnejad, Garkaz, and Shoorvarzi, 2013).

We also observe that the positive mean of discretionary accruals of Eastern European countries is slightly higher than the negative discretionary accruals over the years, with two exceptions. In 2009 all Eastern European countries showed a higher mean of negative discretionary accruals over the positive mean. Again the difference is very small. Hungarian companies also showed a higher negative mean of discretionary accruals in 2007 and 2008.

At the same time, observing the Western European countries we detect the contrary situation. Over all years the negative mean of discretionary accruals is higher than the positive mean. Additionally, the negative means are significantly higher than the positive. In some cases the mean of negative discretionary accruals is even double that of the positive discretionary mean.

Therefore, we state two main conclusions: the percentage of the positive to negative sign of discretionary accruals shows that all European countries (both markets) in the majority of cases manage earnings to decrease them. Secondly, contrasting the means of the discretionary accruals (means of positive and negative discretionary accruals) we detect opposing results: Eastern European countries show a higher level of positive means over the negative means of discretionary accruals (upwards manipulations are much higher than the downwards manipulation), which may indicate that managers of our four Eastern samples countries are more likely to round down their results, if only slightly. On the other hand, Western European countries have a

significantly higher level of negative means over the positive. This indicates that managers manage earnings to decrease them, and they do it significantly.

Taking into account the above considerations, in the following step we evaluate the "dimension" (magnitude) of the negative and positive manipulations. We calculate the dimensions of earnings management by positive and negative discretionary accruals multiple means of each year and each sample (see Table 7.20), by percentage of the observations with negative or positive discretionary accruals (Table 7.19), correspondingly. The results are reported in Table 7.21.

Table 7.21: "Dimension" (magnitude) of earnings management by positive and negative sign of discretionary accruals

	2003	2004	2005	2006	2007	2008	2009	Mean
Panel A: Czech Republic								
Positive DA	0.0328	0.0401	0.0332	0.0436	0.0401	0.0253	0.0175	**0.0332**
Negative DA	0.0646	0.0611	0.0611	0.0479	0.0459	0.0641	0.0755	**0.0600**
Panel B: Poland								
Positive DA	0.0318	0.0519	0.0312	0.0352	0.0390	0.0206	0.0169	**0.0324**
Negative DA	0.0641	0.0579	0.0637	0.0600	0.0579	0.0676	0.0713	**0.0632**
Panel C: Hungary								
Positive DA	0.0950	0.0516	0.0321	0.0640	0.0245	0.0162	0.0178	**0.0430**
Negative DA	0.0480	0.0757	0.0580	0.0439	0.0559	0.0729	0.0742	**0.0612**
Panel D: Slovakia								
Positive DA	0.0214	0.0373	0.0139	0.0288	0.0317	0.0296	0.0109	**0.0248**
Negative DA	0.0692	0.0442	0.0633	0.0582	0.0935	0.0847	0.1082	**0.0745**
Panel E: France								
Positive DA	0.0283	0.0284	0.0283	0.0289	0.0300	0.0250	0.0181	**0.0267**
Negative DA	0.1032	0.1088	0.1061	0.1066	0.1190	0.0974	0.0977	**0.1056**
Panel F: Germany								
Positive DA	0.0119	0.0122	0.0142	0.0138	0.0143	0.0098	0.0092	**0.0122**
Negative DA	0.0826	0.0764	0.0803	0.0801	0.0719	0.0776	0.0811	**0.0786**
Panel G: Spain								
Positive DA	0.0638	0.0598	0.0549	0.0560	0.0489	0.0329	0.0181	**0.0478**
Negative DA	0.1255	0.1371	0.1379	0.1784	0.1656	0.1171	0.1072	**0.1384**
Panel H: UK								
Positive DA	0.0225	0.0301	0.0272	0.0291	0.0235	0.0150	0.0220	**0.0242**
Negative DA	0.0897	0.0974	0.0989	0.1002	0.0872	0.0923	0.1006	**0.0952**

We incorporate the results for Eastern European countries from Chapter 6.
Source: The author.

We may perceive that the magnitude of earnings management by decreasing earnings is significantly higher than earnings management by increasing earnings (in all samples, the manipulation by negative discretionary accruals persists significantly above the positive discretionary accruals) for Eastern European countries as well as for Western European countries (with the exception of the Hungarian sample in 2003 and in 2006).

Secondly, we observe that the proportion of decreasing earnings to increasing earnings in Western European companies is high. We detect a five/ six times greater magnitude of decreasing earnings than increasing earnings in Western European countries: see, for example, France where the ratio of positive discretionary accruals to negative accruals is 0.0267 to 0.1056. In Germany it is 0.0122 to 0.0786 correspondingly (but it is still highly below levels of the earnings manipulation in Eastern European countries).

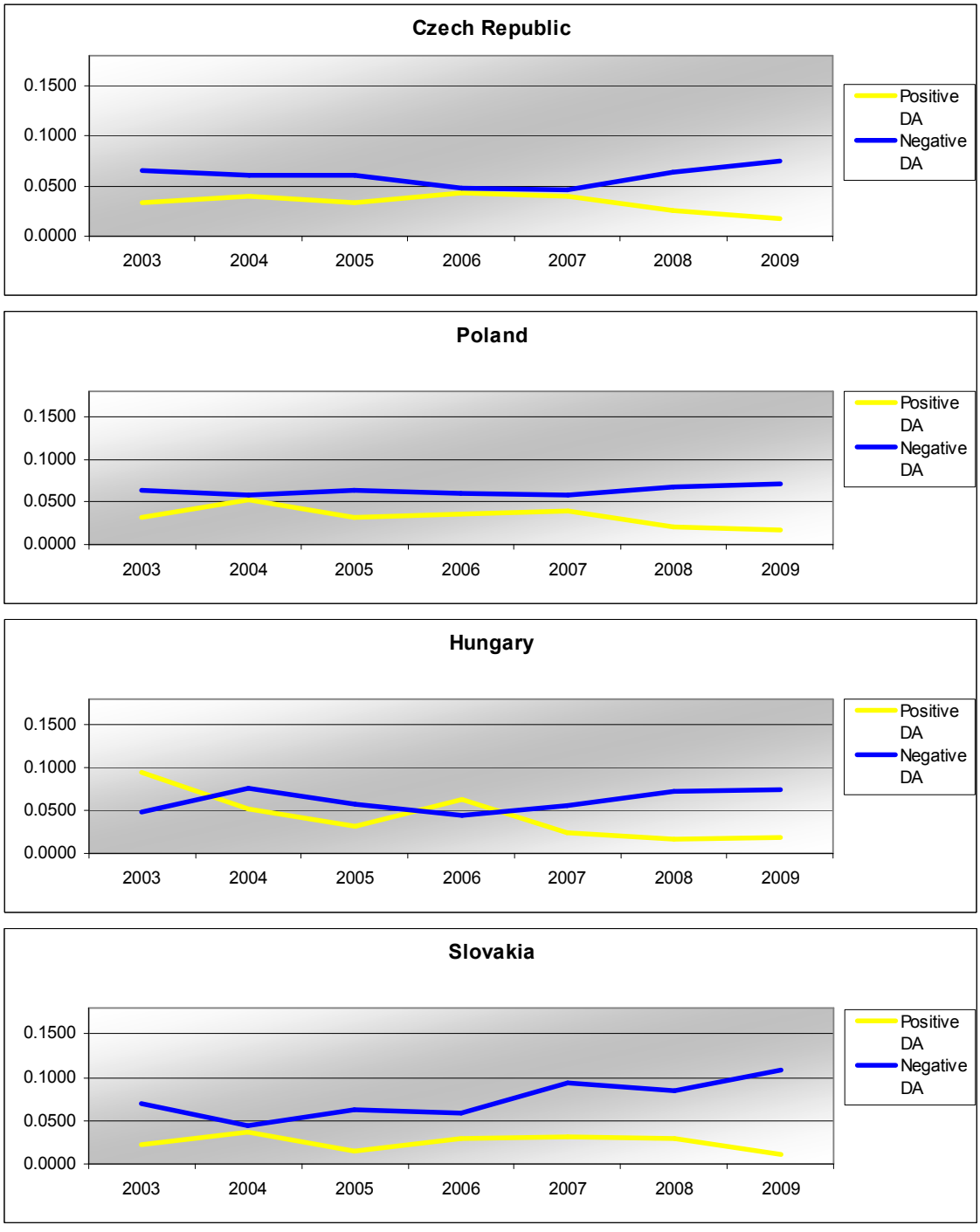
These results confirm that in Western European markets managers avoid reporting elevated earnings. They decrease earnings but they do it in a higher range than observed in Eastern European countries. Western European companies are well established on the European market. They have more information. They are characterized by stability and maturity (almost non-significant fluctuations were observed in the main financial variables). Therefore, they may decrease earnings more aggressively.

Additionally, Eastern European companies seem to follow the practice of Western European countries. We may observe that Eastern European countries show similar trends of earnings management activity over years. Perhaps, Western European markets are an example to pursue for Eastern European managers. Eastern European countries just recently entered into the European Union (EU) making a significant step in the development and economic growth of their companies, and they want to reach the level of Western European countries. We can observe this in earnings management activity too, see Figure 7.16.

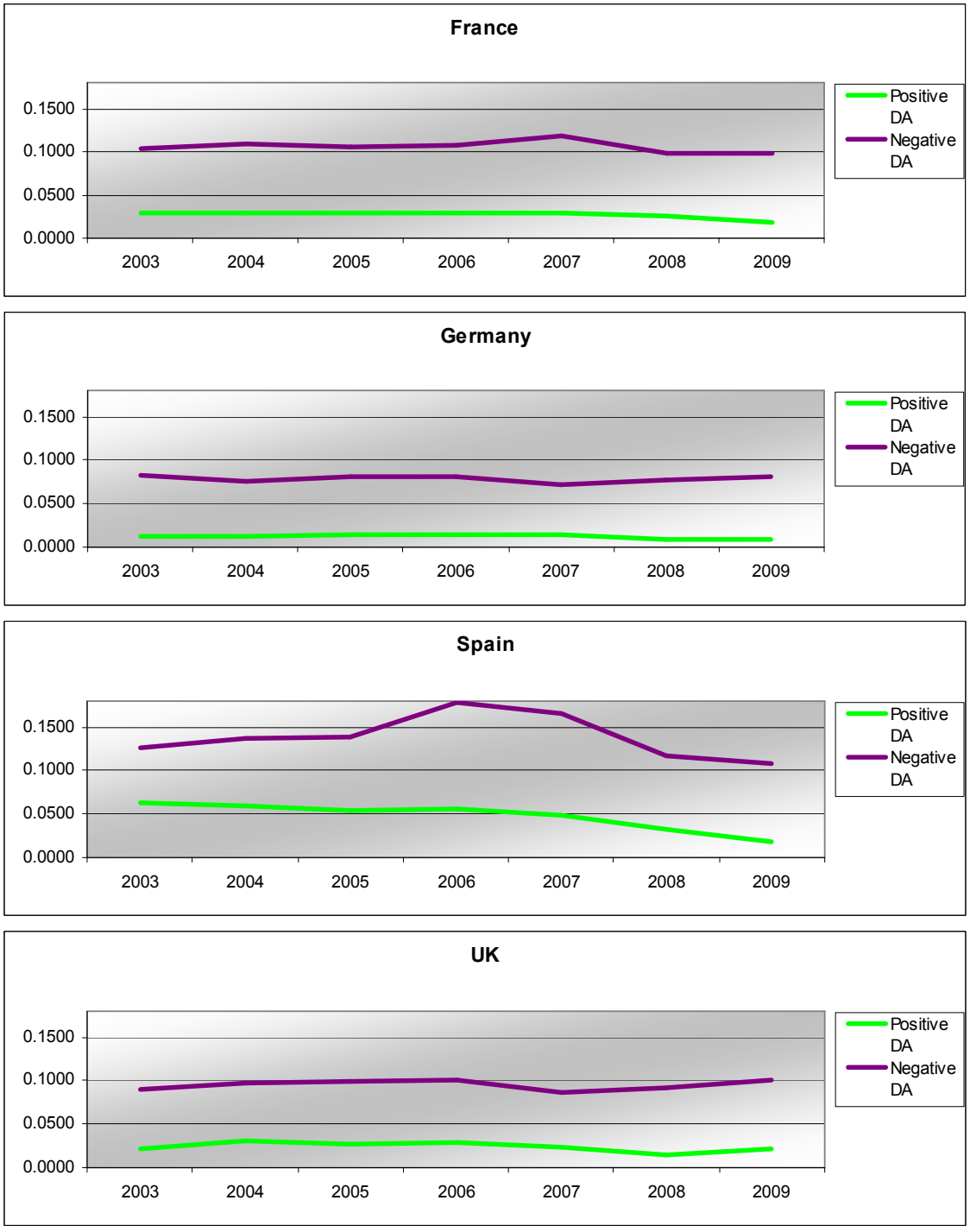
Figure 7.16 shows that Eastern European companies took an example from Western counterparts in the way of earnings management manipulation. In Panel A, we can observe that companies from the Czech Republic, Poland, Hungary and Slovakia, just after incorporation into the global European market (EU membership) followed the example of Western European countries related to the scope of discretionary accruals.

Figure 7.16: Magnitude of earnings management: positive vs negative discretionary accruals

Panel A: Eastern European countries



Panel B: Western European countries



We incorporate the results for Eastern European countries from Chapter 6.
Source: The author.

As we may observe, between 2006/ 2007 and 2009 the magnitude of decreasing earnings over increasing earnings has been systematically increasing. This is a trend of Western European companies, where the dimension of decreasing earnings was greater than increasing earnings, as we mentioned before, see Panel B.

This trend is not observed between 2003 and 2006. Eastern European countries incorporated into the European Union in 2004, and we may observe that before that period (2003 and 2004) and just after that (2005 and 2006) important fluctuations of the magnitudes of decreasing earnings over increasing earnings were observed (for the Hungarian sample in 2003 and 2006 the highest level of increasing earnings over decreasing earnings was detected). These results may support the theory that Eastern European countries assumed Western European trends after the full EU incorporation (2007, 2008 and 2009).

In addition, we observe that Eastern European countries showed remarkably higher levels of fluctuation in earnings management than those observed in Western European countries. The evidence of important fluctuations could be a response to the economic, cultural or politic situation at that time of Eastern European countries. Eastern European countries differ significantly in terms of history, culture, or economy, among others factors. This different heritage may have an influence on managers' way of manipulating earnings. On the one side Western European countries were marked by capitalism, and the long process of development of their market-oriented economies. They reached stability and solidity in running their business. On the other hand, Eastern European companies were influenced for many years by communism. Important fluctuations could have come from adjusting to the new situation. They have just started to adapt to the Western democratic and economical system through their recent incorporation to the European Union and collapse of their centrally-planned economies.

Social and cultural attitudes and behaviours seem also to be different in both parts of Europe. Full integration is still a problem and may result in differences, mainly because Eastern and Western European countries are still perceived as two different societies. Full integration has proven to be not as easy as people had thought before, see details in Chapter 4. This could have an impact on managers' decisions in terms of earnings management. As mentioned, Western European countries are well established and we have observed lower fluctuations in manipulation. On the other hand, Eastern European countries showed important fluctuations associated to these economic, cultural, or social changes.

Other possible causes of differences between Eastern and Western European countries (more/ less fluctuations in earnings management) may come from another range of different factors such as: market capitalization, investor protection, or range of

foreign investments, among others. The Eastern European market is less experienced than the Western European one. It may have an impact on lower investor protection, lower market capitalization, or lower foreign investment. All these and other factors can influence the scope of earnings management. In addition, this lack of experience meant that companies needed time to adjust to all variables of the market and may have resulted in important fluctuations.

To sum up, both, Eastern and Western European companies during our analysis period have generated a competitive advantage by decreasing earnings mechanism. In all of our sample countries, managers preferred to reduce reported earnings instead of inflate the earnings. Managers of European companies by hiding some of the "unrevealed" earnings, in effect they can secure some competitive advantage.

7.4. TIME-LINE ANALYSIS OF EARNINGS MANAGEMENT BY EUROPEAN COMPANIES

Finally, we compare the behaviour of Eastern and Western European companies over time. We look for any significant differences in the level of discretionary accruals for our study period of 2003-2009. To this end, based on the value of discretionary accruals in absolute terms for firms in each country, we run Friedman non-parametric tests for each country. Friedman's test allows us to present an ordering by years (for each country) in terms of the level of earnings management. In this way we can evaluate if earnings management has increased or decreased over the years.

Table 7.22 presents the results of the Friedman tests. The results obtained suggest that earnings management do vary over time for Eastern as well as for Western European countries. The test proves the significance of the results (Chi-Square mostly significant at 1%) and verifies that the evidence sufficient to conclude that there is a difference in manipulation over the years among Eastern and Western European countries.

Table 7.22: Friedman non-parametric test: results

Panel A: Eastern European countries***

		Czech Republic	Poland	Hungary	Slovakia
Chi-Square		77.251**	87.184**	15.534*	61.087**
Mean Rank	2003	4.07	3.85	4.35	3.73
	2004	4.13	4.34	4.38	3.57
	2005	4.12	4.02	3.99	3.57
	2006	3.89	3.91	3.8	3.66
	2007	3.66	4.06	3.54	4.48
	2008	4.00	3.83	3.74	4.33
	2009	4.13	3.98	4.21	4.66

Panel B: Western European countries

		France	Germany	Spain	UK
Chi-Square		534.861**	84.036**	323.050*	272.000**
Mean Rank	2003	4.16	4.11	4.08	4.10
	2004	4.05	3.95	3.97	3.97
	2005	3.92	4.11	3.96	4.00
	2006	3.87	4.12	3.84	3.92
	2007	3.80	3.66	3.83	3.75
	2008	4.01	3.87	4.06	4.09
	2009	4.19	4.18	4.26	4.17

* significance at 5%
** significance at 1%
***We incorporate the results for Eastern European countries from Chapter 6.
Source: The author.

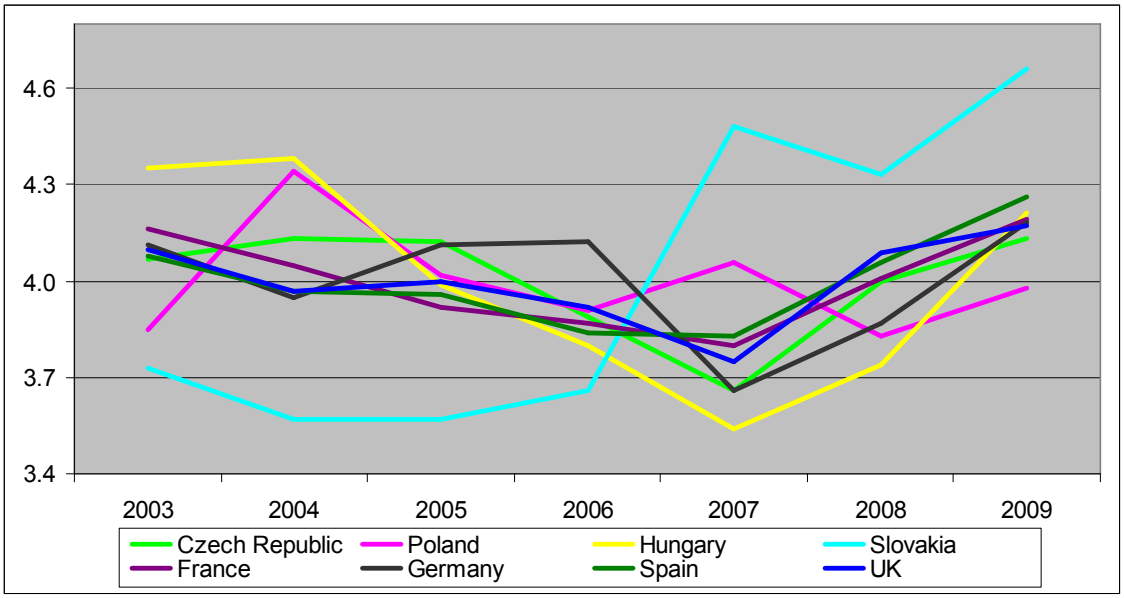
Figure 7.17 shows the evolution of the mean ranks of each country. Therefore, we observe fluctuations in earnings management, and inconstant manipulation for Eastern as well as for Western European countries over our study period. The scope of the manipulation has been changing over time reflecting the general situation of the European market, as we observe important economic fluctuations in our period.

First of all, the effect of the process of enlargement of the European Union took place during the period of study. The incorporation of new countries into to the EU has influenced the increment of European competition. It has also stimulated free business negotiations, and the flow of capital, among others factors.

Additionally, the world financial crisis must be mentioned as it affected our companies in an important way. The financial crisis entails more than a systemic impact on aggregate macro variables. It leads to the re-composition of the microeconomic structure, which in turn shapes the response of the economy to the crisis. In crisis situations firms and sectors must readapt their capabilities, learning processes and production and investment strategies. Facing the crisis means thinking about the future: the need more than ever for active industrial and technological policies. It also means

dealing with uncertainty: the need for technological foresight to provide a comprehensive overview of future production paradigms, bringing together in partnership scientists, engineers, industrialists and government officials. These as well as actively seeking balance between growth and equity, between competitiveness and social cohesion, between economic development and environmental sustainability.

Figure 7.17: Trends of earnings management in the European countries over years



We incorporate the results for Eastern European countries from Chapter 6.
Source: The author

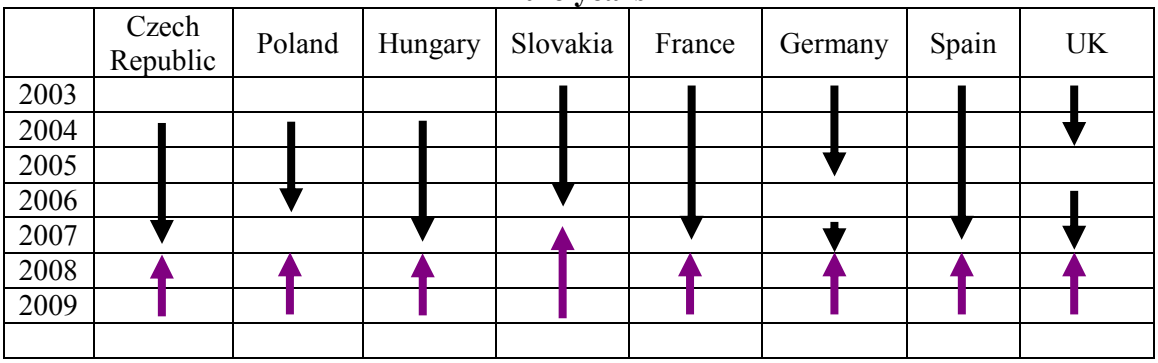
Managers from both markets, Eastern and Western, tried to cope with these situations, fulfilment of expectations of their owners to reach targets, and others aspects, by earnings management. They were not able to predict economic tendencies, so in effect they were modifying their activities, in terms of earnings management, as we may observe on the graphic. Perhaps managers of European companies may have responded to these fluctuations by earnings management (as explained before by earnings decreasing).

Based on the Friedman test ranks, we detect two main tendencies: firstly, a decrease in manipulation between 2003/2004 and 2007. Our countries' mean ranks gradually reduced manipulation. All our Western European countries reduced

manipulation starting from 2003 and Eastern European countries from 2004[15], see Figure 7.18.

We also detect a second trend. Between 2008 and 2009 we observe increases in manipulation for all Eastern, as well as, Western European countries[16].

Figure 7.18: Tendencies of earnings management in the European countries over the years



We incorporate the results for Eastern European countries from Chapter 6.
Source: The author.

These are the same tendencies as we have observed in previous Chapter for Eastern European countries (see Chapter 6). Some of the reasons are similar as explained in Chapter 6, for example, incorporation of new members into the European Union affected the companies activities, market valuation incentives, own national market regulatory body, etc. Nevertheless, we perceive some new reasons that may help to understand the tendencies observed.

The first tendency of reducing the scope of earnings management[17] (2003-2007) can perhaps be explained by the effect of the collapse of Enron Corporation, WorldCom and other financial scandals in late 2001. As different authors have explained, see for example Gompers, Ishii and Metrick (2001), Manne (2002), Sosnoff (2002), Niskanen (2004), these ***bankruptcies of big companies reflected the general weakness of stock markets and the possibility of earnings manipulation*** by the managers of the companies. It may occur as well even if they are big companies and well monitored by the auditors mechanisms. Therefore, Niskanen (2004) added that there may be more

[15] Slovakia companies showed this tendency between 2003 and 2006. Details for Eastern European countries are placed in Chapter 6.
[16] For Slovakia we even observed it, one year before, in a period of 2007 – 2009. Details for Eastern European countries, see Chapter 6.
[17] less decreasing earnings; in previous section we confirmed that European countries manage earnings to decrease them.

"Enrons, WorldComs" out there, because many other firms share the characteristics that led to the Enron and WorldCom collapses. As a consequence, the revelation of gross accounting violations by these and other firms and the continued weakness of the financial markets have undermined both popular and political support for free-market policies. This effect has already led to the increased regulation of accounting and auditing authorized by the Sarbanes-Oxley Act (see Manne, 2002; Sosnoff, 2002; Niskanen, 2004). Increment control of financial statements was introduced in the following years around the world to prevent other such financial collapses. Therefore, strengthening the control, may have reduced earnings management in European countries in the first years of our analysis period.

In addition, the ***process of enlargement of the European Union*** by incorporating new members into the global and European market had impact not only on the new incorporated countries (as explained in Chapter 6), but also had an influence on the former members (in other words, Western European countries), resulting in strengthened competition in the European market. Managers of both parts of Europe tried to cope with this new situation, and the expectations of their owners to reach targets, endangered job security. Managers of Western European companies reduced manipulation in response to the uncertainty.

Moreover, the macroeconomic conditions of the new comers of the European market and the older participants could also have an important impact on the decline in earnings management between 2003 and 2007. As pointed out by Clayton and Giesbrecht (1997) and Leuz, Nanda, and Wysocki (2003) the ***macroeconomic performance*** of the countries is an institutional factor that has been analyzed by authors in relation to earnings management. It leads to an open, global and boundary-less market, which helped economic development (see, for example, Czinkota and Ronkainen, 1997; Alon and Welsh, 2002). Both parts of Europe took advantage of the opportunity of making business without frontiers. More possibilities for companies, may perhaps have been reflected in lower levels of discretionary accruals by managers (there was simply no need to do it). All these factors may have had an important impact on the reduction of earnings management practice between the period of 2003 and 2007.

However, in the last two years (2008-2009), we have already observed the effect of ***the global financial crisis***. Managers of the European countries (both markets) perceived a lack of resources or at least fewer resources, stronger competition, and in

effect the level of earnings management rose[18]. As pointed out, in bad economic situations it is harder to achieve previously established targets. Sometimes it can be even impossible to complete them. Managers were not able to follow the previously matched objectives and they may have opted for more earnings decreasing to be able to fulfil future targets. Therefore, consistent with this statement, companies were not able to meet targets in the present period but it may have helped them to meet future earnings targets as they retained part of current period earnings and could fill future earnings gaps. They could therefore provide enough earnings to complete future period target expectations.

At the same time, managers may additionally avoid being penalized by their owners because if the earnings were "impossible" to achieve (importantly missing targets by increment of decreasing earnings), the causes of such situations could be linked to ***general unfavourable market conditions***.

7.5. FINAL CONCLUSIONS ON THE COMPARATIVE STUDY ON EARNINGS MANAGEMENT BETWEEN EASTERN AND WESTERN EUROPEAN COUNTRIES

We have drawn a comparative study between Eastern and Western European countries on earnings management practice. Just analysing the sample European countries characteristics we evidently detect significant differences between them. In the same way, analysing the discretionary part of accruals, we also perceived distinction and contrasts between the results. In order to provide evidence for earnings management in Western European countries we also used the cross-sectional Yoon and Miller model (2002). The Western European sample consists of France, Germany, Spain and the UK. The obtained results revealed a statistically significant difference in earnings management between Eastern and Western European countries. Consequently, we have analyzed these differences.

First, mean ranks from the Kruskal Wallis test indicate lower manipulation in Western European countries than in Eastern European countries. The lowest manipulation was observed in France, followed by the UK, Spain, and Germany. The

[18] In our situation, it is more decreasing earnings.

highest manipulation is observed in Eastern European countries, particularly in Hungarian and Slovakian companies.

We confirm additionally that there is a significant difference between Eastern and Western European countries. These differences may come from, for example, the different accounting systems. Accounting systems have an impact on the possibility of opportunistic behaviour (Jeanjean and Stolowy, 2008). Even within the same accounting system, there may be appreciable differences in the behaviour of accounting measures across countries (Bhattacharya *et al.,* 2003). Another reason for such differences may arise from differences in the link between taxation and accounting.

However, in this heterogeneity of the European countries we perceived that Eastern European countries, to a certain extent, have assimilated the German companies' way of managing earnings. Cluster analyses confirmed that Eastern European countries came up in the same cluster as German companies. This may be explained by the same connection between accounting and taxation. Eastern European countries due to historical influence strongly rely on the German example of principles accounting as well tax regulations. In addition, historical heritage, cultural and geographical proximity are other possible explanations of the proximity of Eastern European and German companies.

Additionally, we found significant differences between Eastern European countries and our three other Western European sample countries: France, Spain and the UK. Therefore, we performed further cluster analyses specifying fixed number of clusters (determining three and two fixed clusters). In consequence, we identified that France and the UK were always assigned separately over all our cluster analyses. Spain in contrary appeared to be clustered together with Germany and Eastern European countries. This means that the scope of earnings management in France and the UK is different than in the other six countries. Spanish companies seem to show similar earnings management behaviour to managers of German and Eastern European companies. Perhaps, we can explain this by the similar process of transformation and European Union membership of the Eastern European countries with the Spanish companies.

Further investigation also indicated that both Eastern and Western European countries managed their earnings to decrease them (decreasing earnings). Nevertheless, comparing the magnitude/ dimension of manipulation, we observed differences between

both European markets. First of all, between 2003 and 2007, the whole Eastern European market showed higher values of positive discretionary accruals than the negative ones (with the exception of Slovakia in 2005). In the final two years, we observed fluctuations in the values among Eastern European countries. On the other hand, Western European countries showed contrary results. They showed higher absolute values of negative discretionary accruals over positive ones.

Furthermore, the obtained results suggested that the earnings management of European countries does vary in time and in extent. For both markets, we detected two main tendencies: firstly, a decrease in manipulation between 2003 and 2007; and then between 2008 and 2009 a trend to increase manipulation. Our results can be explained by the effect of the economic crisis, and the entry into the European Union by new countries (Eastern European countries), which caused the intensification of competition in Europe.

Comparative analyses help us to understand the behaviour of Eastern European managers. However, at least one question still remains unanswered. What are the motives for manipulation for Eastern European managers? Are there the same reasons for earnings management as for Western European companies pointed out by literature (Chapter 1)? We have confirmed that differences in earnings management between Western and Eastern European countries exist. So it makes us think that the motivations for earnings management in Eastern European countries can be different than those in the Western part of Europe. In the next chapter we focus on the motivations of Eastern European managers and factors of the European environment that influence on managers' decisions to manage earnings.

Annex 7.1: Descriptive statistics on total assets and revenues for Eastern and Western European countries

	Scrutiny period							
	2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Panel A: France								
Total assets								
Mean	107,885	107,308	116,620	129,400	138,081	147,700	159,568	161,118
Std. dev.	1,818,366	1,765,974	1,925,448	2,153,748	2,205,487	2,279,842	2,630,288	2,834,075
Median	8,002	8,439	9,066	9,796	10,644	11,712	12,217	11,756
Revenues								
Mean	106,147	105,962	110,781	118,486	127,784	135,837	143,209	130,746
Std. dev.	1,460,014	1,413,930	1,431,851	1,541,075	1,666,179	1,737,711	1,914,264	1,672,578
Median	14,598	15,322	16,417	17,399	18,778	20,301	21,304	19,887
Panel B: Germany								
Total assets								
Mean	800,554	809,872	826,194	893,104	935,597	933,107	983,745	996,406
Std. dev.	7,191,242	7,252,332	7,311,272	7,926,407	8,212,257	7,412,089	8,004,646	8,094,755
Median	71,139	71,857	73,088	76,795	81,336	84,718	86,751	88,349
Revenues								
Mean	685,932	690,213	715,782	758,712	796,995	838,025	889,771	820,067
Std. dev.	5,312,467	5,112,345	5,254,376	5,528,556	5,221,611	5,483,506	5,875,185	5,513,595
Median	69,979	72,427	75,727	79,114	84,856	86,491	91,205	84,152
Panel C: Spain								
Total assets								
Mean	74,512	79,557	87,119	100,525	119,792	136,669	142,215	144,197
Std. dev.	941,059	915,284	956,297	1,111,817	1,403,212	1,609,645	1,679,937	1,767,905
Median	11,203	12,688	14,464	16,444	18,928	21,109	21,786	21,166
Revenues								
Mean	64,812	69,786	77,197	87,580	99,649	108,115	109,000	97,230
Std. dev.	578,109	598,890	661,134	788,382	925,674	969,872	1,038,806	937,422
Median	13,334	14,679	16,203	17,747	19,601	21,473	20,607	17,895
Panel D: UK								
Total assets								
Mean	261,149	258,860	268,937	297,565	317,207	323,135	299,001	310,584
Std. dev.	3,033,038	2,878,022	2,771,836	2,928,540	2,818,706	2,861,634	2,921,747	3,095,246
Median	24,027	23,663	25,564	27,702	30,296	30,734	26,260	25,957
Revenues								
Mean	220,224	224,966	244,694	265,160	288,894	279,612	270,316	257,667
Std. dev.	2,049,623	2,156,010	2,456,726	2,518,801	2,571,346	2,490,870	3,107,349	2,593,854
Median	32,527	33,169	35,774	37,835	41,315	41,240	34,584	32,607
Panel E: Czech Republic								
Total assets								
Mean	12,187	12,628	14,238	15,894	17,845	20,255	21,004	20,610
Std. dev.	21,648	20,998	22,967	25,013	27,357	31,345	32,553	31,707
Median	5,328	5,590	6,486	7,378	8,563	9,656	9,892	9,659
Revenues								
Mean	14,751	15,578	19,139	21,594	24,953	28,913	28,705	25,666
Std. dev.	22,206	22,421	27,426	31,580	35,846	42,577	41,514	38,461
Median	7,782	8,283	9,858	10,841	13,103	14,898	14,857	13,068

Panel F: Poland								
Total assets								
Mean	12,995	12,128	15,010	17,228	19,321	22,989	21,835	22,388
Std. dev.	20,468	18,356	22,117	25,203	27,943	32,791	31,621	33,311
Median	5,633	5,365	6,923	8,104	9,276	11,829	11,268	11,570
Revenues								
Mean	14,844	14,421	19,117	21,033	23,678	29,290	27,541	27,317
Std. dev.	18,735	18,280	24,518	25,700	28,645	35,420	33,052	32,621
Median	8,776	8,402	11,062	12,408	13,767	17,131	16,222	15,970
Panel G: Hungary								
Total assets								
Mean	11,481	12,010	13,353	13,895	15,690	16,980	16,516	16,760
Std. dev.	14,077	16,498	16,542	18,410	20,037	21,212	20,137	23,458
Median	6,352	6,466	7,379	8,073	8,645	9,192	9,548	9,575
Revenues								
Mean	20,786	20,828	22,433	23,377	26,856	29,033	28,984	24,997
Std. dev.	30,105	29,447	24,209	27,818	29,954	30,589	27,537	22,446
Median	11,497	11,814	14,507	15,418	17,423	19,518	20,422	18,616
Panel H: Slovakia								
Total assets								
Mean	7,997	8,302	9,579	10,713	12,614	13,865	16,339	11,857
Std. dev.	7,690	7,649	9,000	10,169	11,965	12,075	14,893	10,964
Median	5,716	5,775	6,864	7,477	8,367	9,839	12,100	8,011
Revenues								
Mean	12,259	13,200	15,037	16,745	19,922	21,972	25,561	16,233
Std. dev.	11,831	12,414	13,801	15,287	18,257	19,845	22,446	15,323
Median	8,282	9,209	10,383	11,457	13,669	15,353	18,800	11,661

We incorporate the results for Eastern European countries from Chapter 6.

Source: The author.

Annex 7.2: Robustness analyses of cross-sectional Yoon and Miller model (2002) for Western European countries

Panel A: Results of adjusted R²

Measurement model Yoon and Miller (2002)	$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{\Delta EXP_{it} - \Delta PAY_{it}}{A_{it-1}} + \alpha_3 \frac{NCASH_{it-1} \times GPPEGRW_{it}}{A_{it-1}} + \varepsilon_{it}$							
	Years							
	2003	2004	2005	2006	2007	2008	2009	**Mean**
France	0.3894	0.3801	0.3656	0.3885	0.4165	0.3981	0.3761	**0.4524**
Germany	0.1911	0.1889	0.1705	0.2966	0.2683	0.1984	0.1879	**0.2503**
Spain	0.3171	0.4133	0.4145	0.4079	0.4441	0.5430	0.3939	**0.4889**
UK	0.1676	0.2337	0.2263	0.1868	0.2110	0.2061	0.1680	**0.2333**
								0.3562

Panel B: Parameters of the Yoon and Miller model, standard deviation (error), p-value (significance)

Measurement model: Yoon and Miller (2002) Model				
$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{\Delta EXP_{it} - \Delta PAY_{it}}{A_{it-1}} + \alpha_3 \frac{NCASH_{it-1} \times GPPEGRW_{it}}{A_{it-1}} + \varepsilon_{it}$				
	Intercept	ΔREV-ΔREC	ΔEXP-ΔPAY	NCASH-1xGPPEGRW
2003				
France	-0.0277	-0.5409***	0.6199***	-0.1750***
Std dev.	0.0010	0.0055	0.0057	0.0178
Germany	-0.0566	-0.3205***	0.3725***	0.0912
Std dev.	0.0023	0.0177	0.0180	0.1099
Spain	0.0151	-0.9538***	0.9932***	0.3174***
Std dev.	0.0034	0.0144	0.0137	0.1189
UK	-0.0372	-0.2808***	0.3169***	0.0968**
Std dev.	0.0011	0.0068	0.0069	0.0412
2004				
France	-0.0220	-0.5260***	0.5919***	0.0140
Std dev.	0.0010	0.0053	0.0055	0.0088
Germany	-0.0495	-0.3024***	0.3802***	-0.2246**
Std dev.	0.0022	0.0173	0.0186	0.1017
Spain	0.0168	-0.8252***	0.8802***	-0.2126***
Std dev.	0.0022	0.0101	0.0098	0.0803
UK	-0.0210	-0.3621***	0.4304***	0.0770**
Std dev.	0.0013	0.0076	0.0077	0.0341
2005				
France	-0.0178	-0.5417***	0.5963***	-0.1419***
Std dev.	0.0009	0.0055	0.0057	0.0143
Germany	-0.0494	-0.2293***	0.3186***	0.4325***
Std dev.	0.0023	0.0164	0.0176	0.1074
Spain	0.0121	-0.7417***	0.7976***	-0.2230**
Std dev.	0.0019	0.0091	0.0089	0.0880
UK	-0.0256	-0.3647***	0.4221***	0.0348
Std dev.	0.0012	0.0075	0.0076	0.0302
2006				
France	-0.0157	-0.5484***	0.6099***	-0.0993***
Std dev.	0.0009	0.0053	0.0056	0.0131

Germany	-0.0482	-0.4143***	0.5280***	-0.1274
Std dev.	0.0023	0.0196	0.0199	0.1342
Spain	0.0183	-0.7395***	0.7699***	-0.0427
Std dev.	0.0017	0.0089	0.0088	0.0790
UK	-0.0207	-0.3037***	0.3591***	-0.0529*
Std dev.	0.0012	0.0071	0.0073	0.0265
2007				
France	-0.0112	-0.5995***	0.6756***	-0.1881***
Std dev.	0.0009	0.0057	0.0059	0.0294
Germany	-0.0399	-0.4601***	0.5360***	-0.1803*
Std dev.	0.0021	0.0196	0.0204	0.1029
Spain	0.0086	-0.7466***	0.8114***	-0.0632
Std dev.	0.0017	0.0086	0.0086	0.0791
UK	-0.0253	-0.3314***	0.3796***	0.0829**
Std dev.	0.0010	0.0070	0.0071	0.0405
2008				
France	-0.0252	-0.5760***	0.6261***	-0.0907***
Std dev.	0.0008	0.0054	0.0056	0.0202
Germany	-0.0529	-0.3328***	0.4096***	-0.0108
Std dev.	0.0020	0.0202	0.0206	0.0619
Spain	-0.0245	-0.7192***	0.7891***	-0.0259
Std dev.	0.0013	0.0067	0.0068	0.0632
UK	-0.0513	-0.2914***	0.3506***	0.2722***
Std dev.	0.0011	0.0068	0.0070	0.0420
2009				
France	-0.0441	-0.5261***	0.5842***	0.0708**
Std dev.	0.0008	0.0054	0.0055	0.0342
Germany	-0.0602	-0.2640***	0.3446***	-0.7659***
Std dev.	0.0021	0.0200	0.0208	0.0753
Spain	-0.0566	-0.6104***	0.6588***	0.2860***
Std dev.	0.0012	0.0076	0.0077	0.0834
UK	-0.0401	-0.2688***	0.3121***	0.3034***
Std dev.	0.0011	0.0066	0.0068	0.0596

*Indicates statistical significance at 0.1 level.
**Indicates statistical significance at 0.05 level.
***Indicates statistical significance at 0.01 level.

NDA_{it}: Non-discretionary accruals in year t; A_{it-1}: Total Assets in year t -1; ΔREV_{it}: Annual change in revenues in year t; ΔREC_{it}: Annual change in receivables accounts in year t; ΔEXP_{it}: Change in operating expenses excluding non-cash expenses in year t; ΔPAY_{it}: Change in payables accounts in year t; $NCASH_{it-1}$: Non-cash expenses such as depreciation in year t-1; $GPPEGRW_{it}$: A rate of growth in gross property, plant and equipment in year t.

We incorporate the results for Eastern European countries from Chapter 6.

Panel C: Predicted sign

Measurement model: ***Yoon and Miller (2002)***					
$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{\Delta EXP_{it} - \Delta PAY_{it}}{A_{it-1}} + \alpha_3 \frac{NCASH_{it-1} \times GPPEGRW_{it}}{A_{it-1}} + \varepsilon_{it}$					
	% of variables which have predicted sign of the estimated parameters				
	France	***Germany***	***Spain***	***UK***	**Total**
ΔREV-ΔREC (-)	100.00%	100.00%	100.00%	100.00%	**100.00%**
ΔEXP-ΔPAY (+)	100.00%	100.00%	100.00%	100.00%	**100.00%**
NCASH-1xGPPEGRW (-)	71.43%	71.43%	71.43%	16.67%	**57.74%**

ΔREV_{it} : Annual change in revenues in year t; ΔREC_{it} : Annual change in receivables accounts in year t; ΔEXP_{it} : Change in operating expenses excluding non-cash expenses in year t; ΔPAY_{it} : Change in payables accounts in year t; $NCASH_{it-1}$: Non-cash expenses such as depreciation in year t-1; $GPPEGRW_{it}$: A rate of growth in gross property, plant and equipment in year t.

Source: The author.

Annex 7.3: Results on Normality test of our four samples

Tests of Normality

		Kolmogorov-Smirnov[a]		
	Country	Statistic	df	Sig.
DA	France	.118	133392	.000
	Germany	.127	13363	.000
	Spain	.194	79723	.000
	UK	.116	75215	.000

a. Lilliefors Significance Correction

*For the Czech Republic, Poland, Hungary and Slovakia, normality distribution were confirmed in the previous chapter (Eastern European samples do not have normality distribution, see Annex 6.5).

Source. The author.

Annex 7.4: Cluster analyses using positive/ negative values of discretionary accruals

Panel A: Cluster analysis by year. Number of firms and the percentage of each country by cluster division

Year 2003

	Cluster														
	1		2		3		4		5		6		7		Total firms
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Czech R.			6	0.3%			2,043	99.7%							2,049
Poland			9	0.4%	2,242	99.6%									2,251
Hungary			114	100.0%											114
Slovakia			213	100.0%											213
France	18,887	99.1%	169	0.9%											19,056
Germany											1,909	100%			1,909
Spain			402	3.8%					10,269	96.2%					10,671
UK			15	0.1%									10,730	99.9%	10,745
	18,887		***928***		***2,242***		***2,043***		***10,269***		***1,909***		***10,730***		***47,008***

Year 2004

	Cluster											
	1		2		3		4		5		Total firms	%
	No.	%	No.	%	No.	%	No.	%	No.	%		
Czech R.			14	0.7%					2,035	99.3%	2,049	100%
Poland			2,251	100.0%							2,251	100%
Hungary					114	100.0%					114	100%
Slovakia			1	0.5%	212	99.5%					213	100%
France	18,949	99.4%	107	0.6%							19,056	100%
Germany			3	0.2%					1,906	99.8%	1,909	100%
Spain			422	4.0%			10,249	96.0%			10,671	100%
UK			13	0.1%	10,732	99.9%					10,745	100%
	18,949		***2,811***		***11,058***		***10,249***		***3,941***		***47,008***	

Year 2005

	Cluster											
	1		2		3		4		5		Total firms	%
	No.	%	No.	%	No.	%	No.	%	No.	%		
Czech R.			7	0.3%			2,042	99.7%			2,049	100%
Poland			2,251	100.0%							2,251	100%
Hungary							114	100.0%			114	100%
Slovakia							213	100.0%			213	100%
France	18,935	99.4%	121	0.6%							19,056	100%
Germany			1	0.1%			1,908	99.9%			1,909	100%
Spain			370	3.2%	10,301	96.8%					10,671	100%
UK			6	0.1%					10,739	99.9%	10,745	100%
	18,935		***2,756***		***10,301***		***4,277***		***10,739***		***47,008***	

Year 2006												
	Cluster											
	1		2		3		4		5		Total firms	%
	No.	%	No.	%	No.	%	No.	%	No.	%		
Czech R.	2,049	100.0%									2,049	100%
Poland	26	1.2%							2,225	98.8%	2,251	100%
Hungary	114	100.0%									114	100%
Slovakia	213	100.0%									213	100%
France	178	0.9%					18,878	99.1%			19,056	100%
Germany									1,909	100.0%	1,909	100%
Spain	237	2.2%			10,434	97.8%					10,671	100%
UK	10	0.1%	10,735	99.9%							10,745	100%
	2,827		***10,735***		***10,434***		***18,878***		***4,134***		***47,008***	

Year 2007												
	Cluster											
	1		2		3		4		5		Total firms	%
	No.	%	No.	%	No.	%	No.	%	No.	%		
Czech R.			2,049	100.0%							2,049	100%
Poland			10	0.4%			2,241	99.6%			2,251	100%
Hungary			114	100.0%							114	100%
Slovakia			213	100.0%							213	100%
France	18,930	99.3%	126	0.7%							19,056	100%
Germany							1,909	100.0%			1,909	100%
Spain			208	2.0%	10,463	98.0%					10,671	100%
UK			43	0.4%					10,702	99.6%	10,745	100%
	18,930		***2,763***		***10,463***		***4,150***		***10,702***		***47,008***	

Year 2008										
	Cluster									
	1		2		3		4		Total firms	%
	No.	%	No.	%	No.	%	No.	%		
Czech R.	2,049	100.0%							2,049	100%
Poland	2,251	100.0%							2,251	100%
Hungary	114	100.0%							114	100%
Slovakia	213	100.0%							213	100%
France	62	0.3%			18,994	99.7%			19,056	100%
Germany	1,909	100.0%							1,909	100%
Spain	27	0.2%	10,644	99.8%					10,671	100%
UK	2	0.0%					10,743	100.0%	10,745	100%
	6,627		***10,644***		***18,994***		***10,743***		***47,008***	

Year 2009												
	Cluster											
	1		2		3		4		5		Total firms	%
	No.	%	No.	%	No.	%	No.	%	No.	%		
Czech R.	2,037	99.4%	12	0.6%							2,049	100%
Poland			2,251	100.0%							2,251	100%
Hungary			114	100.0%							114	100%
Slovakia			213	100.0%							213	100%
France			374	2.0%					18,682	98.0%	19,056	100%
Germany	1,906	99.8%	3	0.2%							1,909	100%
Spain			25	0.2%	10,646	99.8%					10,671	100%
UK			53	0.5%			10,692	99.5%			10,745	100%
	3,943		***3,045***		***10,646***		***10,692***		***18,682***		***47,008***	

Panel B: Cluster analysis by year. Descriptive statistics

		Clusters						
Year		**1**	**2**	**3**	**4**	**5**	**6**	**7**
2003	***Mean***	-0.0322	0.4919	-0.0336	-0.0342	-0.0171	-0.0566	-0.0386
	Std. Deviation	0.1040	1.1608	0.1267	0.1294	0.1105	0.0972	0.1089
2004	***Mean***	-0.0241	0.1169	-0.0221	-0.0088	-0.0355	–	–
	Std. Deviation	0.1024	0.4619	0.1187	0.1050	0.1130		
2005	***Mean***	-0.0207	0.0873	-0.0101	-0.0401	-0.0262	–	–
	Std. Deviation	0.0971	0.3767	0.1063	0.1084	0.1133		
2006	***Mean***	0.0875	-0.0216	0.0019	-0.0189	-0.0373	–	–
	Std. Deviation	0.3535	0.1133	0.1134	0.0934	0.1039		
2007	***Mean***	-0.0135	0.0633	-0.0035	-0.0308	-0.0269	–	–
	Std. Deviation	0.0940	0.3425	0.1082	0.1120	0.0953		
2008	***Mean***	-0.0392	-0.0268	-0.0262	-0.0513	–	–	–
	Std. Deviation	0.1655	0.1229	0.0987	0.1001			
2009	***Mean***	-0.0616	-0.0461	-0.0573	-0.0410	-0.0443	–	–
	Std. Deviation	0.0905	0.2396	0.1121	0.1048	0.0850		

Panel C: Cluster analysis by combined period of 2003-2009. Number of firms and the percentage of each country by cluster division

	Cluster											
	1		2		3		4		5		Total firms	%
	No.	%	No.	%	No.	%	No.	%	No.	%		
Czech R.	55	0.4%							14,288	99.6%	14,343	100%
Poland	15,757	100.0%									15,757	100%
Hungary	798	100.0%									798	100%
Slovakia	1,491	100.0%									1,491	100%
France	1,034	0.8%					132,358	99.2%			133,392	100%
Germany	4	0.0%							13,359	100.0%	13,363	100%
Spain	885	1.2%	73,812	98.8%							74,697	100%
UK	238	0.3%			74,977	99.7%					75,215	100%
	20,262		***73,812***		***74,977***		***132,358***		***27,647***		***329,056***	

Panel D: Cluster analysis by combined period of 2003-2009. Descriptive statistics

2003-2009	Cluster				
	1	**2**	**3**	**4**	**5**
Mean	0.0431	-0.0132	-0.0334	-0.0262	-0.0402
Std. Deviation	0.4115	0.1237	0.1051	0.0967	0.1072

All cluster analyses are significant at 1%.

Source: The author.

CHAPTER 8

INCENTIVES AND FACTORS FOR EARNINGS MANAGEMENT. EMPIRICAL EVIDENCE OF EASTERN EUROPEAN COUNTRIES

Earnings management exists in the practices of Eastern European countries. Our results from the previous chapter confirm it clearly[1]. First, we observe that Eastern European countries manage earnings to decrease them. Our Eastern European sample countries showed signs of negative earnings management. Therefore, our first question focuses on motivations for such behaviour. We are interested in incentives that drive managers to opt to manage earnings and to do it to decrease them. Additionally, we found that earnings management in Eastern European firms indeed varies over time and extent. Important fluctuations were observed over the years. Hence, our second research question centres on reasons which may have influenced managers to change the scope of earnings management over time.

Finally, we may observe significant differences in earnings management among Eastern European countries. Despite the fact that our four Eastern European countries give the impression of having the same conditions and circumstances: as post-communist countries, transitional into democratic and market-oriented economies, recently incorporated into European Union structures, we may still find differences between them. It seems that the particularities of each country may have a significant influence on the perception of earnings management. Consequently, our third research question focuses on the causes of such differences in earnings management among Eastern European countries. We ask: why managers of companies from different Eastern European countries manipulate differently? What sort of incentives drive managers from Eastern European companies to manipulate differently? Which factors have a major impact on companies from different Eastern European countries?

We have pointed out that research on earnings management in Western European countries has been done in detail, but some new emerging countries are still unexplored. Therefore, earnings management in Eastern European countries is still ongoing. We find only some studies based on the sample from Eastern European countries, and most of them are theoretical, for example Prusak (2003), Tokarski and Tokarski (2007), Wiercińska (2008), Gierusz (2010), Jackowicz and Kozłowski (2010) study based on the 382 banks from 11 different countries, including Polish banks, Wojtowicz (2010). Consequently, further investigation on motivations and factors of Eastern European companies' behaviour is needed. This could be an issue of empirical interest for this particular moment. The research could provide new insights into the

[1] In Chapter 6 we have measured earnings management in Eastern European countries.

period regarding the effect of European Union enlargement, economic crisis and the role of Eastern European companies in Europe.

The Chapter is structured in the following manner: first, we clarify the sample selection. In the following section we focus on the causes for decreasing earnings management observed in Eastern European countries. We run a logistic regression and provide results. The following section presents reasons why earnings management of Eastern European countries changes over years. Finally, we investigate incentives and factors that may explain the differences detected in earnings management among Eastern European countries.

8.1. SAMPLE SELECTION

We use the same sample Eastern European companies as we have used to measure earnings management (Chapter 6). Therefore, our sample data includes companies from: the Czech Republic, Poland, Hungary and Slovakia. The investigation period is 2003-2009. Table 8.1 shows sample selection.

Table 8.1: Sample selection

	Czech R.	***Poland***	***Hungary***	***Slovakia***	**Total**
Total sample firms	**2,049**	**2,251**	**114**	**213**	**4,627**
Number of observations	14,343	15,757	798	1,491	32,389

Source: The author.

The discretionary accruals are estimated with the use of the Yoon and Miller model (2002) as explained in Chapter 5. Then, the discretionary accruals are used as a base in the regression models to determine the influence of each variable considered.

8.2. CAUSES FOR DOWNWARD EARNINGS MANAGEMENT IN EASTERN EUROPEAN COMPANIES

We have confirmed that Eastern European companies manage earnings to decrease them. The results of estimations[2] indicate that companies from Poland, the Czech Republic, Slovakia and Hungary show negative signs of earnings management in more than 70% of cases. Consequently, we are interested in examining which incentives may lead managers to manipulate earnings to decrease them, and which factors may have additional influence on their decisions.

Our methodology contains the following steps. First, based on the large earnings management literature[3] we identify variables which may give an explanation of the earnings management observed in Eastern European countries. Second, we determine logistic regression to examine how each variable affects a firm's decision on managing earnings. Many previous studies on earnings management used logistic regression, see for example studies of Bartov, Gul and Tsui (2000), Chtourou and Bédard (2001), Richardson, Tuna and Wu (2002), Spathis (2002), Mosebach and Simko (2005), Cheng and Warfield (2005), McAnally, Srivastava and Weaver (2008), Shuto (2007), Kuang (2007).

Specifically, we conduct a logistic regression where the dependent variable is a binary one (1 if the company is managing earnings to decrease them, 0 for firms that managing earnings to increase them). Thus we obtain a classification model where:

$$\text{Pr (decreasing earnings)} = \frac{e^z}{1+e^z}; \qquad \text{Pr (decreasing earnings)} = \frac{1}{1+e^{-z}}$$

Pr (increasing earnings) = *1 – Pr* (decreasing earnings),

with the following regression:

$$Z = \beta_0 + \beta_1 DEBT_{it} + \beta_2 TAX_{it} + \beta_3 EQUITY_{it} + \beta_4 NDI_{it} + \beta_5 PUBLIC + \beta_6 YEARS_{it} + \beta_7 SIZE_{it} + \beta_8 LISTED + \beta_9 INDUSTRY_1 + \ldots + \beta_{17} INDUSTRY_9 \quad (1)$$

where independent variables are:

- *DEBT* is leverage variable, which defines total amount of debt to assets of firm;
- *TAX* is the tax cost of the firms;

[2] See results in Chapter 6.
[3] See Chapter 1

- *EQUITY* is the difference between assets and liabilities;
- *NDI* is non-discretionary income variable;
- *PUBLIC* is a dummy variable equals 1 if firm is a state-owned firm (public), 0 otherwise (private-owned firm);
- *YEARS* variable is age of the firm;
- *SIZE* is total assets scaled by assets from *t-1;*
- *LISTED* variable is a dummy variable equals 1 if firm is a listed company, 0 otherwise;
- *INDUSTRY* variable defines nine dummies variables according to one digit SIC code, it takes values 1 if firm belongs to correspondent industry (1, …, 9), otherwise 0.

Consequently, we predict the sign of the coefficients of the variables. Finally, results are shown, and we may respond to how each factor and incentive affects a firm's likelihood of engaging in earnings management.

8.2.1. VARIABLES IN LOGISTIC REGRESSION

The dependent variable is a binary variable which receives values of 1 for companies with negative sign of discretionary accruals and 0 for companies that have positive sign of discretionary accruals. To explain that variable we include the following independent variables (Table 8.2).

First, we include the **debt variable (*DEBT)***. This variable represents the level of the leverage of Eastern European firms. We define it as the total amount of debt to total assets of each company. There is a large literature which evaluates the effect of leverage on earnings management, see studies of DeFond and Jiambalvo (1994), Beneish and Press (1995), Becker *et al.* (1998), Dichev and Skinner (2002), Klein (2002), Jaggi and Lee (2002), Mohd and Ahmed (2005), Chung, Firth and Kim (2005), Othman and Zhegal (2006), Sercu, Vander Bauwhede and Willekens (2006), Zhong, Donald and Zheng (2007), Lee, Lev and Yeo (2007), Rodríguez-Pérez and Van Hemmen (2010), Ujah and Brusa (2011), Ardison, Lopo and Caio (2012). This

literature suggests that debt structure plays an important role as a managerial incentive mechanism. Managers may manage earnings to meet certain debt covenant agreements.

Table 8.2: Variables definition

Variable	Definition
Dependent variable:	
SIGN(DA)	Dichotomous variable that takes 1 if firm's discretionary accruals are negative, and 0 otherwise
Independent variables:	
DEBT	Debt variable measured as total debt to total assets of each company $\frac{TotalLiabilities_t}{TotalAssets_t}$
TAX	Tax costs to revenues of each firm $\frac{TaxCosts_t}{Revenues_t}$
EQUITY	Difference between assets and liabilities, scaled by assets from *t-1* $\frac{Assets_t - Liabilities_t}{Assets_{t-1}}$
NDI	Non-discretionary income. It is the difference between net income of firm and discretionary accruals (estimated), scaled by assets *t-1* $\frac{NetIncome_t - DiscretionaryAccruals_t}{Assets_{t-1}}$
PUBLIC	Dummy variable equals 1 if firm is a state-owned firm (public), 0 otherwise (private-owned firm)
YEARS	Age of the firm. It is the number of years of each firm operating on the market to the mean of Eastern European companies age $\frac{NrYears_t}{MeanNrYears_t}$
Control variables:	
SIZE	Total assets scaled by assets from *t-1* $\frac{Assets_t}{Assets_{t-1}}$
LISTED	Dummy variable taking the value 1 if the company is listed and 0 otherwise
INDUSTRY	Nine dummy variables according to one digit SIC code, it takes values 1 if firm belongs to correspondent industry (Nr=1, …, 9), otherwise 0, industry classification is described in Table 8.3

* where *t* is a period from 2003 to 2009,
Source: The author.

We think that in Eastern European countries debt covenant incentives may be observed. Eastern European countries are still transitional economies. Their firms'

environment still has a high amount of uncertainty. Emerging economies (our sample countries) will need resources for updating current technologies, for financing new investments, or for competing with strong Western European companies. They will need substantial inflows of capital from Western economies, looking for debt holders. Therefore, we think that debt covenants incentives can be an important influence on Eastern European managers' decisions, hence we include leverage variable.

We also consider the ***TAX* variable**. This represents the tax costs in revenues of each firm. The tax environment in which a firm is involved is a strong stimulus for discretionary judgment by managers in financial statements (Da Silva Flores and Pessoa da Silveira, 2013). The large literature shows the importance of tax incentives on earnings management, see studies of Dhaliwal and Wang (1992), Chen and Daley (1996), Beatty and Harris (1998), Han and Wang (1998), Lin, Lin and Tsai (2004), Rodrigues (2006), Lin (2006), Badertscher *et al.* (2009), Goulart (2007), Corrar, Martins and Paulo (2005), Desai and Dharmapala (2009), Rodrigues, Marquesa and Craig (2011). They found evidence of managing earnings for tax purposes.

The Eastern European tax scenario has been the subject of many discussions[4]. Companies in the former centrally planned economies (Eastern European companies) were largely unaware of the scale of taxes they paid through the turnover and payroll systems (Tanzi, 1999). In the new environment Eastern European companies may have tax incentives, the same as Western European managers.

The ***EQUITY* variable** has been introduced into the model because it is likely that the scope of earnings management may vary depending on the **book value of the company**. *EQUITY* is used as a proxy of the value of a company, as mentioned. It is measured as the difference between assets and liabilities (scaled by assets from *t-1*) of each company. Previous studies provide evidence on the relationship between a firm's value and earnings management, see studies: Xie (2001), Arya, Glover and Sunder (2003), Desai and Moel (2004), Jensen (2005), Kothari, Leone and Wasley (2005), Chi and Gupta (2007), Ronen and Yaari (2008), Efendi, Srivastava and Swanson (2007), Marciukaityte and Varma (2008), Allayannis and Simko (2009), Houmes and Skantz

[4] For details see Chapter 4.

(2010), Lin (2011), Badertscher (2011), Raoli (2013), Wardani and Hermuningsih (2014).

The European market shows very tight competition. Western European companies are well-established and much stronger than Eastern European companies. Therefore, by introducing the variable we measure whether Eastern European companies opt for managing (perhaps decreasing) the value of their firms and fill in the "gaps" of the European markets.

The ***NDI* (non-discretionary income)** variable is introduced to the model to provide evidence that firms may manage their earnings to "hide" and "save" some current earnings for possible use in the future. When current earnings are relatively high, but assumed future earnings are expected to be low, firms may flatten their earnings to use them in future periods. We measure the variable as a difference between net result of the company and the discretionary part of the accruals (estimated), scaled by the assets *t-1*, of each company. Prior research provides evidence that managers may have incentives "to mask" their earnings, for example, Healy (1985), Fudenberg and Tirole (1995), DeFond and Park (1997), Dhaliwal, Gleason and Mills (2004), Frank and Rego (2006), Nöldeke (2007), Caylor (2010), Eisele (2012), Takasu and Nakano (2012).

Eastern European companies are less experienced. High competition may produce instability in terms of competition, employment, flow of capital, or technology, among others. Therefore, managers have an incentive to manage current earnings to fulfil the future expectation of the owners.

The ***PUBLIC* variable** is included in our model to control for the effects related to the holder of the company (public companies are **state-owned companies**, and private companies are **private hands companies**). We measure it as a dummy variable which takes 1 when the company is state-owned (public) and 0 if it is private. Literature on earnings management finds differences in managing earnings by state-owned companies and privately-owned companies. In state-owned companies there is an extra agency relationship, as the controlling owner is state/ government. We also observe lower concentration of ownership in state-owned firms and lower managerial ownership, among others characteristics, see studies of Watanabe (2002), Liu and Lu

(2004), Ding, Zhang and Zhang (2007), Hung, Wong and Zhang (2010), Chen *et al.* (2011), Li, Liu, Eddie (2011).

In Eastern European countries a large scale process of privatization of public companies was observed in the last thirty years. As Fudenberg and Tirole (1995) points out the transfer of state industrial property into private ownership is likely to be the most difficult element of the large-scale institutional and policy reform happening in Eastern Europe. Nevertheless, in Eastern European countries we may still observe a large number of state-owned companies; consequently we include this variable in our regression.

We also include the **firm age variable (YEARS)**. We measure YEARS variable as the number of operating years of the company on the market (age of each firm) to the mean age of all four Eastern European countries. Literature points out the important effect of age of company and earnings management, see studies of Anthony and Ramesh (1992), Petersen and Rajan (1997), Liu (2006), Fan (2007), Stubben (2010), Lee and Masulis (2011), Chiraz and Anis (2013), Deng and Ong (2014), Habbash and Xiao (2014). A firm's age has an impact on executives' decision-making process and how they manage different situations.

Previous studies point out that a firm's age is correlated to managerial decisions and in effect on earnings management. Some authors show that there is a variation of the use of earnings management between companies of different ages. They explain it because companies act and makes their decisions based on their cognitive base. We also observe a different organizational growth, different market ability in companies with different operating years on the market. Hence, we include the age of the company to observe whether the age of Eastern European companies is indeed an important factor which may explain the existence of earnings management.

Finally, we include also several control variables that may explain the magnitude of earnings management. To control for size effect, we include **firm size (*SIZE*)** measured by the relation of the total assets in each company in each sample, by year scaled by total assets from *t-1*. Studies on earnings management confirm that the size of the company has an impact on the existence of earnings management, see studies of Moses (1987), Dhaliwal (1988), Watts and Zimmerman (1990), Chaney and Jeter

(1992), Burgstahler and Dichev (1997), Darraugh, Pourjalali and Saudagaran (1998), Young (1999), Barton and Simko (2002), Dechow and Dichev (2002), Lee and Choi (2002), Kim, Liu and Rhee (2003), Holland and Jackson (2004), Othman and Zhegal (2006), Zhong, Donald and Zheng (2007), Acito (2011), Paiva and Costa (2013). There is empirical evidence that both large- and small-sized firms manage earnings. Some authors point out that difference in the way of earnings management may be found depending on the size of company.

The second control variable is the *LISTED* variable. **The *LISTED* variable** represents **firms listed** on the Czech, Polish, Hungarian, or Slovakian Stock Exchanges. We measure it as a dummy variable taking the value 1 if the company is listed and 0 if not. The coefficient on *LISTED* captures the difference in the way of managing earnings between listed and non-listed firms of Eastern European countries. Table 8.3 shows the distribution of listed companies in each country. Previous studies suggest that listed and non-listed companies differ in managing earnings, see studies of Fama and Jensen (1983), Becker *et al.* (1998), Rangan (1998), Erickson and Wang (1999), Beatty and Harris (1998), Beatty, Ramesh, and Weber (2002), Vander Bauwhede and Willekens (2003), Jensen (2004), Ball and Shivakumar (2005), Burgstahler *et al.* (2005), Arnedo, Lizarraga and Sánchez (2007), Sundgren (2007), Skarda (2010).

Table 8.3: Total of listed companies in Eastern European countries

Country	2003	2004	2005	2006	2007	2008	2009
Czech Republic	63	54	36	29	32	18	16
Poland	203	225	248	267	328	349	354
Hungary	49	47	44	41	41	41	43
Slovakia	306	258	209	173	153	125	107

Source: DoingBusiness database, 2012[5].

We also include the ***INDUSTRY* variable**. Following the literature we measure **firm's industry** as a multiple dummy variable (nine dummies), which receives 1 if the company belongs to a certain industry (*Nr*=1, …,9), otherwise 0. Industry classification and the percentage of the distribution of the companies in each industry within our four

[5] In Chapter 4 we explained the possible reasons of decreasing the number of listed companies in emerging Eastern European countries.

countries are described in Table 8.4. According to the literature, see for example Verrecchia (1983), Watts and Zimmerman (1986), Foster (1986), Porter and McGahan (1997), Godfrey and Koh (2001), Beneish (2001), Ghemawat (2002), Palepu *et al.* (2004), Feres de Almeida, *et al.* (2005), Lin (2006), Lee (2007), Callao and Jarne (2011), Datta, Iskandar-Datta, and Singh (2013), firm's industry is seen as an important variable in determining accounting choices. A firm operating within one industry may manage earnings distinctly from one operating in another.

Table 8.4: Industries classification based on the first digit of the Standard Industry Code (SIC-code), and the percentage of the distribution of the companies in each industry

	INDUSTRY										TOTAL
	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
Czech R.	6.5%	9.7%	29.1%	7.5%	30.8%	2.4%	5.3%	4.5%	3.3%	0.7%	**100%**
Poland	2.2%	10.3%	16.9%	9.4%	35.4%	2.4%	8.0%	3.1%	11.5%	0.8%	**100%**
Hungary	0.9%	9.6%	27.2%	4.4%	43.9%	4.4%	2.6%	1.8%	4.4%	0.9%	**100%**
Slovakia	5.2%	20.2%	24.9%	8.0%	32.9%	3.3%	0.9%	1.4%	2.3%	0.9%	**100%**
TOTAL	**4.2%**	**10.5%**	**22.9%**	**8.4%**	**33.5%**	**2.5%**	**6.3%**	**3.6%**	**7.2%**	**0.8%**	**100%**

According to SIC-code:
1 - agriculture, forestry and fishing industries,
2 - manufacturing, mining and quarrying and other industry,
3 - construction,
4 - wholesale and retail trade, transportation and storage, accommodation and food service activities,
5 - information and communication industry,
6 - financial and insurance activities,
7 - real estate activities,
8 - professional, scientific, technical, administration and support service activities,
9 - public administration, defence, education, human health and social work activities,
0 - other services (group "other" comprises establishments engaged in providing services not specifically in previous category of public services, for example, Hunting, trapping and related service activities; Marine services).

Source: The author.

8.2.2. PREDICTED SIGN OF THE COEFFICIENTS OF THE VARIABLES

Many factors may determine the signs of the coefficients of the variables. According to the previous literature we attempt to predict the sign of each coefficient, see Table 8.5.

Table 8.5: Predicted sign of the independent variables' coefficients

Variable	Expected sign
Dependent variable:	
SIGN(DA)	
Independent variables:	
DEBT	–
TAX	+
EQUITY	+
NDI	+
PUBLIC	?
YEARS	?

Source: The author.

Our first variable introduced into the model is the debt variable (***DEBT***). Most prior studies assume that managers of more leveraged companies have stronger incentives to manage earnings consistent with the firm's closeness to restrictive covenants. To avoid the likelihood of debt covenant violation companies are more inclined to engage in earnings management (upward manipulation), see for example studies of Watts and Zimmerman (1986), DeFond and Jiambalvo (1994), DeAngelo, DeAngelo and Skinner (1994), Sweeney (1994), Jaggi and Lee (2002), Dichev and Skinner (2002), Callao and Jarne (2011). According to this literature, debt covenant hypothesis posits that managers make accounting choices to avoid debt covenant violations because violating covenants is costly (Watts and Zimmerman, 1986). This is because the firms with more leverage are closer to debt covenant violation. Additionally, Chava and Roberts (2008) document that disclosed debt covenant violations result in significant declines in future investments in a firm, as creditors take actions to protect their collateral.

Roberts and Sufi (2009) show that, following debt covenant violations, firms' interest costs increase and the availability of credit decreases. Therefore, managers will take actions to shield themselves from these negative effects and engage in activities that ex-ante reduce the likelihood of future debt covenant violations (Fields, Lys, and Vincent, 2001). Hence, managers have incentives to increase their earnings to avoid disclosing such violations.

We predict negative sign of the coefficient of the variable. Firms with higher levels of debt are more likely to engage in increasing earnings than in decreasing earnings to avoid possible debt covenants violations. Managers will try to fulfil the

requirements of leverage agreements (in our logistic regression 1 stands for decreasing earnings companies and 0 for increasing earnings companies, hence we predict that there is a higher probability that more leveraged companies will be in the group of companies that manage earnings to increase them).

Our second variable is the ***TAX* variable**. Othman and Zhegal (2006) explain that tax variable is an important factor in explaining earnings management. The reason for this is that accounting rules are heavily influenced by tax rules. Additionally, Ball and Shivakumar (2005) indicate that one of the main objectives of firms' financial statements may be a tax determination (this is especially observed in former communist countries, see Chapter 4). Consequently, firms' reported earnings can be affected by their efforts to manage taxes (Sercu, Vander Bauwhede, and Willekens, 2002). Therefore, we expect positive sign of the coefficient of the variable. There is a higher probability that a company that has tax incentives will be in the group of companies that decrease earnings. If managers of firms have tax incentives, they want to have less tax obligations, so they will try to decrease the results of the company. They will opt for decreasing earnings to show lower earnings before tax, and in effect have lower tax obligations.

The ***EQUITY* variable** measures the relation between earnings management and the book value of the company. The European market presents very tight competition and for the new members of this market (Eastern European companies) it is perhaps preferable to find a niche rather than face competitors directly. In this situation, Eastern European countries may want to decrease their firm's value outwardly and seem to appear weaker than they are in reality.

We may expect positive sign of the coefficient of the variable. Managers want to show a lower company value, so they will opt to decrease earnings. In other words, the higher a company's value the more we expect decreasing earnings. Managers may opt to sacrifice a little economic value by decreasing earnings in order to achieve the desired reported earnings (Bartov 1993).

NDI measures whether firms opt to manage their current earnings and "save" some earnings to use in the future. We expect positive sign of the coefficient of the

variable. Firms will understate their earnings if pre-managed earnings are higher than expected, and will overstate the earnings if pre-managed earnings are lower than expected. In other words, when future earnings are predicted to be low companies may decrease earnings to flatten them and to use them in the following periods to cover possible earnings gaps.

As explained, companies may want to "save" and "hide" some of their current earnings for reporting in a future period when earnings are expected to be lower and the marginal impact of a higher report is greater (Goel, and Thakor, 2003). The implications of this intuition for earnings management are twofold. First, as mentioned, when current earnings are relatively high, but expected future earnings are relatively low, managers will make accounting choices that decrease current year discretionary accruals (decreasing earnings). Managers are effectively "saving" current earnings for possible use in the future. On the other hand, it is possible to observe the opposite situation. When current earnings are relatively low, but expected future earnings are relatively high, managers will make accounting choices that increase current period discretionary accruals (increasing earnings). In effect, managers in this setting are "borrowing" earnings from the future (Fudenberg and Tirole, 1995; DeFond and Park, 1997).

We expect that incorporation into the European open market and European Union membership may at the beginning create many opportunities for Eastern European countries. They may obtain relatively high levels of non-manipulated earnings. Nevertheless, increased and tight competition, and more requirements over the years, will drive managers to expect reduced future performance of their companies. Therefore, Eastern European companies may have incentives to the flatten earnings of current periods in order to benefit in the future. As mentioned, we expect positive sign of the coefficient.

The ***PUBLIC*** **variable** explains whether being a public or state-owned company may influence the scope of earnings management. According to prior studies, we find rather mixed results. Li, Liu, Eddie (2011), for example, find that state-owned companies, do indeed manage their earnings more since empirical findings indicate that being state-owned cannot mitigate earnings management. State-owned companies are indirectly controlled by the government, so control is weaker rather then in private companies (Watanabe, 2002).

On the other hand, Ding, Zhang, and Zhang (2007) argue that privately-owned companies tend to maximise accounting earnings more than state-owned companies. As well, privately owned firms may be in a weaker position because of specific political and historical factors (especially for Eastern European countries). They are thus under pressure to report a better-than-real financial performance to reassure the market (Ding, Zhang, and Zhang, 2007). According to these studies, the relation between being state-owned/ private companies and earnings management is ambiguous, so we have no expectation for the sign of the coefficient. If positive sign is obtained, it indicates that state-owned companies are more likely to manage earnings to decrease them. On the contrary, negative sign indicates that private companies manage earnings to decrease them.

The ***YEARS* variable** shows the connection between the age of the firm and earnings management. On the one hand, previous literature points out that the younger and less experienced companies are more likely to manage earnings upward, as their management and accounting systems are less established. It is well known that young, early stage companies are more likely to be liquidated due to their poor financial performance or weak earnings and limited resources (Lee and Masulis, 2011), hence they try to improve their earnings. In the same way, managers of older firms have weaker incentives to manage earnings upward because they are well-established and know the markets very well. They will rather opt to decrease their earnings and in this way manage the market's fluctuations (see for example studies of Fan, 2007; Lee and Masulis, 2011; Chiraz and Anis, 2013).

On the other hand, other authors point out that, explicitly, firms with a longer history are normally well-established, therefore they have more incentives and more opportunities to engage in increasing earnings activities, for example, to comply with market pressure, or fulfil previously settled targets (Habbash, Xiao, Salama, Dixon, 2014). In these circumstances, we do not predict the sign of coefficient of the variable. Positive sign of the coefficient of the variable indicates that older companies are more likely to manage earnings to decrease them and younger companies will manage earnings to increase them. Negative sign indicates contrary results. It is more likely that in younger companies we may observe decreasing earnings, and in older companies increasing earnings.

We do not predict the coefficients on the **control variables**, as the literature shows rather mixed results. Studies on **firm size (*SIZE*)** indicate that both positive and negative sign may be expected because both big and small firms can manage earnings to decrease or increase them. Earnings management studies show different reasons to do so. First, Burgstahler and Dichev (1997), Francis, Maydew and Sparks (1999), García-Benau *et al.*, 1999, and Gore, Pope and Singh (2001), explain the importance of audit control on managers' decisions. Managers may try to adjust earnings numbers in terms of the auditors' requirements both in small and big companies. Nevertheless, it seems that audit control is better in larger companies (García-Benau, 2004) (they are audited by big and experienced audit companies) resulting in lower earnings manipulation. Second, the size of a firm is also related to the internal control system. Larger companies may have more sophisticated internal control systems as compared to smaller companies. An efficient internal control system helps control the inaccurate disclosure of financial information to the public limiting earnings management (Kim, Liu, and Rhee, 2003). Additionally, large firms take into account reputation and visibility when engaging in earnings management. Large firms may have established their credibility in business community. Hence, the cost of engaging in earnings management will be higher for large firms than small firms. Therefore, their concern about visibility may prevent firms from manipulating earnings (Watts and Zimmerman,1986; Welker, 1995; Kim, Liu, and Rhee, 2003; Acito, 2011; Paiva and Lourenco, 2013). In contrast, Barton and Simko (2002) indicate that large firms face more pressures to meet or beat the analysts' expectations. Therefore, they may manipulate more earnings. Concluding, managers of large and small companies may manipulate earnings to increase/ decrease them depending on the situation of the company.

The coefficient on the ***LISTED* variable** is also difficult to predict. Prior studies indicate mixed results. On one side, non-listed firms engage less in earnings manipulation (less decreasing or increasing of earnings) than listed firms; see for example studies of Beatty and Harris (1998), Beatty, Ramesh, and Weber (2002), Jensen (2004). However, other studies suggest that non-listed firms exhibit higher levels of earnings management (to increase or decrease) because they are less monitored, or they rely heavily on debt financing, among other causes, see for example studies of

Beatty and Harris (1998), Vander Bauwhede, Willekens and Gaeremynck (2003), Leuz, Nanda and Wysocki (2003), Ball and Shivakumar (2005), Arnedo, Lizarraga and Sánchez (2007). Therefore, the expected sign is not conclusive as the environment, in which listed and non-listed firms operate, is different.

Finally, the firm ***INDUSTRY*** **variable** has an influence on managers' decisions as regards earnings management, see studies of Watts and Zimmerman (1986), Godfrey and Koh (2001), Palepu *et al.* (2004), Feres de Almeida, *et al.* (2005), Lin (2006), Lee (2007), Callao and Jarne (2011), Datta, Iskandar-Datta, and Singh (2013). A firm operating within one industry may be more tempted to manage accounting earnings than one operating in another. Nevertheless, the predicted relation is not conclusive. We do not predict the sign of the coefficient of the variable.

8.2.3. RESULTS OF LOGISTIC REGRESSION

Table 8.6 reports the results of the logistic regression model. The logistic regression analysis method allows us to test the significance of the impact of previously included variables on the probability of Eastern European managers choosing one of two possible options: either decreasing earnings management or increasing earnings management.

Before a model is relied upon to draw conclusions or predict future outcomes, we should check, as far as possible, that the model we have assumed is correctly specified. That is, that the data do not conflict with assumptions made by the model.

The "Hosmer-Lemeshow" test of goodness-of-fit, is known as the most robust test for the case of logistic regression. Note a degree of significance equal to high 1%. So, the distance between what is observed and what is predicted by the model is very small, which indicates a good fit to the data. To check the strength of association of the model, we have to consider the coefficient R^2 of Nagelkerke. In our case, the pseudo R-squared of 33.1%, is considered satisfactory compared to other studies in the same area (see study of Caramanis and Lennox, 2008; Triki-Damak and Halioui, 2013; Chalouati, Samir, and Hamadi, 2014). It indicates that the model explains 33.1% of the variance in the dependent variable.

Table 8.6: Results of logistic regression

	Coeff.	St. Error	Wald Chi Squ.	df	Sign.	Exp(B)
DEBT	-1.095	.110	98.976	1	.000	.334
TAX	-.003	.012	.081	1	.776	.997
EQUITY	-1.332	.101	173.360	1	.000	.264
NDI	9.045	.148	3735.132	1	.000	8477.598
PUBLIC	.234	.032	52.412	1	.000	1.264
YEARS	.047	.014	11.825	1	.001	1.048
SIZE	-2.765	.065	1788.923	1	.000	.063
LISTED	.594	.136	18.959	1	.000	1.811
INDUSTRY1	-.607	.092	43.929	1	.000	.545
INDUSTRY2	-1.030	.084	149.108	1	.000	.357
INDUSTRY3	-.124	.096	1.686	1	.194	.883
INDUSTRY4	-1.326	.083	252.723	1	.000	.265
INDUSTRY5	-.426	.125	11.636	1	.001	.653
INDUSTRY6	-.910	.095	91.721	1	.000	.402
INDUSTRY7	-.900	.108	69.110	1	.000	.407
INDUSTRY8	-.007	.099	.005	1	.946	.993
INDUSTRY9	-.173	.202	.733	1	.392	.841
Constant	5.047	.173	848.570	1	.000	155.551
Hosmer-Lemeshow				654.742***		
Nagelkerke R^2				33.10%		
Total of % correct classification				79.60%		
Number of observations				32,389		

$$Z = \beta_0 + \beta_1 DEBT_{it} + \beta_2 TAX_{it} + \beta_3 EQUITY_{it} + \beta_4 NDI_{it} + \beta_5 PUBLIC + \beta_6 YEARS_{it} + \beta_7 SIZE_{it} + \beta_8 LISTED + \beta_9 INDUSTRY_1 + \ldots + \beta_{17} INDUSTRY_9$$

The dependent variable, *Z*, is a dichotomous variable that takes 1 if firm's discretionary accruals are negative, and 0 otherwise (positive sign of discretionary accruals). *DEBT* is a leverage variable defining total amount of debt to assets of firm. *TAX* is a tax cost of the firms. *EQUITY* is a difference between assets and liabilities. *NDI* is non-discretionary income variable. *PUBLIC* is a dummy variable equals 1 if firm is a state-owned firm (public), 0 otherwise (private-owned firm). *YEARS* is age of the firm. *SIZE* is a total assets scaled by assets from *t-1*. *LISTED* is a dummy variable equals 1 if firm is a listed company, 0 otherwise. *INDUSTRY* variable defines nine dummy variables according to one digit SIC code, it takes values 1 if firm belongs to correspondent industry (Nr=1, …, 9), otherwise 0.

***Significant at 1%

Finally, to assess the predictive ability of the logistic model, we established a classification table using the approach of the successive exclusion of observations. We found an overall rate of correct classification, rising to 79.6%, so the error rate rises to 20.4%. This is a very good result indicating correct classification according to the literature.

The parameters of each variable in logistic regression are estimated by the method of "maximum likelihood". The values of the estimated coefficients of the model are presented in Table 8.6, as mentioned. We may observe that the coefficient on tax variable is not significant. This may indicate that tax incentives do not explain managers' behaviour as regards managing earnings. It seems that Eastern European companies are not stimulated by tax determination. Other variables show significant coefficients at 1%. We describe the results as follows.

- ***Leverage variable*** *(DEBT)*

The coefficient of leverage variable (DEBT) is negative (-1.095) and significant at the 1% level as expected. More leveraged companies manipulate earnings to increase them. The avoidance of debt covenants violations is a strong incentive for managers. This evidence is widely confirmed by the literature. Press and Weintrop (1990), Dichev and Skinner (2002), and Beatty, Ramesh, and Weber (2002) provide evidence that high leverage is positively associated with the likelihood of violating debt covenants. Sweeney (1994) and DeFond and Jiambalvo (1994) also explain that firms near default employ income increasing accounting changes in order to delay their technical default. Watts and Zimmerman (1990) and Mohrman (1996) support this view by arguing that firms with higher leverages are expected to adopt accounting procedures that increase current income. Likewise, Becker *et al.* (1998) noted that managers of highly leveraged firms have incentives to strategically report discretionary accruals in order to increase reported earnings in their efforts to avoid debt covenant violation. Moreover, Gu, Lee and Rosett (2005) reported that variability of accruals is positively related with leverage.

For Eastern European companies to be able to compete in the highly competitive and changing European market, they need to develop and expand. Efficient funds allocation and at the same time earning money is very important. In these circumstances, efficient use of capital also requires a certain level of debt (leverage). Therefore, increases in debt provide the incentives for managers to manipulate earnings[6] (Rodríguez-Pérez and van Hemmen, 2010), as managers have to make a decision as to the sort of debt selection.

[6] To decrease or increase

- ***Equity variable (book value of the firm)*** *(EQUITY)*

The coefficient on Equity is significant at the 1% level. This indicates that the scope of earnings management varies depending on the current value of the company. Nevertheless, the coefficient shows negative value (-1.332) which is contrary to our prediction. This shows that weaker companies with less value opt additionally for lowering their earnings (decreasing earnings), and in effect reducing the value of their companies. We may explain this because firms considered poor investments as incentives to manage earnings down (Abarbanell and Lehavy, 2002) and to opt for market niche.

When a firm is regarded as a good investment, the firm has an incentive to manage reported earnings to ratify the market's confidence in the firm (increasing earnings). This earnings management behaviour will result in a high incidence of reported earnings that meet or slightly exceed market expectations (Plummer and Mest, 2001). In contrast, when a firm is regarded as a poor investment, it has little to gain from managing earnings up and has little to lose if it reports low earnings (i.e., the firm is already regarded as a poor investment). These poor-investment firms have incentives to decrease reported earnings and create accounting slack for the future (Plummer and Mest, 2001).

Eastern European companies have low book value, this may further decrease their earnings and reduce the outward value of the company. In these circumstances, Eastern European companies appear weaker than they are in reality. Companies those countries recent incorporated into the open European market, are not currently able to compete directly with well-established Western European companies. However, this global and open European market leaves space to develop, increase and expand companies' activities. Companies from Eastern European markets may have more opportunities into enter to the market niche rather than directly compete with stronger, well-established Western European companies. In these circumstances, companies from new emerging markets (Poland, the Czech Republic, Slovakia, Hungary) may take advantage and try to fill in these "gaps" in the highly competitive European markets. Negative sign of the coefficient of the variable supports this observation (and additionally reduces the book value). Raoli (2013) points out that managers of companies characterized by a decrease in the firm's market value engage in decreasing

earnings management, demonstrating that managers of undervalued companies may sustain the undervaluation in order to help themselves. Therefore, managers may "help themselves", perhaps, by finding a niche and avoiding direct competition with strong and well-established Western European companies.

Finally, Eastern European companies may manage earnings to decrease them taking into consideration possible future worse periods as can be expected in a highly competitive and overcrowded market. Doing business is increasingly complicated and highly demanding, especially for new "players" from Eastern European markets. By decreasing earnings developing companies my try to keep some of the not reported earnings for the future.

- ***Non-discretionary income variable*** *(NDI)*

The coefficient of non-discretionary income variable (NDI) is positive (9.045) and significant according to our prediction. It indicates that firms will understate earnings if pre-managed earnings are high, and will overstate if pre-managed earnings are low. Companies that have relatively high current non-discretionary earnings (which have been not manipulated) may opt for decreasing earnings to flatten them and to use them in future periods, especially if future earnings are expected to be low.

Eastern European firms are vulnerable in the question of reaching their earnings. They may try to follow Western European companies' examples. Nevertheless, they still have less experience and the probability of failure is still high. They have still underdeveloped technology or infrastructure. Distribution channels are weak. The emerging countries are as well influenced by high unpredictability as the environment is highly demanding.

Initial incorporation into the European open market and European Union membership may at the beginning create many opportunities for Eastern European countries. They may obtain relatively a high level of non-manipulated earnings. Nevertheless, increased and tight competition, as mentioned, and more requirements over time, will drive managers to expect "poor", or at least lower future performance of their companies. Therefore, Eastern European companies may have incentives to flatten earnings of current periods in order to benefit in the future as the source of future non-manipulated earnings will be insufficient (positive predicted sign). Goel and Thakor (2003) accentuate that this situation is highly probable when earnings are expected to be

low in the future and their marginal impact will be greater. The open European market will provide unquestionably significant economic benefits to European companies. However, it also creates a more dynamic, innovative and competitive economy at the European level that has not been met (Ilzkovitz *et al.* 2007).

- ***Public variable*** *(PUBLIC)*

Public variable has a significant positive coefficient (0.234). This indicates that there is a higher probability that Eastern European state-owned companies manage their earnings to decrease them, and private Eastern European companies manage earnings to increase them. This is consistent with the study of Ding, Zhang, and Zhang (2007). They show that privately-owned companies tend to maximise accounting earnings more than state-owned companies because privately owned firms are in a weaker position related to a specific political and historical factors. Therefore, they are thus under pressure to report a better-than-real financial performance to reassure the market (Ding, Zhang, and Zhang, 2007). Moreover, managers of private companies are worried about the way of running their companies, as the success or failure of the company directly influences their remuneration or even work duration and stability. So it is understandable that managers of private companies increase earnings to secure the success (and good image) of their companies.

On the other hand, the property rights of state-owned enterprises belong to the public/ government. Because of their special relationship, state-owned companies gain more protection from the government. Generating profit is not the only goal of state-owned enterprises. State-owned enterprises also undertake various social responsibilities, such as maintaining social stability and providing employment (Li and Zhou, 2005). By the special connection with the government, state-owned companies gain more financial and political support (Qian, 1994). This is because the government can also gain a lot of resources to improve their political capital and promotional opportunities from the success of state-owned companies (Li and Zhou, 2005). Faccio (2006) points out that firms can benefit financially through their political ties in the form of direct and indirect government subsidies. Hence, state-owned companies manage earnings to decrease them, and to benefit form it.

- ***Firm age variable*** *(YEARS)*

Firm age variable shows positive (0.047) and significant sign. It indicates that the number of operating years of a company on the market has an influence on managers' decisions. Our results confirm that younger and less established Eastern European companies manage earnings to improve them (increasing earnings), and older and more experienced companies manage earnings to decrease them. Lee and Masulis (2011) explain that younger companies have less developed management and accounting systems which play an important role in supplying information for making decisions. Seiler (1966) claimed that accounting and management systems supply important financial data to business. Poor systems may provide inadequate data.

Second, it is well known that young, early stage companies are more likely to be liquidated due to their poor financial performance or weak earnings and limited resources (Lee and Masulis, 2011). Therefore, they may improve their earnings to seem stronger.

Finally, in younger companies usually younger managers are in charge. On the contrary, in older companies, more experienced managers are in charge. Talbi (2014) states that while young managers are more concerned with their careers, and to boost the earnings (increasing earnings), they are able to incur to great risks strategies by adopting myopic behaviour. They are, as well, less risk averse (Hambrick and Mason, 1984; MacCrimmon and Wehrung, 1990; Joos, Leone, and Zimmerman, 2003). Hence they are more likely to engage in increasing earnings (Davidson *et al.*, 2007). On the other hand, when managers are approaching the age of retirement (in other words, older managers), they became more risk averse (Gibbons and Murphy, 1992; Matta and Beamish, 2008), and consequently, they opt for less risky strategies. Older managers have, as well, less ability to generate new ideas and are more concerned about future financial security (Hambrick and Mason, 1984). Therefore, they may opt for decreasing earnings. They prefer to save unmanaged earnings for future periods rather than take a risk to boost earnings and improve the companies' earnings. As Vroom and Pahl (1997) and Sundaram and Yermack (2007) point out, older executives are more conservative than younger ones.

Our Eastern European companies are rather young firms, as the process of privatization transformed big state-owned conglomerates into private companies in just the last thirty years. Therefore, managers of younger and less experienced firms have

stronger incentives to manage earnings to increase them (Chiraz and Jarboui Anis, 2013).

Finally, taking a look at the control variables, we observe that most of them are significant. We explain them shortly next.

- ***Firm size variable*** *(SIZE)*

The coefficient on the relation between firm size and earnings management is negative and significant at 1%. It suggests that big Eastern European companies manage earnings to increase them, and small Eastern European companies manage earnings to decrease them. Previous literature confirms these results. The authors show different reasons for such behaviour, for example, to reduce political attention (Watts and Zimmerman, 1978, 1986, 1990), or large-sized firms face more pressures to meet or beat analysts' expectations when small-sized have lower pressure (Barton and Simko, 2002), larger firms present higher information asymmetries than smaller companies, and managers can use this advantage to intensify earnings management (Othman and Zhegal, 2006; Lee, Lev and Yeo, 2007; Zhong, Donald and Zheng, 2007).

- ***Listed variable*** *(LISTED)*

The coefficient on *LISTED* variable is positive and highly significant (significant at 1%). It captures the difference in the way of managing earnings between listed and non-listed firms. The positive sign indicates that listed Eastern European firms manage earnings to decrease them, and non-listed Eastern European firms manage earnings to increase them.

Tseng and Lai (2007) point out that decreasing earnings in listed companies is not a very popular way to manipulate reported earnings. Nevertheless, we find some possible reasons to do so by the listed companies, as well by the Eastern European listed companies. Abarbanell and Lehavy (2003), for example, explain that decreasing earnings management may also result in reducing extremely optimistic analyst forecasts in listed companies. Cheng and Warfield (2005) demonstrate that companies try to avoid reporting earnings quantities which may significantly exceed analysts' predictions and in consequence influence the future forecasts prospects. These prospects a firm may have no ability to meet in the future. Companies opt for earnings decreasing and reserve higher current potential positive earnings.

Burgstahler and Eames (2006) obtain evidence of downward forecast management to thus easier achieve zero and small positive earnings surprises. Additionally, Bohren and Haug (2006) confirm that firms take into account their concern about visibility. They explain that companies may decrease rather than increase their earnings in connection to the firm's visibility.

- ***Industry variable*** *(INDUSTRY)*

As shown in Table 8.6, the variable *INDUSTRY* shows itself to be significant. It indicates that companies' association to industry has an important influence on the way of managing earnings by managers of developing Eastern European firms.

Literature on earnings management supports these findings. One of the possible explanations comes from the different level of intensity of rivalry in each sector. Porter (1980) points out that one of the main factors that shapes the intensity of rivalry in an industry is the number of firms in a sector. Balakrishnan and Cohen (2013) confirm that since firms in an industry compete not only for economic profits but also for funds from capital markets, the number of firms in an industry reflects competition for limited funds, and in effect may result in the management of accounting numbers.

8.2.4. EASTERN EUROPEAN COMPANIES MANAGE EARNINGS TO DECREASE THEM: SUMMARY

- ***less leveraged***

First, we find that within Eastern European companies those which are less leveraged manage earnings to decrease them. Leverage arises when a firm decides to finance a majority of its assets by taking on debt. Firms do this when they are unable to raise enough capital on their own to meet their business needs (see for example, Fernández, 2007; Alaghi, 2012). In those companies debt is not a major source of financing. Therefore, once a business is up and running there are various ways of financing and looking for alternative finance.

- ***Less value***

We also find that within Eastern European companies those which have less value manage earnings to decrease them. They are not as strong as the European competition. They are weaker, with lower resources, and lower opportunities in comparison to the Western European companies. They still have underdeveloped technology or infrastructure. Distribution channels are weaker. Therefore, they opt to further reduce their outward value in order to appear weaker than they are in reality (decreasing earnings is observed).

- ***Future performance is expected to be "poor"***

Additionally, within the Eastern European companies those which future performance is expected to be lower and their pre-managed earnings are high enough to be able to benefit from it in the future, they manage earnings to decrease them. The European market provides benefits. However, at the same time, the European market creates a more dynamic, innovative and competitive environment, with more instability, and more risk. Managers have still less experience and the probability of failure is still high. The fluctuations of the highly demanding environment will drive managers of these companies to expect "poor", or at least lower future performance. Consequently, in this situation it is highly probable that these companies with current non-discretionary earnings slightly above the expected may decrease and "save" them for future periods.

- ***Older***

We also confirm that mainly older companies within Eastern Europe manage earnings to decrease them. In these companies managers prefer to squash and report lower earnings rather than increase the reported earnings. These firms are operating enough time on the market, or at least longer than other Eastern European companies. More operating years results in being more experienced. These companies may take advantage of their flexibility to find a "gap" in the highly aggressive European market. Therefore, by decreasing their firm's value outwardly they may seem to appear weaker than they are in reality and avoid competing directly with highly competitive European market.

- ***Smaller***

At the same time, we also observe that smaller companies of the Eastern European market manage earnings to decrease them. Hence, being smaller may enable them to find a way to succeed in the competitive European market. They may try preferably to find a market niche by additionally decrease earnings (being yet much smaller) rather than face with competitors.

- ***Listed***

In addition, the picture of the security exchanges and financial sectors in Eastern European countries is still relatively unfavourable, underdeveloped and less important than their Western counterparts (Köke and Schröder, 2006). Nevertheless, the results indicate that those few listed Eastern European firms manage earnings to decrease them.

- ***State-owned***

Finally, we observe that Eastern European state-owned companies manage their earnings to decrease them. They are "leftovers" of the communism economy, where everything was controlled by the government. In this group of companies we find some that are completely controlled by the government, such as: telecommunication, mining, or health-care companies. There is also other large group of companies, which have still important connections with the government with significant influence; nevertheless, their transformation into the private sector is an ongoing process. All these companies manage earnings to decrease them, as their special link to government helps them to benefit financially through their political ties in the form of direct and indirect government subsidies (Faccio, 2006) and they are not under pressure to report better-than-real financial performance.

8.3. EARNINGS MANAGEMENT IN EASTERN EUROPEAN COUNTRIES: CHANGES OVER YEARS

We found that earnings management in Eastern European firms varies over time and in extent. These changes may be in response to many aspects of the environment

where companies are operating, such as: market fluctuations, European Union influence, economic cycle, and macroeconomic conditions, among others. A dynamic environment is one of the factors which may influence managers' decisions (Lim, Ding and Thong, 2008). Thompson (1967) and Terreberry (1968) add that the complexity of the environment is important for managers' decisions. Kothari, Leone and Wasley (2005) point out, as well, that environmental uncertainty is likely to affect firms' performance.

The environment for firms is changing. Managers must respond to these changes in the markets. We think that managers try to cope with the fluctuations of the market and they also respond to these fluctuations by variations in earnings management. Richardson (2000) shows that earnings management is changing due to the level of firm's risk. Additionally, adding certain characteristics of firms, such as: being the small or large company, listed or not, belonging to certain industries, creates a perspective and horizon to be able to understand manipulation that changes over time.

Previous results (see Chapter 6) show two main tendencies in the earnings management of Eastern European countries: the first one is a decrease in manipulation between 2003 and 2007; and then between 2008 and 2009 a trend to increase in the level of earnings management. Consequently, we focus on factors and circumstances which may have influenced on managers to change the scope of earnings management over the years.

Our methodology contains the following steps. First, based on the large earnings management literature[7] we identify variables which may explain the changes in earnings management over time observed in Eastern European countries. Second, we define a lineal regression model to examine how each variable affects a firm's decision on managing earnings. In the lineal regression model the dependent variable is the absolute value of discretionary accruals because we want to measure the magnitude of manipulation without regard to its sign. We seek to determine whether the range of earnings management changes. In other words, to answer whether companies manipulate more or less over the time.

We estimate the coefficients of the variables by maximum likelihood using an ordinary least squares regression. The model is as follows:

[7] See Chapter 3

$$|DA| = \beta_0 + \beta_1 ADAPTEU_{34} + \beta_2 ADAPTEU_{56} + \beta_3 CYCLE + \beta_4 GDP_{it} + \beta_5 UNEMPLOY_{it} + \beta_6 SIZE_{it} + \beta_7 LISTED + \beta_8 INDUSTRY_1 + ... + \beta_{16} INDUSTRY_9 \quad (2)$$

The dependent variable, $|DA|$, is an absolute value of discretionary accruals of the firms, as mentioned. The explanatory variables are follow below:

- *ADAPTEU* variable represents two dummy variables which designate periods towards European Union membership. We differentiate three main periods: 2003-2004 is the preparation for EU membership; 2005 and 2006 the process of regulation into the European rules and standards; and 2007-2009 the period of stabilization and association in membership structures, which we called it: full membership period. For the $ADAPTEU_{34}$ 1 if the company's observation is from the period of 2003 and 2004 and 0 otherwise; for $ADAPTEU_{56}$ 1 if the company's observation is from the period of 2005 and 2006 and 0 otherwise.
- *CYCLE* is a dummy variable, 1 if the company's observation is from the period of 2008 and 2009 (the global financial crisis) and 0 otherwise;
- *GDP* is defined as the natural logarithm of Gross Domestic Product per capita of each country;
- *UNEMPLOYM* is the rate of unemployment in each country by each year;
- *SIZE* is the total assets scaled by assets from *t-1;*
- *LISTED* is a dummy variable equals 1 if firm is a listed company, 0 otherwise;
- *INDUSTRY* is a variable which designates nine dummy variables according to one digit SIC code, it takes values 1 if firm belongs to correspondent industry (Nr=1, …, 9), otherwise 0.

Consequently, we predict the sign of the coefficients of the variables. Finally, we may discover which factors and environmental circumstances affect firms that change the scope of earnings management over time.

8.3.1. VARIABLES DEFINITION AND PREDICTED SIGN OF THE COEFFICIENTS OF THE VARIABLES

The dependent variable is the absolute value of discretionary accruals of the firms. To explain that variable we include the following independent variables (Table 8.7).

Table 8.7: Variables definition and predicted sign of the coefficients of the independent variables

Variable	Definition	Expected sign
Dependent variable:		
$\|DA\|$	Absolute value of discretionary accruals	
Independent variables:		
ADAPTEU	The variable designates periods towards European Union structure incorporation. Three periods can be observed: 2003-2004 preparation for EU membership; 2005 and 2006 process of regulation into the European rules and standards; 2007, 2008 and 2009 full membership. Therefore, two dummy variables are introduced.	?
CYCLE	Economic cycle variable. A dummy variable, 1 if the company's observation is from the period of 2008 and 2009 (the global financial crisis) and 0 otherwise.	+
GDP	Gross Domestic Product per capita variable. A natural logarithm of GDP per capita of each sample countries. $lnGDP_t$	−
UNEMPLOYM	Unemployment variable. A rate of unemployment in each country by each year. $\%Unemploym_t$	+

* where *t* is a period from 2003 to 2009.

First, we include in our model the ***ADAPTEU* variable.** This variable represents the period leading up to European Union structure incorporation by Eastern European countries. The accession of Poland, the Czech Republic, Hungary and Slovakia to the European Union took place in May 2004. Therefore, we differentiate different possible periods that may have different influences on managers' decisions regarding earnings management. The first period of 2003-2004 designates a process of preparation for EU membership. Then a period of 2005 and 2006 which is associated

with the process of adaptation into European standards (moment of accession). Finally, the full membership period (process of stabilization in European Union structures) corresponds to the years: 2007, 2008 and 2009. Two dummy variables are introduced to the model, where the first dummy represents the preparation period of 2003-2004, and the second dummy variable designates the period of 2005-2006.

We do not expect positive or negative coefficients of these dummy variables as many compound elements influence on the sign of the coefficients of the variables. For one side, European Union membership may significantly limit earnings management because the new requirements and detailed norms of the European Union constrain the possibilities of such activities. According to previous studies, indeed, it is shown that detailed accounting standards may add value to accounting information (see studies of Bartov and Mohanram, 2004; Hung and Subramanyam, 2007; Barth, Landsman and Lang, 2008; Rudra and Bhattacharjee, 2012) and effectively, limit earnings management. As Rudra and Bhattacharjee (2012) point out different accounting standards are associated with different levels of earnings quality. Ewert and Wagenhofer (2005) explain that tighter accounting standards, and clearer rules increase earnings quality and confirm lower earnings manipulation in companies.

Nevertheless, managers from Eastern European countries may increment earnings manipulation so as to be able to fulfil European Union requirements. Introduction into European structures demands adjustment of accounting practice, even so, Eastern European companies are rather defined a by lack of flexibility of the decisions taken by managers, uniformity, and secrecy in practice accounting. Hence, they are more likely to choose earnings management.

To compete in the new wide-open and intensely competitive European market (European membership opens free market business negotiation between countries of Eastern and Western Europe) Eastern European countries are required to be highly competitive. Managers from Eastern European countries may try to improve their earnings to seem stronger over the years because accounting regulation permits the manager to make judgments. There are accounting gaps, possibility of selection accounting choices, etc. Managers can make certain choices in financial reporting. In theory, the company should select accounting methods and make estimations which best reflect the economical position of the company (Kempen, 2010). In practice this means that managers are able to choose methods and make estimations that do not reflect the

true economic position of the company but provide a more positive image (Healy and Wahlen, 1999).

In consequence, the sign of the relationship between the ADAPTEU variable and the scope of earnings management over years is questionable and, hence we do not predict it.

The ***CYCLE*** **(Economic cycle) variable** is our second variable. This variable has been introduced into our model to consider how the economic environment may influence our explanation of earnings management. To measure it, we use a dummy variable, 1 if the company's observation is from the period of 2008 and 2009 (the global financial crisis) and 0 otherwise. Literature confirms that fluctuations in the economy affect companies' activities. Firm's earnings fluctuations are correlated with economic cycles, see for example studies of Johnson (1999), Conrad, Cornell and Landsman (2002), Jin (2005), Cohen and Zarowin (2007), Khurana *et al.* (2006), Rajgopal, Shivakumar, and Simpson (2007), Chen (2010), among others.

Jin (2005), for example, shows that magnitude of earnings management fluctuations and its variation is affected by economic activity. In particular, he analyzes that the aggregate extent of earnings management is larger during recession then during expansion. The author explains this situation with the fact that, in very weak economic periods, managers tend to engage more in earnings manipulation. On the contrary, in very strong economic periods, managers may manage their earnings less (Jin 2005) (positive relation).

Conrad, Cornell, and Landsman (2002) and Cohen and Zarowin (2007) describe, as well, that during periods of crisis, managers manipulate earnings more to fulfil their companies' objectives. Managers may try to mitigate the effect of fluctuation of the markets because, as explained by Baulkaran and Asem (2012), the market reacts adversely to fluctuations of earnings. Based on the above literature, we predict a positive relationship between the level of manipulation and economic cycle. In periods of crisis more manipulation is expected.

We include two variables: **Gross Domestic Product variable (*GDP*) and unemployment variable (*UNEMPLOYM)*** to describe the macroeconomic conditions of Eastern European countries. The first variable we measure as a natural logarithm of

the Gross Domestic Product per capita of each sample. The second variable we measure as the rate of unemployment in each country. The macroeconomic performance of countries is an institutional factor that has been analyzed by authors in relation to earnings management, see for example, Robson (1996), Clayton and Giesbrecht (1997), Guenther and Young (2000), Leuz, Nanda and Wysocki (2002), Higson, Holly and Kattuman, 2002; Jin (2005), Tylsch 2009, Broadstock, Shu, and Xu (2011), among others.

Guenther and Young (2000), for example, confirm that the scope of earnings is influenced by economic activities. Broadstock, Shu, and Xu (2011) explain that the purpose of including macroeconomic information is to consider factors which may avoid subjectivity of managers' decisions, because the company's performance is also reflected by economic activity. Leuz, Nanda and Wysocki (2002) clarify that the macroeconomic environment can potentially affect firms. Differences in macroeconomic stability across different countries may systematically impact the variability of accounting earnings. Higson, Holly and Kattuman (2002) find evidence for the impact of changes in macroeconomic environment on different segments of companies (Higson, Holly and Kattuman, 2002), and in effect on firms' earnings management behaviour (Jiang, Fan and Fan, 2010; Bratten, Payne and Thomas, 2013). Robson (1996) points out that movements in the aggregate failure of a firm's activity may coincide with changes in macroeconomic performance, for example, uncertainty can induce growing firms to delay their decisions to invest in acquired capital (Dixit, 1989; Lambrecht and Myers, 2007).

Regarding the first variable, (GDP), many previous studies used this measure for business macroeconomic condition (see studies Fama, 1981; Veronesi, 1999, Chordia and Shivakumar, 2002; Johnson, 1999; Kothari, 2001, and Klein and Marquardt, 2006). We expect to find a negative relationship indicating that better local country markets may constrain earnings management (low level of earnings management is expected). Shen and Chih (2005) confirm that higher GDP per capita decreases the degree of earnings management. Chih, Shen and Kang (2007) point out that those richer countries are generally less likely to manage earnings.

On the other hand, the second variable was used by, for example, Broadstock, Shu, and Xu (2011) as a key variable in measuring macroeconomic conditions. We expect positive association between earnings management and unemployment, a high

rate of unemployment indicates a poor economic situation and may lead to higher manipulation over time (higher increasing or decreasing earnings). Prior studies explain that under the pressure of poor economic conditions, firms will be motivated to make accounting choices that give them advantages, mitigate the fluctuations caused by financial distress, or strengthen the picture of their financial position (see for example, Bernanke and Gertler, 1989; Kiyotaki and Moore, 1997; Lambrecht and Myers, 2007).

We also consider three control variables: **size of the company (*SIZE*), listed or non-listed status of the company *(LISTED),*** and **industry belongings (*INDUSTRY)**. For the explanation of control variables see previous section.

8.3.2. REGRESSION RESULTS

Table 8.8 provides the results of regression. Before a model is relied upon to draw conclusions or predict future outcomes, we should check that the model we have assumed is correctly specified.

The adjusted R^2 of the model is at the 13% level. This is a good result in terms of discretionary accruals models[8]. F-test, as well, confirms that the model is significant (F=302.788). We may observe that the coefficient on unemployment variable is insignificant. This indicates that the rate of unemployment is not significantly related to the scope of earnings management in Eastern European countries and it cannot explain observed changes in earnings management over time. Other variables show significant coefficients at 1% (most of the variables) and at 5%. Consequently, we present the influence of each independent variable on the scope of earnings management in Eastern European countries over time.

[8] Authors obtain similar results of adjusted R^2, see for example, Liu and Ziebart (1999) R^2=8.4%; Koh (2003) R^2=12.86%; Louis (2004) R^2=10.71%; Guan, Wright and Leikam (2005) R^2=11.06%; Bergstressera and Philippon (2006) R^2=8.2%; Liu and Lu (2007) R^2=7.48%.

Table 8.8: Results of ordinary least squares regression

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Significance
	B	Std. Error	Beta		
(Constant)	.036	.045		.786	.432
ADAPTEU34	.008	.003	.031	3.294	.001
ADAPTEU56	.001	.002	.003	.370	.711
CYCLE	.017	.002	.065	8.372	.000
GDP	-.009	.005	-.026	-1.905	.057
UNEMPLOYM	.000	.000	-.006	-.559	.576
LISTED	.012	.005	.012	2.198	.028
SIZE	.103	.002	.347	65.837	.000
INDUSTRY1	.014	.004	.034	3.736	.000
INDUSTRY2	.017	.003	.059	5.151	.000
INDUSTRY3	.006	.004	.014	1.665	.096
INDUSTRY4	.030	.003	.119	9.351	.000
INDUSTRY5	.015	.005	.019	2.958	.003
INDUSTRY6	-.003	.004	-.006	-.754	.451
INDUSTRY7	.028	.004	.043	6.179	.000
INDUSTRY8	.003	.004	.006	.667	.504
INDUSTRY9	.051	.008	.038	6.668	.000
Adjusted R^2	0.130				
F-value	302.788*				

$$|DA| = \beta_0 + \beta_1 ADAPTEU_{34} + \beta_2 ADAPTEU_{56} + \beta_3 CYCLE + \beta_4 GDP_{it} + \beta_5 UNEMPLOY_{it} + \beta_6 SIZE_{it} + \beta_7 LISTED + \beta_8 INDUSTRY_1 + ... + \beta_{16} INDUSTRY_9$$

ADAPTEU variable represents two dummy variables which designates periods toward European Union membership. *CYCLE* is a dummy variable, 1 if the company's observation is from the period of 2008 and 2009, 0 otherwise. *GDP* is defined as the natural logarithm of Gross Domestic Product per capita. *UNEMPLOYM* is the rate of unemployment. *SIZE* is the total assets scaled by assets from *t-1*. *LISTED* is a dummy variable equals 1 if firm is a listed company, 0 otherwise. *INDUSTRY* variable represents nine dummy variables according to one digit SIC code, it takes values 1 if firm belongs to correspondent industry (Nr=1, …, 9), otherwise 0.

*Significant at 1%

Source: The author.

The parameters of each variable in the regression are estimated by the method of maximum likelihood using an ordinary least squares regression. The results were as follows.

- ***Phases in the adaptation process to European Union*** *(ADAPTEU)*

We confirm that the process of European Union membership has indeed influenced on the existence of earnings manipulation. The results determine that there is a significant difference in terms of the scope of earnings management between different periods towards European Union membership. Interpretation of the above results for the

dummy variables involves a straight comparison of our three EU membership periods. Therefore, we may observe that the first period of preparation for EU accession (2003-2004) has a significantly important influence on the increment of the scope of earnings management over that period of time. The coefficient is positive and significant at 5%. It indicates that in effect circumstances of the first period towards EU membership may additionally stimulate managers to intensify earnings manipulation (manipulation to increase or decrease earnings). We may find several reasons.

First, companies from Eastern European countries before the European Union accession found it necessary to improve their strategic position. They were weaker, smaller, with fewer resources, and in consequence, less competitive than their Western European counterparts. Indeed they are still not at the same level as Western European countries (see details in Chapter 4). Gorynia (2005) explains that strategic position consists of the attractiveness of the markets in which firms operate and of the competence of those firms in the field of competitive potential. Therefore, they may increment the scope of earnings management over that period of time.

Another explanation may come from regulations and accounting rules. Before European Union membership local norms permitted more flexibility in terms of accounting (always taking into account fulfillment of tax regulations[9]) and managers' decisions. Kempen (2010) explains that managers make certain choices to better reflect the economic position of company. This is due to accounting regulation which permits the manager to make judgments and in practice to choose methods and estimations that do not reflect the true economic position of the company but provide a more positive image (Healy and Wahlen, 1999). Eastern European countries thanks to the growing prominence of business transparency, kept on introducing regulations and extending the scope and scale of the high quality of information for years. European Union membership influenced significantly in the development and adoption of more transparent regulations and control (see for example, Olson, 1992; Schopflin, 1994; Svendsen, 2003; Knack and Kisunko, 2011). Nevertheless, the period before EU membership may be characterized as transitional (less control, fewer detailed norms, among other factors).

Comparing our second period of 2005 and 2006 associated with the process of adaptation into the European Union structures to other two periods, we do not confirm

[9] Eastern European countries were strongly influenced by the tax regulations, see Chapter 4.

significant influence of that period on the increment of earnings management in our Eastern European countries (the variable is not significant). We may explain such a situation by the fact that during the period of adaptation managers of Eastern European countries may centre their attention on the fulfilment of European requirements, standards, and rules. European structures demand adjustment into accounting practice. Complying with strict and demanding regulation is a main task of managers. This is because detailed accounting standards add value to accounting information (Bartov and Mohanram, 2004; Hung and Subramanyam, 2007; Barth, Landsman and Lang, 2008; Rudra and Bhattacharjee, 2012).

Finally, the last period of full European Union membership represented by the dummy variable not included into the model (regression model always includes one less dummy variable than there are categories, otherwise multi-colinearity would be introduced into the model), shows a lower level of earnings management than the other two periods. The companies are fully-integrated into EU structure. Additionally, the control procedures in the EU are well developed and sophisticated. Therefore, manipulation may be significantly reduced. Finally, previous incentives related to EU accession are no longer observed, as companies are completely integrated into the EU structures.

Concluding, the ADAPTEU variable indicates that in Eastern European companies there is observed a decrease in earnings manipulation over time and over different phases in the adaptation process to European Union structure.

- ***Economic cycle variable*** *(CYCLE)*

The CYCLE variable shows a significant positive coefficient (0.017), which is consistent with our prediction. Changes in the scope of the earnings management of Eastern European firms are influenced by economic cycles. The positive sign of the coefficient of the variable indicates that periods of crisis period it is expected that managers will manipulate their earnings more (manipulate to increase or decrease). On the other hand, in healthier economic times a lower level of earnings management is predicted. Biddle, Gilles and Verdi (2008) point out that economic cycle, and loss capture factors are related to different stages of the business cycle, this may give rise to different discretionary accruals manipulation. As Bartov, Givoly and Hayn (2002) and Rajgopal, Shivakumar, and Simpson (2007) clarify firms respond to the positive and

negative economic changes. They have greater growth opportunities and the ability to take advantage of such opportunities (to manage their earnings more or less depending on the situation).

Therefore, in a period of crisis, when investors are pessimistic about earnings news, managers rely more on earnings management and report levels of earnings similar to previous periods (they may manipulate increasing earnings if they are not able to reach established earnings; or decreasing earnings if they are slightly above the expected to maintain, in effect a similar scope of earnings). This is partly due to increased worries about the potential loss of investors.

Conrad, Cornell, and Landsman (2002) describe, as well, that during periods of crisis, managers manipulate their earnings to fulfil their companies' objectives. Managers may try to smooth the effect of fluctuation (by increasing or decreasing earnings) of the markets because, as explained by Baulkaran and Asem (2012), the market reacts adversely to changes in earnings.

Besides, greater uncertainty in the operating environment naturally results in more substantial difficulties in managers' assessments of firms' business prospects (Hirshleifer 2001), performance, or earnings. Greater uncertainty also leaves more room for managers' activities. Hence, managers have the flexibility to express their imperfect business assessments through earnings management. The world financial crisis is an important example of an imperfect business environment. Managers of Eastern European firms exhibit greater manipulation of their earnings to cope with the instability of economic circumstances.

On the other hand, during better economic times less earnings management is observed because managers face lower incentives to do so. When the economy is up, business uncertainty is lower, and doing business is easier. This implies that lower earnings management should be most prevalent when the market is up, as firms attempt to take advantage of positive economic circumstances.

- ***Gross Domestic Product variable*** *(GDP)*

The coefficient of Gross Domestic Product variable is significant (at 10%) negative (-0.009), representing the fact that an Eastern European country's economic development affects managers' decisions to change the scope of earnings management over time. The sign is according to our prediction. A high level of local country markets

may constrain earnings management over years (lower manipulation to decrease or increase earnings). Shen and Chih (2005) explain that higher GDP per capita decreases the degree of earnings management. It is seen that a stronger economy can intuitively result in less earnings management. Chih, Shen and Kang (2007) point out that richer countries are generally less likely to manage earnings.

Other studies show similar results. Jin (2005), for example, analyses earnings management among countries and economic conditions (measured by GDP). He points out that the magnitude of earnings management fluctuates quarterly and its variation is predictable from real economic activity. In particular, he analyses that the aggregate extent of earnings management is bigger during recession then during expansion. Jin (2005) clarifies that in very strong economic periods, managers manage their earnings in terms of future purposes (Jin 2005). They may be managing more earnings up or down depending on the proposed objectives.

Tylsch (2009) analyses the influence of institutional factors on accounting practices. He focuses his interest on one specific external factor that may influence earnings management: the real economic performance of a country. He shows a negative association explaining that when the economy of a country is growing, the scope of earnings management decreases, and vice versa.

- ***Listed variable*** *(LISTED)*

Listed variable has a significant at 5% positive coefficient (0.012). It confirms that fluctuations over time in earnings management depend on whether the company is listed or non-listed. The positive sign indicates that listed Eastern European firms engage more in earnings management than non-listed companies. Additionally, taking into consideration previously obtained results, most listed Eastern European companies manage earnings to decrease them. This indicates that listed emerging Eastern European companies manage more earnings over years, but do so to decrease them.

Literature confirms that such behaviour can be connected with a firm's visibility. The threat of negative media publicity for listed companies may have a consequence for managerial practices (Bansal, 2005). Publicity generates pressure for firms to maintain stable development, earnings results and in consequence, the established image of the company. Second, in such a context, managers of listed companies may have motivations to manage more earnings (to decrease) to bolster their own job security by keeping some earnings for future periods, staying on in the job even

if they are no longer competent or qualified to run the firm. Hence, such behaviour of managers of listed companies can be related to the avoidance of reporting fluctuations in earnings that would result in damage to the image of the company or even dismissal of the manager (Fudenberg and Tirole, 1995).

- ***Size variable*** *(SIZE)*

Firm's size variable is correlated to managerial decisions and it indeed influences on changes in earnings management over time. The coefficient shows positive and significant value (0.103). Our results confirm that firm size should also be considered when explaining the changes in earnings management of Eastern European firms. We find that large firms have a higher level of earnings management and small Eastern European firms have a lower level of earnings management over time. Within the different reasons we stress some of them such as: large firms draw attention from the media, investors, regulators, regulation of the specific industry or corporation (Paiva and Costa, 2013). Therefore, large firms are more likely engage in earnings management for the purpose of their public visibility and political costs (Watts and Zimmerman, 1990). Large-sized firms face more pressures to meet or beat analysts' expectations year by year (Barton and Simko, 2002). They may be more able to do earnings management than small-sized firms as they have more experience obtained over many years of doing business (Kim, Liu, and Rhee, 2003). On the other hand, smaller companies face the contrary situation: lower pressure, no media expectations, lower information asymmetry, and no agency conflicts, among other reasons.

- ***Industry variable*** *(INDUSTRY)*

Firm industry is seen as an important variable influencing on changes in earnings management by Eastern European managers. We may observe that in almost all sectors the coefficient of the variables is significant. This means that fluctuations in earnings management over time may be explained to some extent by sector concern. The large body of literature confirms that a firm's industry is seen as an important variable in determining accounting choices, as explained before. This is because industry earnings performance is often used as a benchmark for evaluating member firms' performance (Antle and Smith, 1986; Gibbons and Murphy; 1990); firms' earnings information affects other firms' earnings decisions via intra-industry earnings

information transfer (Pyo and Lustgarten, 1990; Freeman and Tse, 1992); or firms are likely to delay their earnings announcement to observe other member firms' earnings and assess industry conditions (Park and Ro, 2004), among other reasons.

Additionally, belonging to a certain sector influences on changes observed in the scope of earnings management in Eastern European companies. A firm operating in one industry may show more/less manipulation than companies operating in other industries.

8.3.3. FACTORS THAT CAUSE FLUCTUATIONS IN EARNINGS MANAGEMENT OVER TIME IN EASTERN EUROPEAN FIRMS: SUMMARY

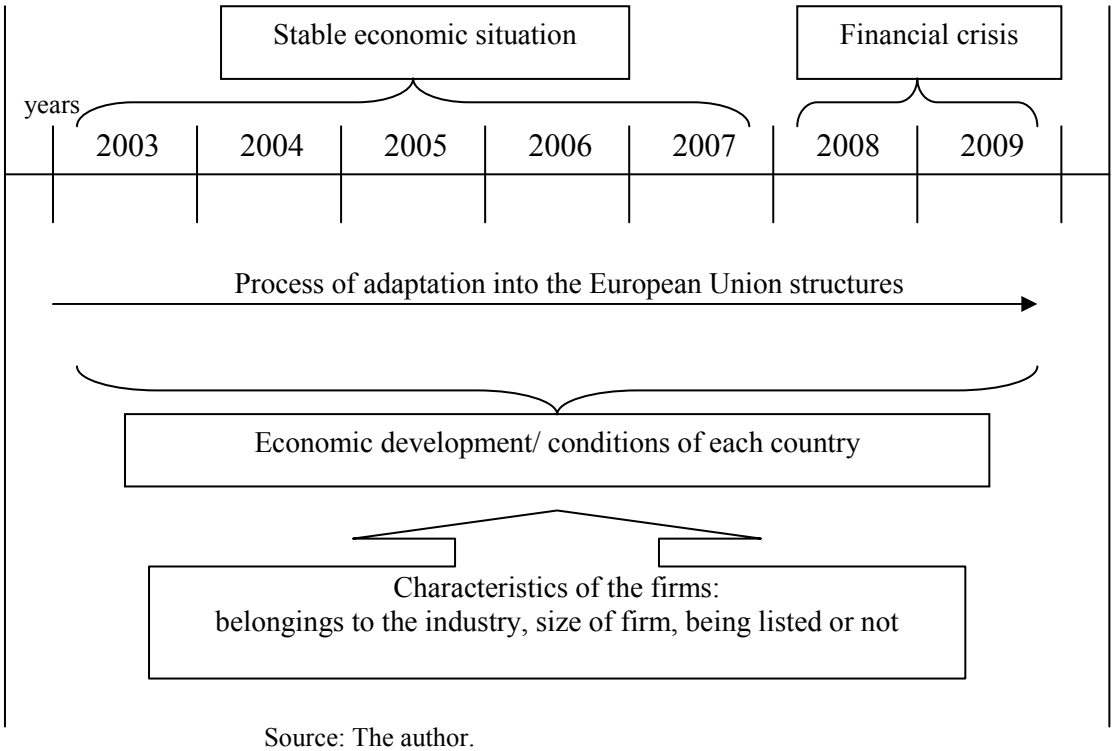
We confirm finding important factors that induce Eastern European managers to change the scope of earnings management over time. These changes are due to market fluctuations, additionally influenced by the environment of the companies and circumstances in which firms are operating. Furthermore, the general characteristics of firms (belongings to the industry, size, being listed or not-listed) also affect managers' decisions to change the scope of earnings management over years, see Figure 8.1.

The European environment is changing. Managers of Eastern European firms react to changes in their environment. They must respond to market variations. Managers try to cope with the fluctuations of the market and they respond to these fluctuations by changing the scope of earnings management. Moreover, we observe that there is not a sole factor that affects the decision to vary earnings management over time, but many factors, such as: preparation of Eastern European countries for European Union membership, financial crisis, economic conditions of Eastern European countries, or characteristics of firms.

Besides, within these changes of earnings management, we may find that some factors stimulate managers to manage more earnings over time (managers may manage earnings to increase them or to decrease them, as explained in the previous section), a range of factors influence on managers' decisions to limit to some extent manipulation over time.

Figure 8.1: Factors that cause fluctuations in earnings management

WE OBSERVE CHANGES IN EARNINGS MANAGEMENT AFFECTED BY FOLLOWING FACTORS



Source: The author.

We may observe that the dynamic European environment indeed affects the decisions of the Eastern European firms. Managers must respond to changes in the markets. In some situations they manage earnings more (higher level of manipulation) because circumstances stimulate them to do so. Financial crisis, preparation for European Union membership, or being a listed company all stimulate managers to intensify earnings management[10].

On the other hand, other circumstances limit managers' activities to manipulate their earnings over time. They still manage earnings but they do it less. A favorable environment, such as, a good economic situation in Europe, may induce managers to reduce earnings management[11]. Some certain characteristics of firms, for example, being a smaller, or non-listed company, may, as well, encourage managers of Eastern European firms to cut down the scope of earnings management (manage less to

[10] In the previous section we confirmed that most Eastern European companies manage earnings to decrease them. Therefore, when companies intensify earnings management, it means that they manage more to decrease earnings, for example, in a period of crisis companies boost the manipulation and to do it to decrease earnings, to "save" some of the retained earnings for a future period, as the unfavourable circumstances do not permit them to reach previously planned objectives, earnings' targets, etc.

[11] Manage less decreasing earnings as explained in previous section.

decrease earnings). This may result from less opportunity to do it, or simply, that the firms in such circumstances, have no need to manipulate their earnings.

Therefore, managers of Eastern European firms try to cope with the fluctuations of the market and changing circumstances. They respond to these fluctuations with variations in earnings management over time. As Lim, Ding and Thong (2008) explain a dynamic environment is a relevant factor for decision making. Kothari, Leone and Wasley (2005) point out, as well, that environmental uncertainty is likely to affect firms' performance.

In Chapter 6 we detected two main tendencies: the first one, a decrease in manipulation between 2003 and 2007; and then between 2008 and 2009 a trend to increase the level of earnings management. Certainly, within the period of 2008-2009 almost all factors and circumstances stimulated Eastern European managers to manage more earnings[12]. Financial crisis, worse economic conditions of countries confirm a tendency to increase the level of earnings management over these two years. The one exception that limits managers to engage in more earnings management is the process of adaptation into the European Union structures. As we have explained previously, it seems that progressive adaptation into the European Union helps to fulfil the established objectives and managers do not use so much earnings management. Nevertheless, in the combined scenery of the period of 2008-2009 it seems that unfavourable conditions and certain companies' characteristics created a tendency to increase the level of earnings management (as explained in Chapter 6).

Over the period of 2003-2007 we observe that the situation is slightly different and more complicated. The period is a long one, seven years. Therefore, many aspects and circumstances influenced managers' decisions to change the scope of earnings management over that period. Effectively, we detect many environmental factors that affect managers to reduce their earnings management activity (a stable economic situation in Europe, positive environmental conditions of Eastern European countries). However, we find other factors that in punctual moments within this period may stimulate managers to increase the scope of earnings management, for example, preparation for EU membership (2003-2004). Therefore, it is important to take into consideration that not single factor affected and influenced managers' decisions for

[12] Manage more to decrease earnings, see previous section.

earnings management, but a range of factors, circumstances, and characteristics of the environment.

8.4. INVESTIGATING INCENTIVES AND FACTORS EXPLAINING THE DIFFERENCES IN EARNINGS MANAGEMENT AMONG EASTERN EUROPEAN COUNTRIES

In Chapter 6 we observe significant differences in earnings management among Eastern European countries. Our four Eastern European countries give the impression of having the same conditions and circumstances, as post-communist countries, transitional into democracy and market-oriented economies, recently incorporated into European Union structures. Nevertheless, we find differences between them. Consequently, our research question focuses on the causes of existence of such differences in earnings management. We centre attention on incentives and factors which may drive managers of Eastern European companies to manipulate differently.

Our methodology contains the following steps. First, based on the large earnings management literature[13] we identify variables which may give explanation of existent differences in earnings management among Eastern European countries. Second, we use a regression model to examine the influence of each of the independent variables on changes in the scope of earnings management between Eastern European countries. In the lineal regression model the dependent variable is the absolute value of discretionary accruals because we want to measure the magnitude of manipulation without regard to its sign. We look to determine the range of earnings management changes among the different Eastern European countries. We estimate the coefficients of the variables by maximum likelihood using an ordinary least squares regression. The model is as follows:

$$\begin{aligned}|DA_{it}| = {} & \beta_0 + \beta_1 INVESTOR + \beta_2 LISTEDTOMEAN_t + \beta_3 MARKETCAPIT_t + \\ & + \beta_4 STRENGTHRIGHTS + \beta_5 ACCOUNTAX + \beta_6 FOREIGNINVEST_t + \\ & + \beta_7 OWNERSHIP_{it} + \beta_8 BOARD_{it} + \beta_9 LEGALENFORC + \beta_{10} YEARS_{it} + \beta_{11} SIZE_{it} \\ & + \beta_{12} LISTED + \beta_{13} INDUSTRY_1 + \ldots + \beta_{21} INDUSTRY_9 \qquad (3)\end{aligned}$$

[13] See Chapter 3

The dependent variable, $|DA|$, is an absolute value of discretionary accruals of the firms. The explanatory variables are:

- *INVESTOR* is an index of investor protection;
- $LISTEDTOMEAN_t$ is the number of listed companies in each country to the mean of total listed companies in all four Eastern European countries;
- $MARKETCAPIT_t$ is the market capitalization to the gross domestic product of each country;
- *STRENGTHRIGHTS* is an index which measures the strength of legal rights of lenders;
- *ACCOUNTAX* is a dummy variable taking value 1 if the firm observation is from Hungary or Slovakia, 0 otherwise;
- $FOREIGNINVEST_t$ is the relation between the value of net inflows in each country to the gross domestic product;
- $OWNERSHIP_{it}$ is the number of major shareholders in each company to the mean within each sample country;
- $BOARD_{it}$ is defined as the number of board members in each company to the mean within each sample country;
- *LEGALENFORC* is an index of legal enforcement;
- $YEARS_{it}$ is the age of the company to the mean of age of the firms in each sample country;
- $SIZE_{it}$ is a total assets scaled by assets from *t-1; i* is firm observation; *t* is a period of 2003 … 2009.
- *LISTED* is a dummy variable equals 1 if firm is a listed company, 0 otherwise;
- $INDUSTRY_{1...9}$ represents nine dummy variables according to one digit SIC code, it takes values 1 if firm belongs to correspondent industry (Nr=1, …, 9), otherwise 0.

Consequently, we predict the sign of the coefficients of the variables. Finally, we provide the results. We determine which incentives and factors explain the existent differences in earnings management among Eastern European.

8.4.1. VARIABLES DEFINITION AND PREDICTED SIGN OF THE COEFFICIENTS OF THE VARIABLES

The dependent variable is the absolute value of discretionary accruals of the firms. To explain this variable we include the following independent variables (Table 8.9). Selection of the variables is based on previous earnings management literature, as well as on the particular characteristics of Eastern European countries.

Table 8.9: Variables definition and predicted sign of the coefficients of the independent variables

Variable	Definition	Expected sign
Dependent variable:		
$\lvert DA \rvert$	Absolute value of discretionary accruals	
Independent variables:		
INVESTOR	Index of investor protection. The index is constructed based on the Leuz, Nanda, and Wysocki (2003), La Porta, *et al.* (2008) and DoingBusiness database (2012). It ranges values from 0 to 10.	–
LISTEDTOMEAN	Number of listed companies in each country to the mean of total listed companies in all four Eastern European countries. $\frac{Nrlisted_t}{Mean4Country_t}$	–
MARKETCAPIT	The market capitalization to gross domestic product of each country sample. $\frac{MarketCapit_t}{GDP_t}$	–
STRENGTHRIGHTS	Index of legal rights. The index is constructed based on the DoingBusiness database (2012). It ranges values from 0 to 10.	–
ACCOUNTAX	Accounting and tax connection variable. A dummy variable taking the value 1 if the firm-year observation is Hungary or Slovakia; 0 for Poland and Czech.	+
FOREIGNINVEST	A value of net inflows in each country to the Gross Domestic Product of the country. $\frac{ForeignInvest_t}{GDP_t}$	–
OWNERSHIP	The number of recorded major shareholders in each company to the mean of the number of shareholders within each sample country.	?

	$\frac{NrShareholders_t}{MeanNrSharehCountry_t}$	
BOARD	Number of boards' members in each company to the mean of members within each sample country. $\frac{NrBoard_t}{MeanNrBoardCountry_t}$	?
LEGALENFORC	Index of legal enforcement. The index is constructed based on three databases: World Economic Forum database (2012), World Justice Project database (2012), and Transparency International Index (2012). It ranges values from 0 to 10.	–
YEARS	Number of years of each company to the mean age of firms in each country. $\frac{NrYears_t}{MeanNrYearsCountry_t}$	?

* where *t* is a period from 2003 to 2009.
Source: The author.

Investor protection (*INVESTOR)* is the first variable considered. We investigate the relationship between country-level investor protection and earnings management because the literature confirms that investor protection has an important effect on earnings management. We measure it as an index of investor protection. Previous literature, Leuz, Nanda and Wysocki (2003), La Porta, *et al.* (1998), identified this variable as outside investor rights. They measured it as an aggregate measure of minority shareholder rights. It ranged from 0 to 5, where five designated strong investor rights. Nevertheless, their studies were constructed only for Western European countries (we investigate Eastern European countries), and they used data from 1990 to 1999, which are not sufficiently current for our investigation.

Therefore, we construct our investor protection index based on the dimensions of investor protection proposed by the above authors. The indicator distinguishes three dimensions of investor protections: transparency of related-party transactions[14], liability for self-dealing[15] (called by the literature as extent of director liability index) and

[14] This variable takes into consideration the following dimensions: whether the corporate body can provide legally sufficient approval for the transaction; whether immediate disclosure of the transaction to the public is presented; whether disclosure in the annual report is required; whether disclosure to the board of directors or the supervisory board is required; whether it is required that an external body, for example, an external auditor, review the transaction before it takes place.

[15] This variable takes into consideration the following dimensions: whether a shareholder applicant is able to hold liable for the damage the Buyer-Seller transaction causes to the company; whether a shareholder plaintiff is able to hold the approving body (the CEO, members of the board of directors, or members of

shareholders' ability to sue officers and directors for misconduct[16] (ease of shareholder suits index). All three dimensions range from 0 to 10, where the 0 indicates no transparency, no liability for self-dealing, no shareholders' ability to sue officers and directors for misconduct. On the other hand, the value 10 indicates perfect transparency, liability for self-dealing and ideal shareholders' ability to sue officers and directors for misconduct. To obtain the values of the index, we follow the study of La Porta, *et al.* (2008) and the Doingbusiness database (www.doingbusiness.org, 2012). Thus, we obtain the index, see Table 8.10.

Table 8.10: Investor protection index

	Transparency of related-party transactions (index 0-10)	Liability for self-dealing (index 0-10)	Shareholders' ability to sue officers and directors for misconduct (index (0-10)	**Strength of investor protection (index 0-10)**
Czech Republic	2	5	8	**5.0**
Poland	7	2	9	**6.0**
Hungary	2	4	7	**4.3**
Slovakia	3	4	7	**4.7**

Source: The author based on: Leuz, Nanda, and Wysocki (2003), La Porta, *et al.* (2008), DoingBusiness (www.doingbusiness.org, 2012).

Therefore, we define investor protection as the power to prevent managers from expropriating minority shareholders and creditors within the constraints imposed by law (see La Porta *et al.*, 2002; Leuz, Nanda, and Wysocki, 2003). Researchers have found that earnings management decreases in countries with stronger investor protection showing different arguments (see studies of: La Porta *et al.* 1998; Leuz,

the supervisory board) liable for the damage the transaction causes to the company; whether a court can void the transaction upon a successful claim by a shareholder plaintiff; whether damages are paid for the harm caused to the company upon a successful claim by the shareholder plaintiff; whether shareholder plaintiffs are able to sue directly or derivatively for the damage the transaction causes to the company.

[16] This variable takes into consideration the following dimensions: what range of documents is available to the shareholder plaintiff from the defendant and witnesses during trial; whether the plaintiff can directly examine the defendant and witnesses during trial; whether the plaintiff can obtain categories of relevant documents from the defendant without identifying each document specifically; whether shareholders owning 10% or less of the company's share capital can request that a government inspector investigate the Buyer-Seller transaction without filing suit in court; whether shareholders owning 10% or less of the company's share capital have the right to inspect the transaction documents before filing suit; whether the standard of proof for civil suits is lower than that for a criminal case.

Nanda, and Wysocki, 2003; Nenova, 2003; Dyck and Zingales, 2004; Shen and Chih, 2005; Boonlert-U-Thai, Meek and Nabar, 2006; Vries, 2012; Zhang and Uchida, 2014).

Leuz, Nanda, and Wyscoki (2003), for example, affirm that earnings management is expected to decrease in investor protection because strong protection limits insiders'ability to acquire private control benefits, which reduces their incentives to mask firm performance. Weak legal protection appears to result in poor-quality financial reporting, which likely undermines the development of strong financial markets (Leuz, Nanda, and Wysocki, 2003).

Nenova (2003) and Dyck and Zingales (2004) argue that legal systems protect investors by conferring on them rights to discipline insiders (e.g., to replace managers), as well as by enforcing contracts designed to limit insiders' private control benefits. As a result, earnings management is more pervasive in countries where the legal protection of outside investors is weak, because in these countries insiders enjoy greater private control benefits and hence they have stronger incentives to obfuscate firm performance (Leuz, Nanda, and Wysocki, 2003).

La Porta, *et al.* (1998) point out that strong investor protection may be a particularly important manifestation of the greater security of property rights against political interference. Shen and Chih (2005) show, as well, that earnings management declines in countries with stronger investor protection and more transparent accounting disclosure. Boonlert-U-Thai, Meek and Nabar (2006) also confirm the relationship between investor protection and earnings management in 31 countries from 1996 to 2002, and suggest that earnings management declined in countries where investor protection has progressed. Finally, Zhang and Uchida (2014) show that strong investor protection provides additional legal infrastructure by which firm-level corporate governance devices work well. In contrast, weak legal protection results in poor-quality financial reporting, and allows controlling shareholders to engage in earnings management to conceal expropriation problems (Zhang and Uchida 2014).

According to prior literature we expect negative sign of the coefficient of the variable. Companies in countries with high investor protection will use less earnings management compared to similar companies in countries with lower investor protection due to stricter regulations (Leuz, Nanda, and Wysocki, 2003).

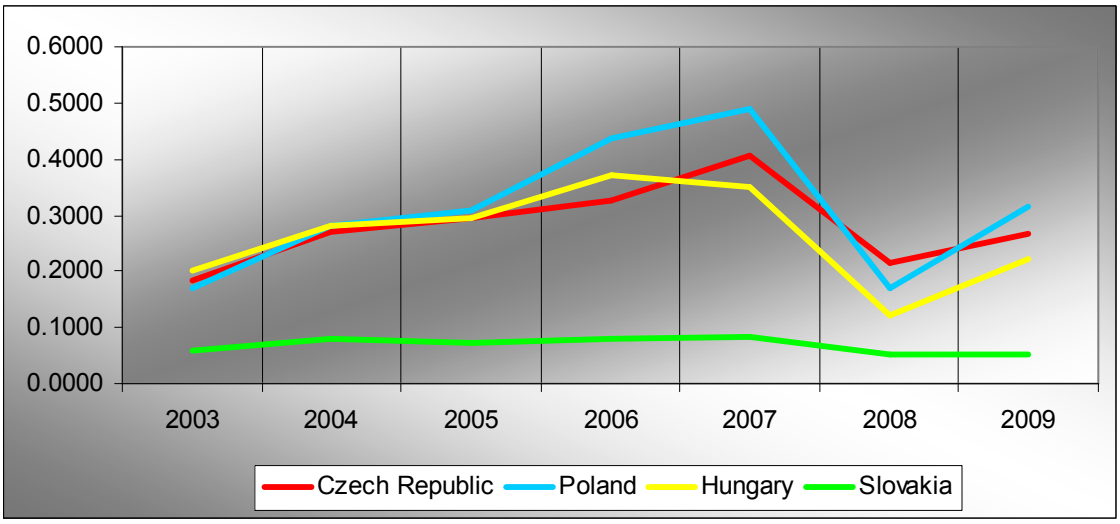
We include the *LISTEDTOMEAN* variable. It designates the **development of the capital market** in each of our sample countries. It is measured as a relation of the number of listed companies in each country to the mean of total listed companies in Eastern European countries. We include the variable because the literature shows that capital market efficiency indeed affects earnings management of firms.

Cheng and Hsueh (2012) find, for example, that a stable capital market keeps managers allocating resources, while at the same time reducing opportunities and managers' motivation to manipulate earnings (Cheng and Hsueh, 2012). Eastern European countries capital market is quite small compared to Western European countries. However, they are considerably growing. This is due to positive impulses from the European Union membership, globalization, market liberalization, etc.

Nevertheless, Eastern European countries need still to develop their capital markets. By introducing this variable we attempt to answer if the role of capital markets in the new market economies of each of our Eastern European countries has an important influence on managers' decisions. Alternatively, will the development of capital markets encourage managers of enterprises to undertake earnings management? According to the literature, we expect negative sign of the coefficient of the variable. In countries with better developed markets firms will engage less in earnings management (Leuz, Nanda and Wysocki, 2003).

We also consider **market capitalization variable** (*MARKETCAPIT*). This is measured as market capitalization to the gross domestic product of each country sample. Doing direct comparisons between the emerging markets of developing countries (Eastern European countries) over years may help to compare the environment in which companies are operating. Although the value of a business does not change immediately, it can be interesting to observe the effect of growth of country markets. Figure 8.2 presents the evolution of the market capitalization of Eastern European countries. We may observe slight differences between countries; hence, we are interested in whether these changes may influence the differences in earnings management among Eastern European countries.

Figure 8.2: Market capitalization index over years in Eastern European countries (relation of market value to gross domestic product)



Source: The author.

Companies highly depend on the development and conditions of country market capitalization. Kothari, Mizik, and Roychowdhury (2012) explain that managers are expected to exercise their judgment to determine the best course of action given the economic circumstances. This provides managers incentives to engage in earnings management activities. Companies operating in better market conditions tend to have more assets, capital and higher revenues than those with lesser market capitalization (Hamel, 2013). This is because countries' market development improve the climate for capital inflows by pursuing macroeconomic stabilization, better business environments, and stronger institutional and economic fundamentals (Torre and Schmukler, 2006). Firms in countries with higher levels of capitalization are frequently better organized in terms of financial condition. It is also expected that a positive environment may help them to be more stable and solid companies, and in consequence, they will manage their earnings less.

Beasley *et al.* (2000) explain that firms operating in well developed markets (in a sense of high level of market capitalization) are more likely to design and maintain sophisticated and effective internal control systems in comparison to smaller and weaker firms, in effect reducing the likelihood of earnings manipulation by management. Kim, Liu, and Rhee (2003) also demonstrate that reliable and strong, well-established companies generate reliable and timely information compared to firms with lower levels of capitalization.

Hence, we expect that companies operating in highly developed and capitalized countries' markets manage their earnings (be it to increase or decrease earnings), as a country's environment creates more opportunities to have a competitive advantage. Therefore, companies have less incentives for earnings management (negative predicted sign).

The strength of legal rights of lenders is another variable considered in our model (*STRENGTHRIGHTS*). We measure the strength of rights based on the index proposed by business database Doingbusiness (http://www.doingbusiness.org/ 2012). The index measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending. The index ranges from 0 to 10, with higher scores indicating stronger legal rights. Table 8.11 presents the index values for Eastern European countries.

Table 8.11: Index of strength of legal rights

Country	2003	2004	2005	2006	2007	2008	2009
Czech Republic	7	7	7	7	7	6	6
Poland	8	8	8	8	8	8	9
Hungary	7	7	7	7	7	7	7
Slovakia	8	8	8	8	8	8	8

Source: DoingBusiness database (http://www.doingbusiness.org/ 2012).

We include this variable because we think that, as Djankov, McLiesh, and Shleifer (2007) explain, less developed countries, with poorly functioning legal systems, might be unable to sustain an effective lending channel based on ex-post creditor rights. They may depend on information sharing for their credit markets to function. In contrast, richer countries might develop more functional systems of bankruptcy, so that lender power can be particularly important in these countries (Djankov, McLiesh, and Shleifer, 2007) and in effect a lower level of earnings management may be observed.

Eastern European countries are still less developed in the ongoing process of growth. This is because, countries with a higher degree of creditor and lender protection can be expected to enjoy deeper debt markets since they can take advantage of mitigated problems derived from information asymmetries, reduced market instability and reduced financial constraints (Galindo and Micco, 2003), including reduced incentives for earnings management.

Lenders rely extensively on data from financial statements for the evaluation of a firm financial standing and credit rating. Hence, the level of the lenders' protection may affect managers' decisions for earnings management as lower protection creates a greater problem of asymmetric information and will increase risk. Greater risk would further increase incentives for earnings management (Fonseca and Gonzalez, 2008).

Although previous studies have barely analyzed the influence of creditor rights on earnings management we predict a negative coefficient, as mentioned. This means that the better legal rights of lenders, the less earnings management is expected. The predicted sign is according to the study of Fonseca and Gonzalez (2008) who assumed stronger creditor rights would reduce incentives to manage earnings.

The accounting and tax connection variable (*ACCOUNTAX*) is a variable which explains the connection of the accounting practice and tax requirements. We measure it as a dummy variable which takes the value 1 if the firm-year observation is Hungary or Slovakia; 0 for Poland and Czech. Authors explained that it is reasonable to believe that the tax environment in which a firm is involved, is a strong stimulus for discretionary judgment by managers in financial statements (e.g. Chen, and Daley, 1996; Beatty and Harris, 1998; Badertscher *et al.,* 2009; Dharmapala and Desai, 2009). This is because even though the trend (and need) toward international accounting homogenization has been increasingly recognized (see, for example, Ball and Shivakumar, 1995, Danaher and Hunt, 2001, Goldberg *et al.*, 2006), the behaviour of accounting measures across countries is still quite dissimilar because of differences in business or tax regulations (Biscarri and Espinosa, 2007). Hence, we include the variable.

Earnings management studies point out that if accounting practice in the country is strongly aligned with tax practice a higher level of earnings management is expected in firms from this country. This is because managers will try to meet the tax requirements according to companies' objectives. In contrast, in countries where tax regulation does not influence financial reporting, earnings management is lower (see for example studies of Hermann and Inoue, 1996; Darrough, Pourjalali and Saudagaran, 1998; Coppens and Peek, 2005; Burgstahler, Leuz and Hail, 2006; Caramanis and Lennox, 2008; Muramiya and Takada, 2010).

Caramanis and Lennox (2008) explain this phenomenon through the importance of tax laws for firms from these countries, where accounting practice is strongly aligned with tax practice. More tax pressure, higher levels of influence on accounting information is observed to fulfil fiscal regulations. Coppens and Peek (2005) show likewise that tax incentives have a stronger influence on financial statements in countries where accounting practice is strongly aligned with tax practice, for example, when tax accounting rules follow financial accounting rules.

Some authors point out that within Western European countries we may observe "investor oriented" countries (for example, UK) and countries focus on the fulfilment tax requirements (see for example, Germany). We may, as well divide Eastern European countries in these two main groups. Literature explains that Poland and the Czech Republic represent countries with a perspective focused more on "investor oriented" directives (see studies, Jaruga, Walinska and Baniewicz, 1996; Vellam, 2004; Sucher and Jindrichovska, 2004; Mackevicius, Strouhal and Zverovich, 2008). On the other hand, Slovakia and Hungary are much more orientated towards the connection of the accounting and taxation system.

Our dummy variable takes 1 if the firm-year observation is from countries with strongly aligned tax practice (Hungary and Slovakia), so we expect a positive relationship between accounting and tax connection variable and earnings management. This means that the higher tax connection between the accounting practice and tax requirements, the higher the level of predicted earnings manipulation.

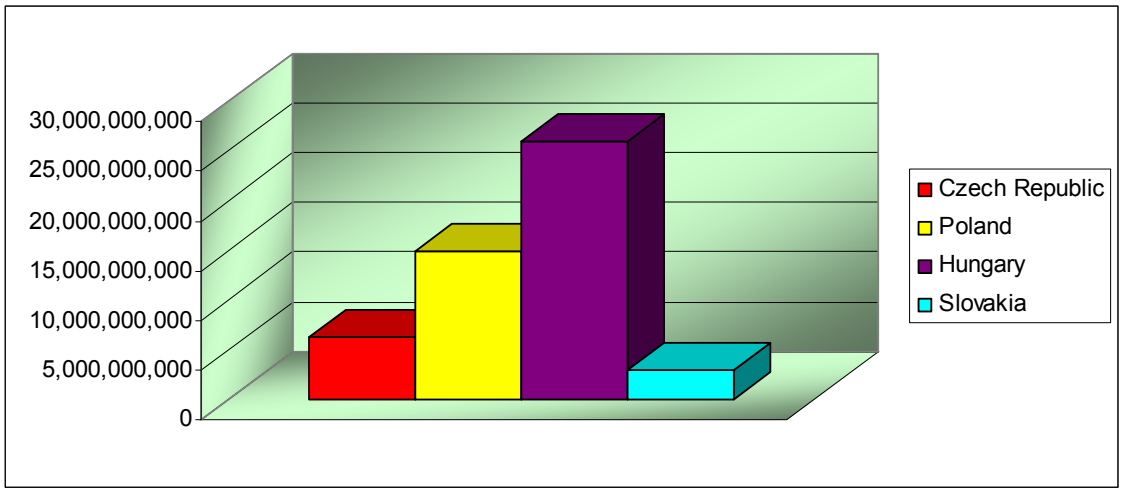
The foreign investment variable (*FOREIGNINVEST)* specifies a positive symptom of foreign investments in a country and influences on managers' decisions regarding earnings management. We measure the variable as a value of net inflows of foreign investment into a country to the Gross Domestic Product. Guo, e*t al.* (2014) identify foreign investments as a factor in controlling earnings management. Foreign investments bring investors and improve economic growth, as well as raising the level of accounting information. Errunza (2001) and Hunter (2005) show, as well, that indirect barriers may arise from different elements (available information, accounting standards, investor protection), including differences in foreign investments, which may result in further information asymmetry and in effect in earnings manipulation.

Additionally, according to Raphel and Winter-Ebmer (2001), foreign investments are likely to attract well-governed firms. Well-governed companies are normally characterized by high information quality, and high transparency. Bekaert and Harvey (2003) and Kohers, Kohers and Kohers (2006) confirm that companies from developed and growing countries are better in attracting higher volumes of foreign equity portfolio flows, and as a consequence may offer better information quality, etc. Leuz, Lins and Warnock (2009) state additionally that foreign investments are carried out in firms in strong investor protection countries, because investors are willing to invest in countries where they have greater confidence in the quality of investor protection, transparency of accounting numbers, etc.

Koh (2007) highlight that foreign investors play a prominent role in improving firm-level governance, as foreign investors from "good governance" countries are found to have an advantage when serving as monitors in "poor governance" countries. Specifically, foreign investors can promote the corporate governance of local firms through either direct monitoring by using their voting rights to influence managerial decisions or indirect monitoring by threatening to divest their investments in local firms (Gillan and Starks 2003; Aggarwal *et al.* 2011).

We may perceive in Figure 8.3 that Eastern European countries show important differences in terms of inflows of foreign investments. Figure 8.3 presents mean values of foreign investments over the period of 2003-2009.

Figure 8.3: Foreign investments of Eastern European countries (mean values over 2003-2009 in $)



Source: Doingbusiness database (http://www.doingbusiness.org/ 2012).

In consequence, we include the variable. We expect negative sign of the coefficient of the variable as the higher foreign investment, the lower manipulation is expected.

We also introduce **the ownership variable** (*OWNERSHIP*). In order to examine the ownership structure of Eastern European firms, we focus on the number of major shareholders[17] for each of our sample countries, as provided in the Amadeus database. In particular we define the variable in a number of recorded major shareholders in firms to mean number of recorded major shareholders in firms within each country sample. As Thomsen and Pedersen (2000) and Roodposhti and Chasmi (2011) explain ownership concentration can be measured as the existence and number of shareholders in firms and in effect their influence on managers' decisions.

Earnings management literature considers ownership structure as an important managers' monitoring mechanism. They may have a monitoring role in constraining the existence of earnings management. Extent literature suggests two different views in relation to the expectation for firms in terms of ownership concentration.

On one side, some studies suggest that ownership concentration is negatively related to earnings management. This indicates that higher ownership concentration improves the quality of managerial decisions. This is because the presence of a small number of holders leads to closer monitoring of management, implying less opportunity for earnings manipulation. Managers of firms that are highly concentrated tend to be highly monitored (see for example, Ramsey and Blair, 1993; Dempsey, Hunt and Schroeder, 1993; Warfield, Wild and Wild, 1995; Dechow, Sloan and Sweeney, 1996; Jiambalvo, 1996, Yeo *et al.*, 2002). Ali, Salleh and Hassan (2008) explain that managerial ownership is found to be an effective monitoring mechanism, particularly in small firms. This result may suggest that managerial ownership should be encouraged in small firms so that it can substitute for the weakness of other corporate governance mechanisms.

However, other studies document evidence suggesting that ownership concentration may actually induce earnings management (e.g Morck, Scheifer, and Vishny, 1988; McConnell and Servaes, 1990; Aharony, Lee and Wong, 2000; Wang Xu

[17] Major shareholder is defined as a person or entity that owns more than 5% of a company. The majority shareholder is often the founder of the company, or in the case of long-established businesses, the founder's descendants.

and Zhu, 2001; Abdoli, 2011; Halioui and Jerbi, 2012). The argument here is that large shareholders have the capacity to pressure managers to increment earnings manipulation (increasing or decreasing earnings) so that their expected market value is obtained. Other studies, Djankov, *et al.* (2008), and Leuz, Nanda, and Wysocki (2003), explain that entrenched controlling owners are less subject to stock market discipline and governance input by shareholders, and thus have substantial discretion in pursuing their own interest rather than the company's (Djankov, *et al.* 2008). As a result of this, "...the opportunistic activities of entrenched controlling owners will eventually harm the health of the company, but as the same owners also control the preparation of financial statements, which are the primary means of communicating corporate financial information. They will try to hide the company's real economic situation by earnings management" (Leuz, Nanda and Wysocki, 2003). In these circumstances, the lower the ownership concentration, the more earnings management is expected.

As a consequence, there is no consensus in terms of relationship between managerial ownership and earnings management, so we do not predict the sign of the coefficient of the variable. Moreover, we find that Eastern European countries show mostly very high ownership concentration (we measure it as a number of major shareholders' members). This is because they are mostly small and medium size firms[18]. Additionally, we also identify that Eastern European countries slightly differ in terms of ownership concentration. Therefore we include the variable to evaluate the impact of ownership concentration on the existence of differences in managing earnings among Eastern European firms.

We include, as well, **board variable** (*BOARD)* to measure the impact of boards in constraining earnings management. We define the variable as the number of boards' members in each company to the mean of members in each country. Previous empirical studies usually demonstrate negative association between the existence of boards and board effectiveness in constraining earnings management. It is important that the board of directors carry out its monitoring role effectively in order to ensure that financial reporting provides quality information to users by reflecting the proper underlying economic substance of company transactions.

[18] For details, see chapter 4.

Several characteristics of boards of directors must be considered if we are to explain the role of boards in companies. Prior research in the area of the relationship between the board of directors and earnings management pointed out different views, such as the effect of board composition, board size, board ownership, or duality status of the chairman and Chief Executive Officer. The effect of board composition, for example, has been tested in numerous studies, see for example Rosentein and Wyatt (1990), Gilson and Kraakman (1991), Beasley (1996), Barnhart and Rosenstein (1998), Dalton *et al.* (1999), Klein (2002), Saleh, Iscandar and Rahmat (2005). The relationship between the board size and earnings management was investigated by Chaganti, Mahajn and Sharma (1985), Pierce and Zahra (1992), Jensen (1993), Yermack (1996), Eisenberg, Sundgren and Wells (1998). The relationship between board ownership and earnings management we may find in studies of Demsetz and Lehn (1985), Warfield, Wild and Wild (1995), Saleh, Iscandar and Rahmat (2005), Braun and Sharma (2007). Finally, duality status of the chairman and Chief Executive Officer and its influence on earnings management is presented in studies of Weisbach (1988), Fizel and Louie (1990), Berger, Ofek and Yermack (1997), Saleh, Iscandar and Rahmat (2005).

In the complexity of the characteristics of the board of directors we focus on board size as a variable to measure the effectiveness in monitoring and constraining earnings management. Analyzing all of a board's characteristics is beyond the scope of our investigation and would not provide additional conclusions[19].

On one side, some empirical findings indicate that smaller boards are commonly considered more effective monitors than larger boards, see studies, Byrd and Hickman (1992), Jensen (1993), Yermack (1996), Eisenberg, Sundgren and Wells (1998), Vafeas (2000), Liu (2012), among others. They explain that larger boards are likely to hinder the flow of information between corporate directors. Smaller boards are more compact and better monitors, and are more effective because they have less difficulty coordinating efforts (Jensen, 1993). Eisenberg, Sundgren and Wells (1998) add that a smaller board may be less encumbered with bureaucratic problems, may be more functional and may provide better financial reporting oversight.

Alternately, other studies point out contrary results. A larger board may be able to draw from a broader range of experience (Xie, Davidson, and DaDalt, 2003). A larger board may also be more likely to have independent directors with corporate or financial

[19] It is as well limitation of our data base.

experience. If so, a larger board might be better at preventing earnings management (Xie, Davidson, and DaDalt, 2003). Larger boards are also claimed to have information and expertise advantage over smaller boards (Pierce and Zahra 1992). Consequently, no prediction on the sign of the coefficient of the variable is made.

Additionally, we observe that there are differences in the number of board members in companies from different Eastern European countries which can be relevant. Hence, we include the variable to explain the effect of board size on earnings management, as authors underline the importance of boards in constraining the management of earnings.

The legal enforcement variable (*LEGALENFORC*) is included in order to test its impact on earnings management. We measure the variable using an index based on three legal variables: (1) the efficiency of the judicial system, (2) an assessment of the rule of law, and (3) the corruption index. All three variables range from zero to ten, where 0 indicates weak and 10 indicates strong legal enforcement, see Table 8.12.

Table 8.12: Legal enforcement index for Eastern European countries

	Rule of law index	*Legal Efficiency System index*	*Transparency index*	***Legal Enforcement Index (mean of 3 variables)***
Czech Republic	7.1	4.1	4.4	**5.2**
Poland	7.8	4.7	5.5	**6.0**
Hungary	6.3	4.0	4.6	**5.0**
Slovakia	7.0	3.4	4.0	**4.8**

Source: World Economic Forum database (http://www.weforum.org/, 2012);
World Justice Project database (http://worldjusticeproject.org/, 2012);
Transparency International Index (www.transparency.org, 2012).

This index was first proposed by Leuz Nanda, and Wysocki (2003) and La Porta *et al.* (1998) (these are widely cited studies in terms of legal enforcement). They proposed their legal enforcement index as a mean score across these three legal variables. Nevertheless, their study analyzed only Western European countries, and they used data from 1990 to 1999, which is outdated in terms of our study. To be able to obtain the partial means proposed by Leuz, Nanda, and Wysocki (2003) and to measure the legal enforcement index, we use three different databases. The efficiency of the judicial system variable (1) is obtained from the World Economic Forum database (http://www.weforum.org/, 2012). An assessment of the rule of law (2) is taken from the

World Justice Project database (http://worldjusticeproject.org/, 2012). And finally, the corruption index (3) is based on the Transparency International Index (www.transparency.org, 2012). Thereby, we obtain the legal enforcement index.

Literature points out that legal enforcement has an important impact on the quality of financial reporting, and on the existence and scope of earnings management. Rahman (2000) documents that the quality of both accounting standards and enforcement mechanisms impact the quality of accounting information. Hope (2003) argues that in the absence of adequate legal enforcement, even the best accounting standards will be unimportant. If nobody takes action when rules are breached, the rules remain requirements only on paper. In consequence, effective legal enforcement is found to impact not only the quality of financial statements but also the degree of earnings management (Leuz, Nanda, and Wysocki, 2003). Therefore, higher levels of legal enforcement mitigate financial reporting incentives (Ball, Kothari and Robin, 2000).

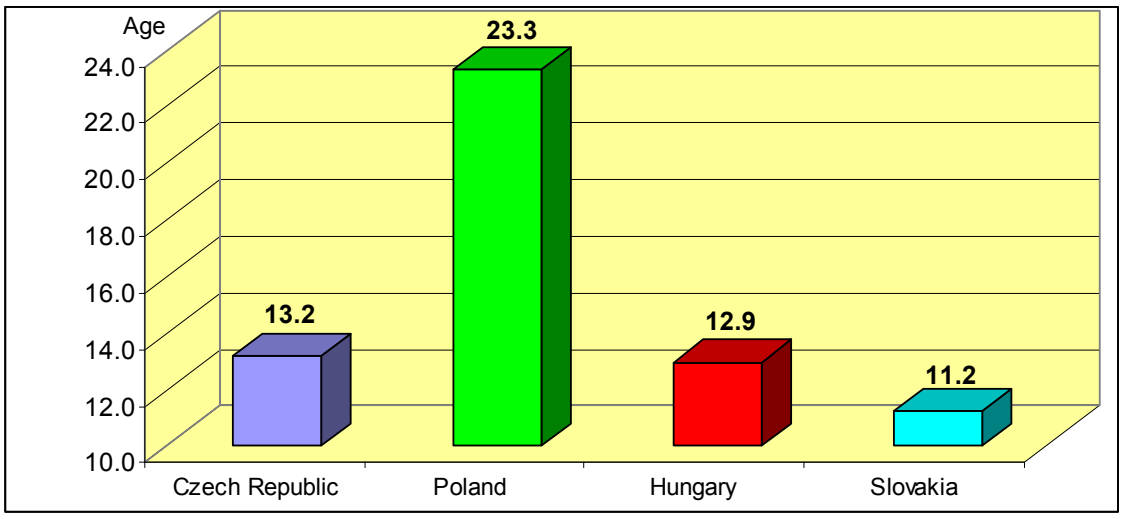
A large literature indeed confirms the positive impact of legal enforcement on the reduction of earnings management. Leuz, Nanda, and Wysocki (2003), for example, show that strong legal enforcement limits the ability of insiders to acquire private information that leads to a decrease in management incentives to hide firm performance. Ewert and Wagenhofer (2005) find that legal enforcement decreases earnings management and increases reporting quality. Cai, Rahman, and Courtenay (2012) state that earnings quality is positively influenced by legal enforcement, and hypothesize that the stronger the legal enforcement, the greater will be the influence on the reduction of earnings management. Burgstahler, Hail, and Leuz (2006) point out that earnings management is more pervasive in countries where the legal protection of outside investors is weak, because in these countries insiders enjoy greater private control and hence have stronger incentives to confuse firm performance.

Bonetti and Bozzolan (2012) show that weak legal enforcement makes firms compensate and manage their earnings. Lang, Smith and Wilson (2006) explain that potentially worsen effect of legal enforcement, increments the incentives to manage earnings. Cimini and Mechelli (2013) as well confirm that earnings management decline in countries with higher level of legal enforcement. Finally, a lack of enforcement mechanisms, might tempt auditors to compromise their independence and

hence, neglect to constrain earnings management or issue a qualified opinion when necessary (Tandeloo and Vanstraelen, 2008). Therefore, in line with previous studies we expect negative sign of the coefficient of the variable. Higher levels of legal enforcement will constrain earnings management incentives.

We consider also the *YEARS* variable which designates the operating years of the company on the market (**age of the firm**). We measure the variable as the number of years of each firm to the mean age of firms in each sample country. We may observe in Figure 8.4 differences in age between Eastern European firms. Companies from Poland, for example, are almost twice as old as other Eastern European countries. Slovakian firms seem to be the youngest within our country sample firms, among other differences.

Figure 8.4: Age of Eastern European firms (mean by country)



Source: The author.

According to the literature, there are rather mixed results in terms of predicted sign and age of the firm. On one side, younger and less experienced companies are more likely to manage more earnings, as their management and accounting systems become less established, they have limited resources or they are more likely to be liquidated due to their early stage of operating on the markets (Lee and Masulis, 2011). Therefore, they may decide to improve their earnings (Fan, 2007; Lee and Masulis, 2011; Chiraz and Anis, 2013).

On the other side, older firms are normally well-established, therefore they have more incentives and more opportunities to engage in earnings management activities to fulfil market expectations, or previously settled targets (Habbash, Xiao, Salama, Dixon, 2014)[20]. We have no prediction on the coefficient of the variable.

Finally, we include three control variables, the same as in previous sections (to control the **size effect**, **being listed, firm's industry**).

8.4.2. REGRESSION RESULTS

Table 8.13 provides the results of regression. The adjusted R^2 of the model is at 13.1% level. This is a good result in terms of discretionary accruals models. F-test, as well, confirms that the model is significant (F=234.457). We may observe that coefficients on two of our variables: *LISTEDTOMEAN* variable and *STRENGTHRIGHTS* variable are not significant. This indicates that we do not find a significant relationship between the development of capital markets of Eastern European countries and earnings manipulation. Additionally, it seems that the degree of creditor and lender protection in Eastern European firms is also not significantly related to earnings management and does not explain the differences among Eastern European countries in terms of managers' decisions regarding earnings management. Other variables show significant coefficients at 1% (most of the variables) and at 10% (one variable). Consequently, we present the influence of each independent variable on the existent differences in managing earnings among Eastern European countries.

[20] For details see previous section.

Table 8.13: Results of ordinary least squares regression

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Significance
	B	Std. Error	Beta		
(Constant)	-.112	.023		-4.978	.000
INVESTOR	-.033	.010	-.148	-3.272	.001
LISTEDTOMEAN	-.001	.002	-.006	-.406	.685
MARKETCAPIT	-.054	.007	-.046	-7.233	.000
STRENGTHRIGHTS	-.003	.002	-.017	-1.406	.160
ACCOUNTAX	.008	.005	.017	1.767	.077
FOREIGNINVEST	-.070	.018	-.025	-3.922	.000
OWNERSHIP	.004	.001	.030	5.655	.000
BOARD	-.005	.001	-.023	-4.264	.000
LEGALENFORC	.054	.011	.192	4.799	.000
YEARS	-.002	.001	-.018	-3.332	.001
SIZE	.102	.002	.345	65.710	.000
LISTED	.013	.006	.013	2.391	.017
INDUSTRY1	.008	.004	.019	2.061	.039
INDUSTRY2	.011	.003	.039	3.303	.001
INDUSTRY3	.001	.004	.003	.393	.694
INDUSTRY4	.025	.003	.097	7.454	.000
INDUSTRY5	.010	.005	.013	2.003	.045
INDUSTRY6	-.007	.004	-.014	-1.793	.073
INDUSTRY7	.023	.005	.035	5.029	.000
INDUSTRY8	-.002	.004	-.004	-.422	.673
INDUSTRY9	.047	.008	.035	6.112	.000
Adjusted R^2	0.131				
F-value	234.457*				

$$|DA_{it}| = \beta_0 + \beta_1 INVESTOR + \beta_2 LISTEDTOMEAN_t + \beta_3 MARKETCAPIT_t + \beta_4 STRENGTHRIGHTS + \beta_5 ACCOUNTAX + \beta_6 FOREIGNINVEST_t + + \beta_7 OWNERSHIP_{it} + \beta_8 BOARD_{it} + + \beta_9 LEGALENFOR C + \beta_{10} YEARS_{it} + \beta_{11} SIZE_{it} + \beta_{12} LISTED + + \beta_{13} INDUSTRY_1 + ... + \beta_{21} INDUSTRY_9$$

$INVESTOR$ is an index of investor protection; $LISTEDTOMEAN_t$ is the number of listed companies to the mean of listed companies in all Eastern European countries; $MARKETCAPIT_t$ is market capitalization of each country to the gross domestic product of each country; $STRENGTHRIGHTS$ is an index of strength of legal rights of lenders; $ACCOUNTAX$ is a dummy variable taking value 1 if the firm observation is from Hungary or Slovakia, 0 otherwise; $FOREIGNINVEST_t$ is the relation of value of net inflows of each country to the gross domestic product; $OWNERSHIP_{it}$ is the number of major shareholders in each company to the mean within each sample country; $BOARD_{it}$ is the number of board members in each company to the mean within each sample country; $LEGALENFORC$ is an index of legal enforcement; $YEARS_{it}$ is a age of the company to the mean of age of the firms in each sample country; $SIZE_{it}$ is a total assets scaled by assets from *t-1; i* is firm observation; *t* is a period of 2003 … 2009; $LISTED$ is a dummy variable equals 1 if firm is a listed company, 0 otherwise. $INDUSTRY_{1...9}$ variable represents nine dummy variable according to one digit SIC code, it takes values 1 if firm belongs to correspondent industry (Nr=1, …, 9), otherwise 0.

*Significant at 1%

Source: The author.

The parameters of each variable in the regression are estimated by the method of maximum likelihood using an ordinary least squares regression. We describe the results as follows.

- ***Investor protection*** *(INVESTOR)*

The investor protection variable has a significant at 5% negative coefficient (-0.033) consistent with our prediction. This confirms that investor protection is becoming an important aspect in explaining the differences in the scope of earnings management among Eastern European countries, as we observe important variations in the level of investor protection between countries. La Porta *et al.* (1998) confirm that there is considerable variation in the legal regimes across countries. They found that certain countries afford greater investor protection than others (the differences in investor protection are also observed it in terms of our four Eastern European countries).

Additionally, the negative sign indicates that stronger investor protection leads managers to decrease earnings management. We observe that the highest value of index of investor protection is in Poland, followed by the Czech Republic and the lowest in Hungary and Slovakia (see previously explained Table 8.10). In Chapter 6 we confirmed that the highest earnings manipulation within Eastern European countries is in Hungary than in Slovakia, following by the Czech Republic. The lowest earnings manipulation is observed in Poland. Hence, our results are consistent indicating that investor protection represents an important tool for limiting managing earnings in companies.

The authors suggest different reasons explaining why earnings management is lower in countries with stronger investor protection. First, strong legal institutions provide the development of higher quality financial reporting (Francis *et al.,* 2004). They limit insiders' ability to acquire private information and benefits. In consequence, it reduces their incentives to mask firm performance (Leuz, Nanda, and Wysocki, 2003). Second, developed investor protection secures investors' rights to discipline insiders (e.g., to replace managers) (Nenova, 2003). This enforces contracts and in effect helps to reduce the incentive to undertake financial statement earnings management. Finally, better investor protection improves the informativeness of reported earnings (Ball, Kothari and Robin, 2000). Hence, firms from countries with stronger investor protection

show less evidence of earnings management because all the financial information is published and well-known.

Therefore, investor protection does indeed matter for explaining the observed differences in earnings management among Eastern European countries.

- ***Market capitalization variable*** *(MARKETCAPIT)*

The market capitalization variable has significant negative coefficient (-0.054). This is in accordance with our prediction. The previously observed evolution of market capitalization of Eastern European countries confirmed our expectation. The singularity of capitalization of each of the Eastern European markets has an impact on the changes in the scope of earnings management. Companies operating in highly developed and capitalized countries' markets manage their earnings less, as a country's environment creates more opportunities to have a competitive advantage for doing business and limit earnings management possibilities.

This is because, a better level of market capitalization improves the environment for capital inflows by pursuing macroeconomic stabilization, better business environments, and stronger institutional and economic fundamentals (Torre and Schmukler, 2006) thereby reducing managers' earnings management activities. Therefore, firms operating in different market capitalization environments have different access to assets, and capital. In consequence, firms may also significantly vary in terms of the obtained earnings results (Hamel, 2013). Hence, managers may exercise their judgment to improve their results taking into consideration the economic circumstances (for example the level of market capitalization).

Among our four Eastern European countries, Poland and the Czech Republic present higher market capitalization (see Figure 8.2) and at the same time they present lower earnings manipulation in comparison to our other two Eastern European countries: Hungary and Slovakia (see Chapter 6). Therefore, is confirmed that a higher level of market capitalization secures more resources for companies to limit earning management.

- ***Accounting and tax connection variable*** *(ACCOUNTAX)*

The accounting and tax connection variables show significant at 10% positive coefficient (0.008). This is according to our prediction. Coppens and Peek (2005)

explain that tax incentives have a stronger influence on earnings management decisions. Caramanis and Lennox (2008) confirm, as well, the high importance of tax laws for firms. In countries where accounting and tax practice are strongly aligned higher levels of earnings management are expected, as firms will try to meet the tax requirements.

Eastern European countries still have influential tax rules on financial reporting. A tax-driven nature of accounting requirements persists (Mackevicius, Strouhal and Zverovich, 2008). It comes from the historic development of the relationship between taxation and accounting during many decades and is characterized by a long absence of specific accounting legislation until the 1990s. In former circumstances, tax law arbitrated without regard to either accounting theory or existing accounting practices (Fortin, 1991; Frydlender and Pham, 1996). Even though the trend (and need) toward international accounting homogenization has been increasingly recognized in Eastern European countries (see, for example, Ball and Shivakumar, 1995, Danaher and Hunt, 2001, Goldberg *et al.*, 2006) the tax environment still retains an important stimulus for discretionary judgment by managers (Badertscher *et al.,* 2009; Dharmapala and Desai, 2009) of Eastern European firms.

As a consequence of the strong influence of taxation on accounting, many tax rules are used for financial-reporting purposes, and thanks to the persistent influence conservatism has on accounting practice. Accounting rules are conservative as long as managers have the incentive and ability to inflate transaction characteristics (Gao, 2012).

The accounting and financial directives among Eastern European countries are still quite dissimilar which result in different accounting and tax regulations. Eastern European literature explains that within Eastern European countries we may find countries where accounting and tax practice are strongly aligned, see for example, Slovakia and Hungary. Other group of countries, such as the Czech Republic and Poland, has focused their normative more on the investor perspective.

The first group of countries is much more orientated towards the connection of the accounting and taxation system, and the detailed fulfilment of tax requirements (see for example studies of Jaruga, Walinska and Baniewicz, 1996; Vellam, 2004; Sucher and Jindrichovska, 2004). In contrast, in countries where tax regulation does not influence so much on financial reporting, earnings management is lower (Darrough, Pourjalali and Saudagaran, 1998; Coppens and Peek, 2005; Burgstahler, Leuz and Hail,

2006; Muramiya and Takada, 2010). These countries (the Czech Republic and Poland) show a more investor oriented perspective (Vellam, 2004; Sucher and Jindrichovska, 2004). Therefore, as we expected, companies from Hungary and Slovakia show higher earnings manipulation than firms from Poland or the Czech Republic (see also results of Chapter 6), because in these countries accounting and tax practice are more strongly aligned than in Poland or the Czech Republic.

This confirms that tax requirements are important factors of the Eastern European environment which have an impact on firms' decisions for earnings management and may explain to some extent existent differences in the scope of earnings management among Eastern European countries.

- ***Foreign investment variable*** *(FOREIGNINVEST)*

The coefficient on foreign investment variable (-0.070) is negative and significant. According to Guo, e*t al.* (2014) foreign investment is a factor in controlling earnings management. Foreign investment creates a positive for firms, thereby limiting earnings management. The literature shows that foreign investments influence on circumstances and conditions in which firms are operating, such as by bringing investors, improving economic growth, raising the level of accounting information, improving investor protection, reducing information asymmetry, attracting well-governed firms, attracting more capital, among others (Errunza, 2001; Raphel and Winter-Ebmer, 2001; Bekaert and Harvey, 2003; Hunter, 2005; Kohers, Kohers and Kohers, 2006; Leuz, Lins and Warnock, 2009). In particular, it is highly important for Eastern European companies, where a range of circumstances such as: continuing transformation into the market and investor-oriented perspective, recent European Union membership, positive changes in the accounting normative, among others, bring important impulses for optimistic foreign investment inflows, and in consequence, give companies a new constructive and beneficial background.

Moreover, this new environment helps firms to improve the quality of accounting information, as foreign investments bring new investors raising the level of accounting information (Aggarwal, Klapper, and Wysocki, 2005). Foreign investors tend to invest in countries with high disclosure accounting quality (Leuz, Lins, and Warnock, 2010). They transfer and invest capital in firms with low (or no) earnings management activities, and high accounting transparency. Raphel and Winter-Ebmer

(2001) confirm that foreign investments are likely to attract well-governed firms. Well-governed companies normally are characterized by high information quality, and higher transparency.

Foreign investments also improve corporate governance. Gillan and Starks (2003) argue that foreign institutional investors play a central role in prompting change in many corporate governance systems through either direct monitoring by using their voting rights to influence management decisions or indirect monitoring by threatening to sell their shares. Hence, in effect, strong foreign investments have positive impacts on managers' decisions to opt for more quality information, and less earnings manipulation.

The level of foreign investments in Eastern European countries is still underperforming and need to be developed. Additionally, we have found significant differences among Eastern European countries in terms of the values of foreign investments (see again Figure 8.3 in previous section). These differences within Eastern European countries influence on managers' decisions for managing earnings (we have confirmed the significance of the variable). Therefore, we may affirm that foreign investment is indeed a relevant factor in terms of explaining the existent differences in the scope of earnings management among Eastern European countries.

- ***Ownership variable*** *(OWNERSHIP)*

The ownership variable shows positive and significant coefficient (0.004). It indicates that ownership concentration influences earnings management in Eastern European countries. Positive sign of the coefficient of the variable shows that higher ownership concentration may reduce earnings management. Higher ownership concentration is expressed in a smaller number of major shareholders. As Koh (2003) explains, the ability to form a small and relatively homogenous group of shareholders can facilitate the monitoring process, as well as share the monitoring costs among the 'group members'. Kim and Yi (2005) add that when the ownership of firms is concentrated in the hands of a small number of shareholders, the conflicts among shareholders are often resolved through private channels. In consequence, information asymmetry is less important and there are stronger incentives to produce high quality accounting information and fewer incentives for earnings management.

The structure of ownership in firms differs among Eastern European countries. These differences have an influence on companies, as higher ownership concentration has the capacity to pressure managers to improve earnings quality and limit earnings management (Guthrie and Sokolowsky, 2009). It may also improve control in the company and restrain in some way earnings manipulation (Shleifer and Vishny, 1997). On the other hand, there may arise the contrary situation, where lower ownership concentration may encourage managers to engage in earnings management to maximise their private benefits (Jaggi and Tsui 2007). Managers fearing the negative repercussions of declining performance from large shareholders also have strong motivation to engage in earnings management (Alves, 2012). We have confirmed that Czech and Polish firms possess a slightly higher ownership concentration than Hungarian and Slovakian companies. In consequence, there exists slightly less earnings management in Poland and the Czech Republic (see Chapter 6). Given this discussion, we may confirm that the effect of ownership concentration on earnings management indeed has an important influence in explaining the differences in the scope of earnings management among Eastern European countries.

- ***Board variable*** *(BOARD)*

The board size variable presents negative significant at 1% value of coefficient (-0.005). This indicates that boards have an impact in limiting earnings management. Additionally, negative sign of the coefficient shows that when larger number of board members is observed, the lower earnings management is than expected.

Companies from different Eastern European countries show a diverse composition of boards. This variation in the number of boards members has an effect on the way of monitoring and supervising companies. Literature points out that larger boards have diverse educational and technical backgrounds and skills, and in effect they have multiple perspectives to improve the quality of a firm's decision-making. They are also less susceptible to earnings manipulation (Zhou and Chen, 2004). Zahra and Pearce (1989) and Xie, Davidson and DaDalt (2003) confirm that a larger board is associated with lower levels of discretionary current accruals, indicating that a larger board is more effective in monitoring such accruals than a smaller one. Additionally, Dalton *et al.* (1999) document that a larger board provides better environmental links. Finally, Xie,

Davidson, and DaDalt (2003) support that larger boards have a broader range of experience, so they are better in preventing earnings management.

Therefore, the observed differences in managing earnings among different Eastern European countries may be an effect of the different structure of boards within the different countries' environment and companies' circumstances.

- ***Legal enforcement variable*** *(LEGALENFORC)*

Coefficient on legal enforcement is positive (0.054) and significant at 1%. Our results confirm that legal enforcement has an impact on the existent differences in earnings management among Eastern European countries (significant variable) as all four Eastern European countries show different levels of legal protection. Rahman (2000) explains that enforcement mechanisms impact the quality of accounting information. Leuz, Nanda, and Wysocki (2003) point out as well that they also have an impact on the ability of insiders to acquire private information.

Nevertheless, the coefficient presents the contrary sign to our prediction. A positive relationship is observed. This is due to the legal enforcement that is not developed sufficiently in Eastern European countries, or at least it is not as effective as it should be. Hence, we do not observe the expected negative influence on the scope of earnings management. Hope (2003) points out that in the absence or underdevelopment of adequate legal enforcement, even the best accounting standards will be insufficient to improve the quality of accounting information (and in effect to constrain earnings management).

Another possible explanation may come from the fact that in Eastern European countries there are mechanisms to secure effective legal enforcement; nevertheless, in practice one does not perceive these measures, as the results indicate that legal enforcement does not prevent earnings management in Eastern European firms. Literature assures that efficient legal enforcement instruments can improve the quality of accounting information (Ball, Kothari and Robin, 2000; Leuz, Nanda, and Wysocki, 2003; Cai, Rahman, and Courtenay, 2012). However, it seems that in the daily activities of Eastern European firms legal enforcement is far from adequate to improve financial information.

- ***Age of firm*** *(YEARS)*

Years variable presents negative (-0.002) significant at 5% coefficient. It shows that younger and less experienced companies are more likely to manage earnings. We observe that Eastern European countries differentiate in terms of age. It is observed the higher age of Polish firms, followed by those of the Czech Republic, then Hungarian and Slovakian companies. At the same time, we have also confirmed that within our four Eastern European countries, companies from Slovakia and Hungary manage more earnings then firms from Poland and the Czech Republic (Chapter 6). In consequence, we must consider the age of companies when explaining the existent difference in earnings management among Eastern European countries.

Additionally, the literature provides important reasons to explain such activity of managers, which may easily explain the activity of Eastern European company managers. On one side, the management and accounting systems of younger companies become less established so it is easier to manage earnings. Younger firms have limited resources. They are more likely to be liquidated due to their early stage of operating on the markets. Therefore, younger firms may decide to improve their earnings (Fan, 2007; Lee and Masulis, 2011; Chiraz and Anis, 2013).

On the other side, managers of older firms have weaker incentives to manage earnings because they are well-established and they know well markets opportunities. They have fewer needs to opt for earnings manipulation, because they may achieve competitive advantage differently: using elaborated market strategies, using their experience of doing business, etc. Moreover, market pressure for quality information, does not pressure the managers of older firms to manage earnings. When managers approach the age of retirement, they became more risk averse (Gibbons and Murphy, 1992; Matta and Beamish, 2008), and consequently, they opt for less risky strategies.

Finally, we explain three ***control variables***: size, listed and industry variables.

- ***Size variable*** *(SIZE)*

Size variable shows positive (0.102) significant at 5% coefficient. It indicates that managers of large firms are more likely to manage more earnings. Literature points out many reasons, for example, because they present more information asymmetries and managers can use this advantage to exacerbate earnings management for their own benefit (Mohd and Ahmed, 2005; Chung, Firth and Kim, 2005; Othman and Zhegal,

2006). Larger firms face higher political costs and hence they have stronger incentives to fulfil political expectations (Watts and Zimmerman, 1990). Big companies receive, as well more attention from analysts and are more recognizable than the small ones. They draw more attention from the media, investors, regulators (Moses, 1987; Paiva and Costa, 2013), among others. Therefore, we may observe that company size appears to play an important role in determining differences in earnings management among Eastern European companies.

- ***Listed variable*** *(LISTED)*

The coefficient on *LISTED* variable is positive (0.013) and significant at 5%. It explains the difference in earnings management between listed and non-listed firms among different Eastern European countries. The positive sign indicates that listed Eastern European firms engage more in earnings management than non-listed companies. As the structures of the Czech, Polish, Hungarian, and Slovakian Stock Exchanges are different (see Table 8.3); this variable helps to explain the existent difference observed among Eastern European countries in earnings management.

- ***Industry variable*** *(INDUSTRY)*

Finally, difference within industry structures among different Eastern European countries also influences on the observed dissimilarity in earnings management among our developing countries. As we may observe in Table 8.4 there are differences in industry structures within different Eastern European countries. Companies that are operating in one industry in one of the Eastern European countries may show different earnings manipulation than companies operating in the same industry but in other Eastern European countries, as circumstances, and the sector background within the different countries are not the same.

8.4.3. PERSPECTIVE ON MOTIVATIONS AND ENVIRONMENTAL FACTORS THAT EXPLAIN DIFFERENCES IN EARNINGS MANAGEMENT AMONG EASTERN EUROPEAN COUNTRIES: SUMMARY

We may respond to the question: why do managers of Eastern European companies manipulate differently? Our results identify a set of factors that explain why managers of companies from different Eastern European countries manipulate differently. We identified that there is not a sole reason affecting the managers' decisions, but a significant number of causes that influence Eastern European companies, such as:

- *legal enforcement,*
- *investor protection,*
- *market capitalization,*
- *board structure,*
- *ownership structure,*
- *the scope of foreign investments,*
- *the accounting and tax connection,*
- *firms' age.*

Complexity and multiplicity of elements create the panorama of each Eastern European countries' environment.

These environmental circumstances and characteristics of firms are different among Eastern European countries. There are different levels of investor protection, market development, ownership concentration, board size, inflows of foreign investment, etc., within Eastern European countries. These differences have an important influence on managers' decisions. Therefore, managers manage earnings differently. Table 8.14 presents the connection between the level of earnings management among Eastern European countries and the different factors involved. We may report that each of the elements influence in a particular way on the scope of earnings management. Some of them induce managers to manage more earnings. Other set of aspects may importantly limit managers' decisions as regards earnings manipulation.

On one side, we may observe that whether a firm's environment offers more protection (stronger investor protection) or is characterized by a higher level of

development (higher market capitalization, higher foreign investments), or is market-oriented (accounting and tax not strongly aligned with market approach), helps to limit the earnings management activities of managers. Additionally, older Eastern European firms, with higher ownership concentration and larger boards, may secure, as well, lower levels of earnings management. Finally, legal enforcement is not sufficiently developed in Eastern European countries to improve the quality of financial reporting and limit the existence of earnings management.

Table 8.14: The connection between level of earnings management and the level of each of the factor ranked by countries

EARNINGS MANAGEMENT[21]	**Lower manipulation → Higher**			
	Czech R.	Poland	Hungary	Slovakia
	16092.93	16143.23	16769.69	17416.34
Investor protection	Higher invest. protec. → Lower			
	Poland	Czech R.	Slovakia	Hungary
Market capitalization	Higher capitalization → Lower			
	Poland	Czech R.	Hungary	Slovakia
Accounting and tax connection	Lower connection → Higher			
	Czech R.	Poland	Hungary	Slovakia
Foreign investment	Higher foreign inv. → Lower			
	Hungary	Poland	Czech R.	Slovakia
Ownership concentration	Higher concentration → Lower			
	Czech R.	Poland	Hungary	Slovakia
Board size	Bigger size → Lower			
	Czech R.	Poland	Hungary	Slovakia
Legal enforcement	Lower legal enforce. → Higher			
	Poland	Czech R.	Hungary	Slovakia
Age of the firms	Older → Younger			
	Poland	Czech R.	Hungary	Slovakia

Source: The author.

On the other hand, an Eastern European firm's environment, which does not ensure a high level of protection (lower investor protection) or is characterized by a lower level of development (lower market capitalization, lower foreign investments),

[21] Mean ranks of discretionary accruals measured by Kruskal-Wallis test. The results are taken from Chapter 6.

and is strongly aligned with tax requirements, may create circumstances in which managers may opt for more earnings management activities.

Moreover, these factors are interconnected and have their own respective impact. Therefore, to explain the reasons for such differences between Eastern European it is necessary to focus on incentives and factors as a block of reasons and their mutual association rather than on one factor/ incentive.

CONCLUSIONS

Earnings management is a well investigated phenomena, as research has been ongoing on this topic for more than two decades. Many aspects have been learned, but many interesting questions remain unanswered. Therefore, we started our research taking into consideration the existing gaps in the earnings management literature. Our objective was to contribute to research on the phenomenon of earnings management.

The study specifically aimed to provide answers in terms of earnings manipulation based on the sample of markets of Eastern European countries, as one of the questions still unexplored is the issue of earnings management in these markets. In particular, we focused on four Eastern European countries: the Czech Republic, Poland, Hungary and Slovakia.

Additionally, we have observed that Eastern and Western European countries are in deed different in terms of economic, cultural, and historical circumstances. Therefore, we expected that there would also be possible differences in earnings management between Eastern and well-investigated Western European countries. From the point of view of the investigation, it is important to explore the scope of earnings management taking into account whole European countries and not only the Western part. Incorporating Eastern European countries into the investigation on earnings management may have permitted us to correctly analyze the impact of this "phenomenon" on all Europe and its' consequences. Hence, by providing direct evidence from the Eastern European markets we have tried to fill in the gap in earnings management investigation.

Finally, our decision as regards period selection makes this study increasingly interesting. We focused on the period of 2002-2009. We were interested in evaluating managers' activity in terms of earnings management just before European Union membership, the period of 2002-2004. Within that period Eastern European companies were developing, growing and making the transformation over more than the 10 years after the collapse of communism regime. Secondly, in May of 2004 our four Eastern European countries achieved access into the European Union. The membership moment (year 2004) and its direct first impact (2005-2007) on the developing economies were also very important in terms of the existence, scope, and possible reasons for earnings management. Finally, we were interested in evaluating the managers' activity in a period affected by the world financial crisis (the period of 2008-2009). Therefore, our research was to cover the important circumstances over the years.

Nevertheless, before proceeding into the main empirical part of our research, we have also contributed to the earnings management literature by presenting new insights into the definition and existent debates on the concept of earnings management, way of measuring earnings manipulation, classification of incentives and factors that have an influence on managers' activity, circumstances and particularities of the developing Eastern European countries, selection of the most reliable model to measure earnings management, among other questions. Thus, we present below our main achievements and contributions to the earnings management literature structured by each issue.

CHAPTER 1: REVIEW OF LITERATURE ON EARNINGS MANAGEMENT FROM DIFFERENT PERSPECTIVES

In the first chapter we focused on the existent discussion on the topic of earnings manipulation as there is no consensus related to the concept. The objective was to discuss and review ongoing debates and the definition of earnings management. Therefore, we did an important literature revision on the issue of earnings management from three main perspectives: chronological, methodological and cross-country perspective. We show the conclusions obtained.

1. Based on an ample literature sample, we observe that earnings management is a very complex and compound phenomenon in the light of many years of investigation. We may confirm at least three main ongoing discussions regarding earnings management: real earnings management vs. accruals-based earnings manipulation, manipulation without violating accounting rules vs. manipulation crossing the boundaries of rules, and efficient earnings management vs. opportunistic earnings management.
2. Revising different aspects and characteristics of earnings management definitions in more than two hundred papers, we confirm that the perception and definition of the concept of earnings management has been changing in terms of the approach that authors adapt. Therefore, based on different definitions proposed by the literature over the years, we have selected aspects, which we think describe the concept of earnings management. In consequence, we provide our definition as follows:

Earnings management is a purposeful intervention in external financial reporting, to reach earnings targets, by varying the accounting practices; however, it is an action which takes place without violating accounting regulations, and by taking benefits from the possibility of making certain choices in the policy and accounting system. This action can, but won't necessarily, mislead stakeholders into believing certain financial information.

3. We have also reviewed earnings management studies from three different perspectives: chronological, methodological and cross-country perspective. We observe that the first earnings management study appears in 1985 (Healy study) and in the last twenty years, we detect a significant intensification of investigation on the phenomenon of earnings management, which underlines the increasing importance of this topic in the literature (chronological perspective).
4. From the methodological perspective, we highlight the existence of a significant number of models to measure earnings management. We point out the important limitations of different models to help future researchers opt for the most appropriate model for a particular a research environment, as the "perfect" model for measuring earnings management does not exist.
5. Cross-country (geographical) perspective shows that the majority of the studies are based on the US (within the total of 207 papers analysed 99 studies are from the US) followed by Asian and European country samples (in Europe mainly Western European countries were investigated). Finally, 177 papers of earnings management were constructed based on a unique country sample, and only 8% of all the investigations were based on the exploration of earnings management through a large country sample (on two or more countries).

CHAPTER 2: MEASURING EARNINGS MANAGEMENT BASED ON THE ACCRUALS MODELS

The second chapter identifies the methodological aspects of measuring earnings management. The key aspect with respect to the power of the research is the ability to

identify proxies or conditioning variables that reflect discretionary and non-discretionary components of accruals. In this context, we have analyzed different attempts to estimate the manipulated part of accruals. We have discussed the advantages and limitations of each model and the differences among them. We reached the following conclusions:

1. Among the different methodologies used to measure earnings management, we confirm that the approach based on accruals is mainly used by the authors.
2. In consequence, we have identified at least thirteen different models to measure the discretionary part of accruals; nevertheless, we confirm that each model has important limitations and does not always secure reliable results.
3. Despite the limitations, we observe that the Jones (1991) and Dechow, Sloan and Sweeney (1995) models are the two most popular accrual estimation models used in measuring earnings management. These two models were used in almost half of the earnings management studies (47% within 207 analyzed papers).

CHAPTER 3: CAUSES OF THE EXISTENCE OF EARNINGS MANAGEMENT

In the third chapter we have analyzed in detail the existent literature on possible causes for earnings management. Our objective was to determine the range of incentives and environmental factors that may lead managers to earnings manipulation. We highlight the following conclusions:

1. We confirm that incentives for earnings management are always present in managers' daily activities. However, in some circumstances the level of certain incentives may decrease or increase depending on some factors which come from the company's environment.
2. We identify three main groups of incentives: related to market expectation and valuation, contractual incentives, and political incentives.
3. Additionally, we observe that besides incentives, managers may be faced with circumstances of the company's environment (we called them factors). More favorable conditions may facilitate/ preserve the manipulation. On the

other hand, more strict characteristics of the business environment may preserve or facilitate manipulation.

4. In the ample group of factors we differentiate the following groups: information asymmetry, characteristics of the accounting rules, corporate governance, characteristics of the firms, industry factor, economic cycle, audit, institutional factors.

CHAPTER 4: CHARACTERISTICS OF EASTERN EUROPEAN MARKETS. REASONS FOR THE SELECTION OF EMERGING EASTERN EUROPEAN COUNTRIES

The main contribution of this chapter is to explain why by analyzing Eastern European countries we may contribute to the earnings management literature. We explain the importance and necessity of investigation on earnings management based on the sample of emerging Eastern European countries. We also describe the economic, cultural, political circumstances, and accounting regulations, among others, of Eastern European markets in order to explain the general panorama of these developing countries. A description of the background of these countries may help to respond in the following chapters to the questions related to the possible managers' motivations for earnings management activities. We have obtained the following conclusions:

1. Describing the Eastern European countries, we detect important circumstances and particularities of these countries that may create motivations to manage earnings by managers. Among different factors we underline some of them, such as: massive privatization undertaken in the absence of the proper institutional infrastructure, lack of transparency, environmental uncertainty, and countries that are in a process of transition to a market economy, among others.
2. Additionally, macroeconomic statistics show that Eastern European countries continue to adapt to the open European market by constant transformation and development. A wide-open European market gives many opportunities. However, economic actors in countries in transition (we have selected four representative Eastern European countries: Poland, the Czech Republic, Hungary, Slovakia. They are developing economies, former

Soviet Union countries, countries that recently jointed into the European Union structures, among others) are still dissimilar and distinct from the Western European countries.

3. We have confirmed as well the large financial gap between markets of Eastern and Western European countries. Eastern European countries are still not at the same economic level as Western European countries.
4. Finally, we also observe different characteristics of Eastern European countries as they are observed in Western markets, such as: size of the companies, industry structure, the tax issue, accounting normative, audit quality, among others. Given the above mentioned circumstances, we shall expect differences in earnings management between Eastern and Western European countries, as both markets are significantly dissimilar, as explained.

CHAPTER 5: ALTERNATIVE MODELS FOR MEASURING EARNINGS MANAGEMENT. SELECTION OF THE MODEL

This chapter initiates the empirical part of our PhD investigation. Here we have evaluated a wide range of alternative models to measure earnings management. The main objective of this PhD Thesis is to measure earnings management in Eastern European countries. Therefore, the selection of the most appropriate model will help to secure reliable results. We have obtained the following conclusions.

1. Among different earnings management models, we have confirmed empirically, that the Yoon and Miller model (2002) may offer reliable results in estimating the non-discretionary accruals for Eastern European countries. This model offers the most consistent results for the economic environment of Eastern European countries in terms of the applicability and identification of earnings management.
2. Additionally, the cross-sectional version seems to offer slightly better results than the time-series analysis. Consequently, for our posterior analysis, the cross-sectional version of Yoon and Miller model (2002) has been used.

CHAPTER 6: THE MEASUREMENT OF EARNINGS MANAGEMENT IN EMERGING EASTERN EUROPEAN COMPANIES

The purpose of this chapter is straightforward: to investigate earnings management in emerging Eastern European markets. Taking into consideration the particularities of the Eastern European markets explained in the previous chapter (the effect of the collapse of old regimes and development of new ones adapted to democratic and market-oriented societies; privatization undertaken; European Union membership; the effect of the world financial crisis, among others) we look to answer the following questions: do firms from Eastern Europe manage earnings? Do they to increase or to decrease their results? Is earnings management the same over the years? Is earnings management the same among the different countries from Eastern Europe? We obtained the following results:

1. The estimations of results indicate that all of our four sample countries: the Czech Republic, Poland, Hungary and Slovakia, demonstrate some manipulation of earnings.
2. Measuring the direction of earnings management, the results indicate the negative values of the discretionary accruals. Negative values of earnings management suggest that in emerging Eastern European countries they manage earnings to decrease them.
3. Contrasting the number of companies that showed positive and negative earnings management per country and year it is confirmed as well that firms tend to manipulate their earnings downwards, as 70-75% of Eastern European companies manage earnings to decrease them, and only 25-30% of them to increase.
4. However, the level of the manipulation (measured in absolute values) indicates that upwards manipulations are much higher than the downwards manipulation, as the absolute means of values of positive discretionary accruals are higher than the absolute means of negative values of discretionary accruals. Managers of emerging countries are more likely to round down their results, but they round them down slightly.

5. We also confirm that earnings manipulation changes over time. There is evidence enough to conclude that there is a difference in earnings management over time.
6. Two main tendencies have been detected: the first one, a decrease in the manipulation between 2003 and 2007. Eastern European countries (mean ranks) gradually reduced manipulation in this period, with the exception of the Polish sample. Slovakian companies show this tendency only between 2003 and 2006. Additionally, we detected a second tendency of an increment in manipulation between 2008 and 2009 for all of our four countries. For Slovakia we even observe it, one year before, in the period of 2007-2009.
7. Despite the fact that the four developing Eastern European countries considered give the impression of having the same conditions and circumstances (as post-communist countries, countries in the transition into democratic and market-oriented economies, that have just entered into the European Union) it is confirmed that there is a significant difference in manipulation among Eastern European countries. It seems that the cultural, social, and legal circumstances, of each country may have a significant influence on the perception of manipulation.
8. Nevertheless, some similarities can be found between Poland and the Czech Republic, as well as for Hungary and Slovakia. Analyzing earnings management by pairs of countries, we observe a statistically significant difference in manipulation between four (of six) pairs of countries: the Czech Republic and Hungary; the Czech Republic and Slovakia; Poland and Slovakia; and Poland and Hungary. However, it is concluded that the Czech Republic and Poland, and Hungary and Slovakia do not provide statistically significant evidence of a difference between these pair of countries.
9. Finally, the mean ranks of discretionary accruals indicate that the lowest manipulation is observed in the Czech Republic followed by Polish companies, and Hungarian firms. The highest manipulation is detected for Slovakian companies.

CHAPTER 7: COMPARATIVE STUDY: EARNINGS MANAGEMENT IN EASTERN VS WESTERN EUROPEAN COUNTRIES

The main objective of this chapter is to compare earnings management behaviour between Eastern and Western European countries (France, Germany, Spain and the UK). Previously, we have confirmed that emerging Eastern European countries are different from Western well-established European countries. Therefore, a comparative study may help us to understand both markets (Western and Eastern). In the light of the results from the previous chapter, we are interested in responding to the following questions: will we find differences in earnings management between Western and Eastern European countries? Will we find similar/ different scopes and sign of earnings management between Eastern and Western European countries? Does earnings management change over time in the same/ different way in European countries? We are interested in evaluating possible fluctuations over time, detecting possible trends. We reached the following conclusions.

1. After an estimation of discretionary accruals for Western European countries (we have selected four representative Western European countries), we verified that companies from France, Germany, Spain and UK manage earnings, as we expected (as pointed out by the ample earnings management literature). The results show that managers of Western European countries manage earnings to decrease them. Therefore, both markets Eastern and Western manage earnings to decrease them.
2. However, we confirm a statistically significant difference in earnings management between European countries. The reported mean ranks show significantly lower earnings manipulation in Western European countries. The lowest manipulation is observed in France followed by the UK, and Spain. German companies present the highest level of manipulation within Western European countries; nevertheless, it is still significantly below that of all Eastern European companies.
3. The results of cluster analysis indicate that all four Eastern European countries can be clustered together as a block of emerging, post-communist countries, new European Union members, etc., and mostly they came up in the same cluster with German companies. This may indicate that managers

of Eastern European companies follow the earnings management behaviour of managers of German companies. At the same time, we found significant differences between Eastern European countries and our other three Western European sample countries: France, Spain and UK, as these countries were always clustered separately.

4. When performing further cluster analyses by specifying a fixed low number of clusters (determining three and two fixed clusters), we identified that France and the UK were always assigned separately over all our cluster analyses (as previously), but Spain in the contrary appeared to be clustered together with Germany and Eastern European countries. This means that the scope of earnings management in France and the UK is significantly different than in the other six countries. On the other hand, Spain may perhaps show to an extent some similarities in earnings management behaviour to managers of German and Eastern European companies.
5. Comparing the dimension of earnings manipulation (absolute magnitude of discretionary accruals), we also observe differences between both European markets. Between 2003 and 2007, we detect that the Eastern European market shows higher values of positive discretionary accruals than negative whereas in Western European countries we observe that the negative absolute mean values are higher than the positive. In the two years 2008-2009, Western European countries are persistently showing higher negative absolute values over the positive; however, in Eastern European countries we observe the fluctuations in the magnitude of discretionary accruals.
6. Contrasting the changes of earnings manipulation over time, we observed that both markets (Eastern and Western) do vary earnings manipulation in time and in extent. Eastern and Western European countries showed important fluctuations over time.
7. Finally, for all Eastern and Western European countries (both markets), we detect two main tendencies: the first one, a decrease in manipulation between 2003 and 2007; and then between 2008 and 2009 a trend to increase manipulation.

CHAPTER 8: INCENTIVES AND FACTORS FOR EARNINGS MANAGEMENT. EMPIRICAL EVIDENCE OF EASTERN EUROPEAN COUNTRIES

In the last chapter we centre our attention on the motivations which lead managers of developing Eastern European countries to manage their earnings. We have confirmed that earnings management exists in emerging Eastern European countries (previous chapters). We have also confirmed that Eastern and Western European countries are different; hence motivations can be different as was demonstrated for Western European countries by the ample literature.

Therefore, our investigation in this chapter focuses on motivations that drive managers of Eastern European countries to opt for managing earnings and to do it to decrease them. We also investigate why we observe changes in earnings management over years in Eastern European countries. And finally, we analyze why we observe differences in earning management among different Eastern European countries. We obtained the following conclusions.

1. In terms of the motivations that lead managers of Eastern European countries to manage earnings to decrease them:
   1.1. We find that within Eastern European companies those which are less leveraged and have less value manage earnings to decrease them. Additionally, we observe that companies where the future performance is expected to be "poor" and have relatively high current non-discretionary earnings (which have been not manipulated) opt to additionally decrease earnings in order to flatten them and to be able to use them in future periods.
   1.2. We also confirm that mainly older and smaller companies within Eastern Europe manage earnings to decrease them. In these companies managers prefer to squash and report lower earnings rather than increase the reported earnings. These companies may struggle in the highly competitive European market. Hence, being smaller and more experienced may enable them to find a way to succeed in the competitive European market. Therefore, they may try preferably to find a market

niche rather than face competitors directly by decreasing their firm's value outwardly and seeming to appear weaker than they are in reality.

1.3. In addition, the picture of the security exchanges and financial sectors in Eastern European countries is still relatively unfavourable, underdeveloped and less important than their Western counterparts. Nevertheless, the results indicate that those few listed Eastern European firms manage earnings to decrease them.

1.4. Finally, we observe that Eastern European state-owned companies manage their earnings to decrease them, as they are not under pressure to report better-than-real financial performance, because of their specific political and historical heritage.

2. Secondly, in terms of motivations related to the observed changes in earnings management over time:

2.1. We observe that managers of Eastern European companies manage their earnings responding to the changes to the companies' environment. Managers try to cope with the new circumstances of the market by variations in earnings management. Hence, we confirm that the process towards European Union membership must be considered to explain changes in earnings management over the years. The results determine that there is a significant difference in terms of the scope of earnings management between different periods of European Union membership (preparation for EU accession, period of 2003-2004; process of adaptation into European standards/ moment of accession, period of 2005-2006; full membership period/ process of stabilization in European Union structures, period of 2007-2009).

2.2. Additionally, we detect an influence of the macroeconomic conditions of Eastern European countries on the way of manipulating earnings. A better level of local country markets constrains earnings management over time. On the other hand, worse economic conditions confirm a tendency to increase the level of earnings management over time (managing more to increase or decrease).

2.3. Besides, closely connected to the previous point, we underline the importance of economic cycle. The positive sign of the coefficient of the variable indicates that in a period of crisis it is expected that managers

will manipulate their earnings more. On the other hand, in better economic times a lower level of earnings management is predicted.

2.4. Finally, we confirm that managerial decisions of changing the way and scope of manipulating earnings over time are also correlated to the firm's size, industry, and listed or not-listed status.

3. Lastly, responding to the question of motivations that explain existent differences in earnings management among Eastern European countries:

3.1. We confirm that investor protection and legal enforcement are becoming an important aspect in explaining the differences in the scope of earnings management among Eastern European countries. We observe important variations in the level of investor protection and legal enforcement between our emerging countries; and that they have an impact on the existent differences in earnings manipulation.

3.2. Additionally, the previously observed evolution of the market capitalization of Eastern European countries confirmed our expectation, that the singularity of capitalization of each of the Eastern European markets has an impact on the changes in the scope of earnings management. Companies operating in highly developed and capitalized countries' markets manage their earnings less, as the country's environment creates more opportunities to have a competitive advantage for doing business and thereby limits earnings management possibilities.

3.3. Moreover, the level of foreign investment in Eastern European countries is still underperforming and needs to be developed. There exist significant differences among Eastern European countries in terms of the values of foreign investments. These differences within Eastern European countries influence on the managers' decisions as regards managing earnings. Therefore, we confirm that foreign investment is indeed a relevant factor in terms of explaining the existent differences in the scope of earnings management among Eastern European countries.

3.4. Furthermore, we provide evidence that differences in board composition and ownership structure among different Eastern European countries explain the existent differences in earnings management. Companies from different Eastern European countries show diverse composition of boards. This variation in the number of their board' members imposes an effect

on the way of monitoring and supervising the companies. In consequence, the number of boards' members has an extra pressure on managers' decisions resulting in different earnings manipulation among Eastern European countries. At the same time, within our sample companies' different structures of ownership are also observed, as higher ownership concentration has the capacity to pressure managers to improve earnings quality and limit earnings management. On the other hand, the contrary situation may also appear. Lower ownership concentration may encourage managers to engage in earnings management to maximise their private benefits. In consequence, these variations in board composition and ownership structure have an impact on the existent difference in earnings manipulation within Eastern European countries.

3.5. In addition, we confirm that accounting and tax regulations are quite dissimilar among Eastern European countries. This explains why accounting and tax practices are aligned with the observed changes in earnings management among Eastern European countries, as earnings management decisions are influenced by tax incentives.

3.6. Finally, Eastern European countries differentiate in terms of age, firm' size, industry structures, and the number of listed/ non-listed firms. For example, we observed the higher age of Polish firms, followed by the Czech, Hungarian and Slovakian companies. At the same time, it has been verified that within our four Eastern European countries, companies from Slovakia and Hungary manage more earnings than the firms from Poland and the Czech Republic. In effect, one must be consider the age of the companies in terms of the explanation of existent difference in earnings management among Eastern European countries. Another three aspects prove an important role in determining differences in earnings management among Eastern European companies. This is because within our developing Eastern European countries firm's size, listed/ non-listed and industry structures are different.

Consequently, to be able to explain observed differences in earnings management among the analyzed countries, we must consider the environmental circumstances and characteristics of the firms of different Eastern European countries.

The complexity and multiplicity of elements create the panorama of each Eastern European country' environment, and in effect lead to different earnings manipulation by managers.

Although we have filled in some gaps in our knowledge, other issues are still pending. A potential future line of research could include more countries for a comparative study of earnings management between Eastern and Western Europe.

It may be interesting to investigate earnings management in the years following the period of first impact of the financial crisis. It could be important to observe the change in manipulation of Eastern European companies, as they were significantly less resistant then the other markets (Western European markets).

Another possible future piece of research could focus on developing a model that can better explain non-discretionary accruals in emerging Eastern European countries to then obtain a more adjusted measurement of discretionary accruals and earnings management.

Lastly, future research could be carried out based on the consolidated financial statement of listed companies to compare the results with those obtained from separate financial statements. Moreover, this would allow us to test the effect of IFRS adoption on the quality of financial reporting.

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