HAVE IFRS AFFECTED EARNINGS MANAGEMENT IN THE EUROPEAN UNION?

Susana Callao
Lecturer in accounting (scallao@unizar.es)

José Ignacio Jarne
Lecturer in accounting (jijarne@unizar.es)

UNIVERSITY OF ZARAGOZA

Department of Accounting and Finance
Faculty of Economics and Business
Gran Vía, 2
50005 Zaragoza (SPAIN)

Tel. +34976 761791
Fax. +34976 761769

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ABSTRACT

There has recently been considerable discussion of those features of IFRS that are likely to help improve financial reporting in the European Union. However, certain issues may also have a negative impact on the quality of information. This paper focuses on the effect of IFRS on earnings management. Its main purpose is to examine whether the adoption of IFRS in the European Union has increased or decreased the scope for discretionary accounting practices by comparing discretionary accruals in the periods preceding and immediately after the regulatory change. Another objective is to determine which firms' features and country factors may explain the accounting discretion observed before and after IFRS. We consider a sample of non-financial firms listed on 11 EU stock markets.

The results obtained show that earnings management has intensified since the adoption of IFRS in Europe, as discretionary accruals have increased in the period following implementation. The variables explaining accounting discretion are the same before and after IFRS (business size, leverage, investor protection and legal enforcement). These results suggest that variations in earnings management might be due to some room for manipulation under international standards when compared with local standards.

Keywords: IFRS, earnings management, listed companies, financial reporting, European Union

1. INTRODUCTION

Opportunistic behaviour by managers in the area of financial reporting has been a concern for many years. Where ownership and management are separated, the accounting function is affected by the agency problem (Jensen and Meckling 1976). This concerns the difficulties that arise under conditions of incomplete and asymmetric information when a principal hires an agent, such as the problem that the two may not have the same interests. In this context, managers may have an incentive to make decisions in their own interest when preparing financial information, to the detriment of the firm's owners (Fama 1980, Fama and Jensen 1983).

Accounting standards may have an impact on the possibility of opportunistic behaviour. Rigid rules providing limited accounting options and restricting the scope for subjective judgments constrain the ability of managers to behave opportunistically. However, more flexible rules providing 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 (Jeanjean and Stolowy 2008), which they may do in their own interest in the absence of effective control mechanisms. So, the more flexible are the rules, the higher is the possibility of earnings management practices, (defined as those accounting practices carried out by management with the intent of manipulating the resulting figures to their advantage).

However, the notion of earnings management includes not only accounting policies but also the manipulation of real transactions. Rigid accounting policies can lead to an increase in the manipulation of real-life transactions in order to obtain the wanted profit (Nelson 2003 and Ewert and Wagenhofer 2005).

The introduction in 2005 of IFRS for groups listed on official stock markets in the EU created a new scenario for management in the field of financial reporting in the

member States. The present study seeks to throw light on the effects of IFRS on earnings management.

The IASB framework identifies representational faithfulness as one of the prime qualitative characteristics that make the information useful to users (high quality information). This study focuses on earnings management as an obstacle to representational faithfulness.

We define earnings management as the use of accounting practices within the limits available within a comprehensive basis of accounting by management in order to achieve a desired result. Other definitions of earnings management can be found in Schipper (1989), Apellániz and Labrador (1995) and Healy and Wahlen (1999). We measure earnings management in terms of discretionary accruals; as an alternative measure we analyze the discontinuity in zero of return on assets.

Some arguments supporting the contribution of IFRS to improvements in financial reporting are based on the fact that the new standards plug gaps in local accounting regulations, by providing recognition and measurement rules for certain issues that had not been addressed in some countries (see, inter alia, García-Ayuso and Monterrey 2006). IFRS are also considered to require disclosure of more information than previously, which could be expected to reduce information asymmetry between insiders and outsiders.

However, various aspects of IFRS that may have negative impacts on the quality of financial reporting have been highlighted in the literature in recent years (e.g. Ormrod and Taylor 2004). These include the greater flexibility offered by IFRS in comparison to the local standards of many EU countries[1], the subjectivity implicit in the application of certain criteria, including fair value, and the relaxation of requirements concerning the presentation of financial statements. Such matters may provide openings

for discretionary accounting and opportunistic behaviour, although the way firms use this discretion is likely to depend on their reporting incentives. It is also quite possible that levels of discretionary accounting would be expected to increase in the early years after the regulatory change in comparison to the situation under local standards, given the novelty of the new rules and potential difficulties with interpretation.

Other important features of the financial reporting system, such as the enforcement mechanisms, may influence on the expected quality of financial reporting under IFRS (Dao 2005, Ball et al. 2003, Ball 2006 and Daske et al. 2008). The accounting practices adopted by firms also depend on other country factors, such us investor protection (Leuz et al. 2003), and some firm features, such as size (Watts and Zimmerman 1990 and Scott 1991), growth (Skinner and Sloan 2002), or leverage (Sweeny 1994, DeFond and Jiambalvo 1994, Bikky and Picheng 2002 and Jelinek 2007).

In this context, the objective of this paper is to examine whether the adoption of IFRS in the European Union has increased or decreased the scope for discretionary accounting practices by comparing discretionary accruals in the periods preceding (pre-IFRS), and immediately after, the regulatory change (post-IFRS). We also try to determine which firm features and country factors may explain the accounting discretion observed before and after IFRS. On the one hand, we focus on the size, growth and leverage of the companies, and on the other hand, on the investor protection and legal enforcement in each country.

To this end, we consider a sample of non-financial firms listed on 11 EU stock markets. Local standards prevailing in the EU before the adoption of IFRS differed considerably, despite being based on the same EU Directives. This means the effects of IFRS on discretionary accounting may vary from country to country.

If the study finds IFRS have reduced discretionary accruals, this would imply that the use of IFRS had resulted in better accounting information. If, however, the conclusion is that IFRS have caused an increase in discretionary accruals, then the basis of accounting may have helped improve financial reporting through provision of additional information but allows greater manipulation.. Should accounting discretion be explained by firm features and/or country factors, it would mean that convergence is not sufficient to reduce earnings management and may require strong regulatory frameworks, including enforcement mechanisms.

The rest of this paper is structured as follows. We continue with a review of the existing literature, and then we go on to describe the sample and the methodology employed in the third section. The fourth section presents the results obtained which are discussed in the fifth one. The paper ends with our main conclusions.

2. LITERATURE REVIEW

The mandatory adoption of IFRS for listed companies in the European Union is an important regulatory change in accounting history. The regulatory change raises new expectations for the agents concerned with the preparation and analysis of financial information and this change is expected to enhance the comparability of financial reporting, to improve corporate transparency and to increase the quality of the financial reporting (see EC Regulation No. 1606/2002).

Nevertheless, the implementation of IFRS in many European countries, in particular in those traditionally falling under the European Continental model (e.g. France, Germany, Portugal or Spain) has entailed a considerable change in the philosophy of accounting. There has been a shift from a rules-based systems to a principles-based system. This implies a need for both managers and auditors to make

frequent use of their professional judgment in order to ensure that the financial statements reflect the economic substance of transactions (Wüstemann and Kierzek, 2005). As Carmona and Trombetta (2008) argue, it involves major changes in the expertise needed by accountants and, hence, in their educational background, training programs and in the organizational and business models of accounting firms.

It might be thought that the use of a principles-based model could provide more flexibility in interpretation and therefore, a higher degree of manipulation. As Jeanjean and Stolowy (2008) point out, the application of accounting standards such as IFRS involves considerable judgement and the use of private information, and they provide managers with substantial discretion. Iatridis and Joseph (2005) also observe that flexibility in financial reporting may enhance the scope for income-smoothing. However, they suggest that it can be mitigated by an appropriate choice of accounting policies by companies. The question, then, is whether the application of IFRS and the consequent increase in the use of professional judgment have led to an improvement in financial reporting.

Recent studies have suggested that the success of IFRS in improving financial information is affected by factors such as national culture, the legal and institutional framework, rule enforcement, reporting incentives of firms, the nature of rules, etc.

Zeff (2007) affirms that cultural differences (business and financial culture, accounting culture, auditing culture and regulatory culture) between countries are factors that could impede or interfere with promoting worldwide comparability. Furthermore, problems of interpretation, language, terminology, etc. obstruct convergence.

Ding et al. (2007), using a sample of 30 countries, conclude that simply adopting IFRS may not necessarily improve national accounting systems unless countries also

implement profound changes in economic development policy, corporate governance mechanisms and financial market functioning in general.

Other studies have pointed out the importance of enforcement mechanisms. Thus, Dao (2005) argues that improving the quality of financial information is not simply a matter of switching to IFRS. Rather, the change must be accompanied by mechanisms to oversee the appropriate application of the new standards. The research describes the method used by the French stock exchange regulator for monitoring compliance with reporting rules.

Ball et al. (2003), Ball (2006), Barth et al. (2008) and Daske et al. (2008), have also linked the success of IFRS to enforcement mechanisms. They conclude that such success is difficult to attain without the existence of effective enforcement mechanisms. Furthermore, these and studies such as Jeanjean and Stolowy (2008) highlight the importance of reporting incentives of firms, which are shaped by many factors, including countries' legal institutions, various market forces and firms' operating characteristics.

Some authors have analyzed the characteristics of IFRS, some of which may have affected the financial information prepared under such standards. Ball (2006) analyzes the advantages and drawbacks of IFRS for investors. One of the aspects under study is fair value accounting, where the author finds an increased opportunity for manipulation. Nobes (2006) identifies some IFRS characteristics which might allow the possibility that accounting differences exist at an international level, showing 18 overt options and 21 covert options or vague criteria. In our opinion, they also provide an opportunity for manipulation within the limits of the accounting rules. It is very difficult to prove that management chose an inappropriate accounting treatment.

However, recent research related to different countries around the world, using different measures of properties of earnings, such us timelines, conservatism, value relevance, earnings volatility or earnings management, has analyzed the impact of IFRS on the quality of financial reporting with divergent results.

Daske and Gebhardt (2006) focus on firms in three European countries (Austria, Germany and Switzerland) which had voluntarily adopted IFRS or US GAAP and firms which mandatorily adopted such standards. Using disclosure quality scores they show that the quality of financial reporting has increased considerably since the adoption of international standards.

Meanwhile, Eccher and Healy (2003) analyze the relevance of information based on Chinese and international principles for valuation purposes. In general, their results do not support any gains in the relevance of IFRS-based information, although some improvement was found in firms owned by local investors.

Ormrod and Taylor (2004) assess the impact of IFRS on loan agreements in the United Kingdom. These authors are convinced that the change to international standards would cause greater earnings volatility and that it facilitates income smoothing for a variety of reasons, including the application of fair value measurement, the existence of certain flexibility in some areas and the lack of adequate enforcement mechanisms to guarantee IFRS compliance.

The value relevance of financial reporting under US GAAP, IFRS and German accounting standards is examined by Bartov et al. (2005) by using earnings as the independent variable. Their results show that information prepared by profitable firms under international standards is more relevant than under German accounting principles, but it is less relevant than information reported under US GAAP. Hung and

Subramanyam (2007), also for the case of Germany, find no evidence for increased value relevance following the application of IFRS.

Based on earnings management as measure of quality, Van Tendeloo and Vanstraelen (2005) observe no differences in earnings management between firms preparing their financial statements under German accounting principles and those voluntarily adopting international standards.

Barth et al. (2008) determine the quality of reported profits by reference to properties such as value relevance, appropriateness and earnings management. In an analysis of 21 countries, they find that the figures reported by firms applying IFRS are more relevant for valuation purposes, recognize losses on a more appropriate basis and are less affected by earnings management than the information disclosed by companies preparing their financial statements on the basis of local standards. They also observe an improvement in the quality of financial reporting since the application of IFRS. As this improvement might be related to changes in firms' incentives and the economic environment, they include research design features to mitigate the effects of both.

There are numerous reasons for these divergent results, four of which are picked out as crucial by Barth et al. (2008). Firstly, firms preparing to adopt IFRS are likely to make the transition gradually, by changing policies based on national standards to bring them more closely into line with IFRS. Secondly, developing economies lack the infrastructure to enforce the application of IFRS. Thirdly, the studies differ in the effectiveness of controls for incentives associated with a firm's use of a particular set of accounting standards and the effects of the economic environment. Fourthly, the studies use different metrics, draw data from somewhat different time periods, and use different control variables.

Of all variables used to analyze the impact of IFRS on financial reporting, including quality indices, value relevance, earnings volatility, appropriateness and earnings management, among others, we focus on earnings management, which we measure in terms of discretionary accruals, the most widely used tool to detect possible manipulation of a firm's financial statements.

To evaluate the impact of IFRS on the discretionary accounting practices in the EU, we formulate the following hypothesis:

Hypothesis 1: the adoption of IFRS in Europe negatively impacts reporting quality because it increases the scope for earnings management.

Although accounting standards play an important role in the accounting practices, we should not forget the importance of other factors related to the firm and country.

Prior research finds that accounting choices are associated with several firm variables, as size, leverage, bonus plans, international trade or industry (Watts and Zimmerman (1978, 1990), Hagerman and Zmijewski (1979), Zmijewski and Hagerman (1981), Dhaliwal et al. (1982), Skinner (1993), Christie and Zimmerman (1994), Bowen et al. (1995), Cullinan (1999), Dhaliwal et al. (1999), Astami and Tower (2006)).

Some studies find relationships between different country factors and accounting practices chosen by firms. Some of these factors are the ownership structures, the investment opportunity set, the importance of the stock market, the degree of investor protection, legal enforcement, book-tax alignment or the legal system (Dhaliwal et al. 1982, Smith and Watts 1992, Skinner 1993, Fan and Wong 2002, Leuz et al. 2003, Astami and Tower 2006, Burgstahler et al. 2006).

Since accounting choice is not necessarily opportunistic, we try to determine which firm features and country factors may explain the accounting discretion observed

before and after IFRS. To do this we focus on the relationship between some of the previous variables and the earnings management.

According to Watts and Zimmerman (1990), size is a proxy variable for political attention, considering that large firms are more likely than small firms to use accounting choices that reduce reported earnings. Scott (1991) and Rutledge (1995) study the adoption of Statement of Financial Accounting Standard 87 (SFAS 87) "Employers' Accounting for Pensions" and SFAS 52 "Foreign Currency Translation", respectively. They find that size, among other factors, is a determinant factor in the early adoption of these standards, and this provides evidence of earnings management. Holland (1998) shows that firm size has an effect on earnings management with the aim of decreasing tax burden. In particular, in the late 1970s and the start of the 80s finds evidence of a negative association between firm size and effective tax rates.

Duke and Hunt (1990) provide evidence that leverage is a reasonable proxy for the tightness of debt covenant restraints: the higher the leverage, the tighter is the covenant constraint and the greater is the probability of a covenant violation. In such a case managers will have more incentives to manipulate the earnings to avoid such violation. In this regard, Jelinek (2007) shows that leverage (but not leverage increment) increases the potential for earnings management. That is consistent with previous research - Bartov (1993), DeFond and Jiambalvo (1994), Sweeney (1994) or Beatty and Weber (2003).

Other investigations, such us Skinner and Sloan (2002), focus on growth firms. They find that growth stocks exhibit an asymmetrically large negative price response to negative earnings surprises. So, managers of growth firms have incentives to manage reported earnings to avoid earnings disappointments and large downward adjustments of the firms' stock prices.

In addition to company attributes, we examine two country factors, investor protection and legal enforcement. Leuz et al. (2003) argue that strong and well-enforced outsider rights limit insiders' acquisition of private control benefits, and consequently, mitigate insiders' incentives to manage accounting earnings because they have little to conceal from outsiders. So, earnings management is related to investor protection. Burgstahler et al. (2006) find that minority–shareholder rights is one of the market forces and other institutional variables that have the potential to differentially affect the level of earnings management. They also document that earnings management is more pronounced in countries with weaker legal systems and enforcement. The paper of Leuz et al. (2003) also shows a strong (negative) correlation between the aggregate earnings management measure and enforcement proxy.

In this context, to evaluate if accounting discretion is related to firm features and country factors we formulate the hypothesis 2:

Hypothesis 2: firms' features (size, growth and leverage) and country factors (investor protection and legal enforcement) have an effect on accounting discretion.

3. SAMPLE AND METHODOLOGY

3.1. SAMPLE

The sample comprises a total of 1,408 non-financial firms listed on the stock markets in 11 EU member States representative of the Anglo-Saxon and Continental accounting systems traditionally identified in Europe (Table 1). These countries are Belgium, Finland, France, Germany, Greece, Italy, the Netherlands, Portugal, Spain, Sweden and the United Kingdom. The analysis covers the period 2003 to 2006, split

into two sub-periods (2003-04 and 2005-06) in order to reflect the situation before and after the application of IFRS. The sample comprises a total of 5,632 observations. Italy is the country with the least (144 observations) and the United Kingdom with the most (1,644). However, longer time series are necessary to estimate discretionary accruals, which we have therefore calculated for the period 1997-2002 with two exceptions, Belgium (1999-2002) and Sweden (1998-2002), where certain years were eliminated due to lack of data.

[Table 1]

We have used the AMADEUS data base, 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 used to calculate changes in certain variables, as explained below. 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.

3.2. METHODOLOGY

Estimation of discretionary accruals

Accruals are defined as the part of revenues and expenses that do not imply collections and payments, and are indirectly calculated as the difference between profit and operating cash flows. Assuming that the latter cannot be manipulated, accruals (TA) would provide a way to manage earnings. However, not all accruals are equally capable of being manipulated, and we may therefore distinguish between non-discretionary accruals (NDA), which are more difficult for management to massage, and discretionary accruals, which are easier. Thus, TA = NDA + DA

The following expression (1) was used to calculate total accruals (TA_{it}):

$$TA_{it} = \Delta Receivables_{it} + \Delta Inventories_{it} - \Delta Payables_{it} - DEP_{it} \quad (1)$$

where $\Delta Receivables$ is the change in accounts receivable, $\Delta Inventories$ is the change in stocks, $\Delta Payables$ is the change in accounts payable and *DEP* is the depreciation and amortization expense. The subscripts *i* and *t* refer to the firm and the year respectively. Variations are calculated with respect to the prior year.

Since the discretionary and non-discretionary components of accruals are not directly observable, we use the model employed in Larcker and Richardson (2004) (equation 2):

$$\frac{TA_{it}}{A_{it-1}} = \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{(\Delta SALES_{it} - \Delta REC_{it})}{A_{it-1}} + \alpha_3 \frac{PPE_{it}}{A_{it-1}} + \alpha_4 \frac{BM_{it}}{A_{it-1}} + \alpha_5 \frac{CFO_{it}}{A_{it-1}} + e_{it} \qquad (2)$$

where TA_{it} are the total accruals booked by firm i in period t; $\Delta SALES_{it}$ is the variation in the sales of firm i in year t compared to year t-1; ΔREC_{it} is the variation in the accounts receivable of firm i in year t compared to year t-1; PPE_{it} is the total property, plant and equipment of firm i in year t; BM_{it} is the book-to-market ratio of firm i in year t; CFO_{it} is the current operating cash flows of firm i in year t and e_{it} is the error term for firm i in period t. A_{it-1} represents the total assets of firm i in period t-1.

This model starts from the modified version of Jones (1991) model proposed by Dechow et al. (1995) and attempts to improve it including *BM* and CFO^2. These variables are included because it is likely that incentives to manage earnings vary in response to growth opportunities (*BM* is included as a proxy for expected growth in the firm's operations) and current operating performance (measured by *CFO*).

Equation (2) was estimated for the period 1997-2002, assuming that non-discretionary accruals (NDA) are a function of the year-on-year change in sales, property, plant and equipment, book-to-market ratio and current operating cash flows. It was estimated for each of the countries included in the study applying the panel data methodology, which allows the use of both cross-sectional observation and time series[3].

A_{it-1} is used as a deflator to avoid problems of heteroscedasticity. We also used the procedure proposed by White (1980) to obtain consistent estimates in the presence of heteroscedasticity.

Having estimated the parameters of equation (2) for 1997-2002, we applied the values obtained to predict discretionary accruals for the period 2003 to 2006, the years comprising the study period. The prediction error is interpreted as the discretionary part of accruals, defined in equation (3):

$$\frac{DA_{it}}{A_{it-1}} = \frac{TA_{it}}{A_{it-1}} - (a_1 \frac{1}{A_{it-1}} + a_2 \frac{(\Delta SALES_{it} - \Delta REC_{it})}{A_{it-1}} + a_3 \frac{PPE_{it}}{A_{it-1}} + a_4 \frac{BM_{it}}{A_{it-1}} + a_5 \frac{CFO_{it}}{A_{it-1}}) \quad (3)$$

where DA_{it} are discretionary accruals for firm i in period t, and a_1, a_2, a_3, a_4 *and* a_5 are the estimated values of α_i.

After obtaining the discretionary accruals for each year, we may now test whether any differences exist in the use of discretionary accruals by European firms before and after the adoption of IFRS. This was done for each firm by calculating the mean value of discretionary accruals in absolute terms for the periods prior to the application of IFRS (2003-04) and for the subsequent periods (2005-06).

Then, we calculated the variation in absolute terms for firms in each country and looked for any significant differences in the variation found nationally. To this end, we applied the Kruskal Wallis non-parametric test after verifying that the variable does not follow a normal distribution.

As well as identifying any differences that may exist between countries, we also sought to establish the impact of IFRS in each one, that is, to learn whether discretionary accruals in the period prior to the application of international standards are significantly different in statistical terms from discretionary accruals subsequent to

implementation. The Wilcoxon non-parametric signed rank test was applied to this purpose, after it had been established that the variable does not follow a normal distribution.

The ranks obtained from the Wilcoxon test were used as the basis to establish not only whether any significant changes occurred in discretionary accruals but also whether these had increased or decreased. These ranks are assigned to differences between each pair of related variables, which in the present case consist of discretionary accruals after the adoption of IFRS less discretionary accruals prior to adoption. The test indicates the number of positively ranked cases, which is to say those where discretionary accruals increased after the application of IFRS, and of negatively ranked cases (i.e. those where accruals had decreased).

We also calculated the mean rise in discretionary accruals in positively ranked firms (i.e. those displaying an increase) and the mean fall in negatively ranked firms (i.e. those displaying a decrease)[4].

Estimation of current and long-term discretionary accruals

It was decided to analyze current and long-term accruals separately because it is likely that earnings management does not affect all such adjustments equally, as DeAngelo et al. (1994) and Arcas and Vidal (2004) argue, among others. Furthermore, this analysis would also reveal the accounts in which firms made the most intensive use of discretionary practices.

Since total accruals are the sum of current accruals (CA) and long-term accruals (LTA), the calculation was carried out using expressions (4) and (5), based on equation (1), as follows:

$$CA_{it} = \Delta Receivables_{it} + \Delta Inventories_{it} - \Delta Payables_{it} \quad (4)$$

$$LTA_{it} = -DEP_{it} \quad (5)$$

Current accruals are considered a function of sales and current operating cash flows, and long-term accruals a function of fixed assets and book-to-market ratio. Consequently, the next step is to estimate equations (6) and (7) for the period 1997-2002.

$$\frac{CA_{it}}{A_{it-1}} = \beta_1 \frac{1}{A_{it-1}} + \beta_2 \frac{(\Delta SALES_{it} - \Delta REC_{it})}{A_{it-1}} + \beta_3 \frac{CFO_{it}}{A_{it-1}} + e_{it} \quad (6)$$

$$\frac{LTA_{it}}{A_{it-1}} = \gamma_1 \frac{1}{A_{it-1}} + \gamma_2 \frac{PPE_{it}}{A_{it-1}} + \gamma_3 \frac{BM_{it}}{A_{it-1}} + e_{it} \quad (7)$$

Starting from this point we applied the same the methodology as for total accruals.

Relationship between discretionary accruals and institutional and corporate variables

In order to determine whether institutional and corporate characteristics have an influence on accounting discretion, and which characteristic is more related to discretionary accruals during each regulatory period, we get an estimate of equation (8) by Ordinary Least Squares for the period prior to adoption of the IFRS (2003-04) and the period subsequent to it (2005-06). This equation includes several corporate variables as independent: firm size (measured by total assets), firm growth (measured by sales variation), and leverage (measured by the volume of liabilities). All of them are deflated by the total assets of the previous period. As for institutional factors, two variables are considered: the degree of investor protection and legal enforcement[5].

$$\frac{DA_{it}}{A_{it-1}} = \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{A_{it}}{A_{it-1}} + \alpha_3 \frac{\Delta SALES_{it}}{A_{it-1}} + \alpha_4 \frac{LIAB_{it}}{A_{it-1}} + \alpha_5 INVPROTEC + \alpha_6 LEGALENF + eit \quad (8)$$

where DA_{it} are discretionary accruals for firm i during period t, A_{it} is the total assets for firm i during period t, $\Delta SALES_{it}$ is the variation in sales for firm i during year t with respect to year t-1, $LIAB_{it}$ is the volume of liabilities for firm i during year t, *INVPROTEC* stands for the degree of investor protection, *LEGALENF* is legal enforcement and e_{it} is the term of error for firm i during period t. A_{it-1} is the figure of total assets for firm i during the period t-1 and we have used it as deflator in order to avoid heterocedasticity problems.

The expected relationship between A_{it} (size) and the dependent variable is positive. The bigger firms may have more incentives to manage earnings because these firms receive more public attention than small firms (Watts and Zimmerman 1990 and Scott 1991). Moreover, in big firms there is a more significant distance between management, shareholders and external users of financial information. In the framework of the agency theory it makes for easier earnings management. We also expect a positive coefficient for $\Delta SALES_{it}$ (growth); managers of growth firms may have more incentives to manipulate since investors and other users may have overoptimistic expectations about the growth firms, resulting in negative consequences for firms if these expectations are not met (Lakonishok et al. 1994 and Skinner and Sloan 2002). The relationship between discretionary accruals and $LIAB_{it}$ (leverage) is *a priori* positive, since, as indicated by García Osma et al. (2005), the possibility of being unable to uphold certain specifications of debt contracts has been regarded in accounting literature as one of the main incentives to manipulate (see Sweeny (1994), DeFond and Jiambalvo (1994) and Bikky and Picheng (2002), among others).

Variables *INVPROTEC* and *LEGALENF* have been taken from Leuz et al. (2003). Investor protection (INVPROTEC) is an aggregate measure of rights of minority shareholders. This variable assesses the guarantee that markets offer to investors. We

expect to obtain a negative relation with the dependent variable, as the more rights for investors, the fewer the incentives for manipulation, as the capacity to benefit from manipulation shrinks. Legal enforcement (LEGALENF) is measured by using the mean of three legal variables used in La Porta et al. (1998): legal system efficiency, use of law as a regulatory mechanism and corruption index. As Leuz et al. (2003) point out, accounting rules can both limit a manager's ability to distort reported earnings, and affect the properties of reported earnings, but the extent to which accounting rules influence reported earnings and curb earnings management depends on how well these rules are enforced. So, we expect that discretionary accruals be negatively associated with legal enforcement.

Alternative measure for earnings management

Throughout this study we consider the existence of discretionary accruals as an indicator for the quality of earnings, in particular, and for financial reporting in general, by evaluating its importance both before and after adopting the IFRS.

In order to assess the consistency of measurement, we have analyzed the discontinuity in zero of the return on assets (ROA) by means of histograms of frequency for that variable. The aim is to detect possible irregularities in its distribution in the intervals annexed to the reference values which, presumably, are adopted by managers. This method can be found in Hayn (1995) and Burgstahler and Dichev (1997) and it has also been used in other studies, including those by Degeorge et al. (1999), Gore et al. (2002), Beaver et al. (2003) or Gallén and Giner (2005), among others.

The reference value adopted in our case is that located in 0 value for return on assets (earnings before interests and taxes divided by total assets), since there seem to be strong incentives for earnings management to avoid small losses and negative returns. In the graphic analysis on frequency distribution, if any irregularity should

happens, a significant 'break' will appear between those frequencies close to the zero value for ROA, but negative, and those frequencies close to 0 value but positive. In that case, we can infer that there have been certain practices carried out by management in order to avoid those losses and, therefore, manipulation has taken place and the quality of information is lower.

Considering that the aim of our study is to analyze the impact of adopting IFRS on earnings management, the graphic study will focus on assessing whether that discontinuity observed around zero profitability is higher (lower quality) or lower (higher quality) in the period after adoption with respect to that prior to adoption of IFRS.

4. RESULTS

4.1. VARIATION IN DISCRETIONARY ACCOUNTING PRACTICES IN EUROPE

The results of the Kruskal Wallis test (Table 2) reveal that the variation in discretionary accruals occurring after the adoption of IFRS differs in statistically significant terms across the European countries analyzed. This is the case both for the total discretionary accruals and for current and long-term accruals separately.

[Table 2]

Let us now consider the results obtained from the Wilcoxon test in order to establish the effect of IFRS on the use of discretionary accruals by firms in each country.

4.2. IFRS EFFECT ON TOTAL DISCRETIONARY ACCRUALS

The results obtained from the Wilcoxon test (Table 3-Panel 1) show that total discretionary accruals differ in statistically significant terms before and after the adoption of IFRS in Belgium, France, Greece and the United Kingdom. However, there was no statistically significant difference in the cases of Finland, Germany, Italy, the Netherlands, Portugal, Spain and Sweden.

[Table 3]

Focusing on the countries where significant differences in discretionary accounting were observed between the period 2003-04 and 2005-06, the ranks obtained from the Wilcoxon test reveal that in the four countries the number of firms in which discretionary accruals increased after the application of IFRS (positive ranks) exceeds the number of firms in which they decreased (negative ranks). Furthermore, the results presented in Table 4-Panel 1 show that the mean increment in the total discretionary accruals made by firms where an increase was observed was greater than the mean diminution in those firms where discretionary accruals decreased. Consequently, we may affirm that discretionary accounting in Belgium, France, Greece and the United Kingdom increased significantly at the time of the regulatory change.

[Table 4]

Let us now turn to consider those countries in which discretionary accounting did not undergo a statistically significant change based on total discretionary accruals (Finland, Germany, Italy, the Netherlands, Portugal, Spain and Sweden). Here (Table 3-Panel 1 and Table 4-Panel 1) we may observe that discretionary accounting has increased in the case of Finland, Italy, Spain and Sweden, although this increase was not

significant. In the case of Germany, Netherlands and Portugal discretionary accruals have diminished.

4.3. IFRS EFFECT ON CURRENT DISCRETIONARY ACCRUALS

The results of the Wilcoxon test (Table 3-Panel 2) reveal the existence of significant differences in current discretionary accruals only in three cases: France, Spain and the United Kingdom. In all of them discretionary accruals have increased, since the Wilcoxon test ranks show that these adjustments increased in a majority of firms and that the mean increment is larger than the mean decrease in those firms where discretionary accruals decreased (Table 4-Panel 2).

In Belgium, Finland, Italy and Sweden current discretionary accruals have also increased, although the effect was not statistically significant. In contrast, in Germany, the Netherlands and Portugal discretionary accounting practices decreased in terms of current accruals.

In Greece, differences observed in current discretionary accruals before and after IFRS were not significant. In this country current discretionary accruals decreased in a majority of firms, but the mean decrease in these firms was lower than the mean increment found in those firms where current accruals increase. Therefore, in general terms, we can not affirm either current discretionary accruals increased or they decreased.

4.4. IFRS EFFECT ON LONG-TERM DISCRETIONARY ACCRUALS

The Wilcoxon test (Table 3-Panel 3) shows that long-term discretionary accruals in the period prior to the application of IFRS differ significantly from long-term accruals made in the subsequent period in all of the European countries analyzed except Italy.

The number of firms in which long-term discretionary accruals increased exceeds the number of firms in which they decreased for all countries. Looking at the results presented in Table 4-Panel 3, moreover, we note that the mean increment in long-term discretionary accruals for those firms where they increased is larger than the mean decrease found in those firms where long-term accruals declined. Consequently, we may affirm that there has been a significant increase in discretionary practice as regards long-term items since the application of IFRS in the European Union, except in Italy, where the increase has not been statistically significant.

In light of the above, we observe that there are two countries (France and the United Kingdom) where total, current and long-term discretionary accruals have increased significantly after the application of IFRS.

In a second group of countries, significant differences are only found in long-term discretionary accruals, but not in current or total accruals. This group is formed by Germany, Finland, the Netherlands, Portugal and Sweden. In all these countries long-term discretionary accruals increased after the adoption of IFRS.

Belgium and Greece present significant differences in total and long term discretionary accruals. In Spain, although some relevant differences in the variation of current and long term discretionary accruals can be observed, total discretionary accruals has not significantly changed. We can regard Italy as an exceptional case where discretionary accruals have not experienced any significant change, be it current, long term or total.

4.5. RELATIONSHIP BETWEEN DISCRETIONARY ACCRUALS AND INSTITUTIONAL AND CORPORATE VARIABLES

The results from the estimation of equation (8), as seen on Table 5, show that all the explanatory variables, but the variation in sales, are significant for both before and after the introduction of IFRS. The signs of the coefficients are as expected.

[Table 5]

This leads us to suggest that corporate variables such as total assets and liabilities are relevant in explaining accounting discretion. Both show a positive coefficient before and after the introduction of IFRS, that is, the bigger the firm and the higher its leverage, the bigger the discretionary accruals will be, both under local accounting rules and under IFRS

As for the institutional variables, the two variables under investigation (investor protection and legal enforcement) show negative coefficients before and after the introduction of IFRS. This means, as predicted, higher protection for investors and stronger legal enforcement acted as a brake against earnings management before IFRS were introduced, and continue to do so now they are in force.

The fact that the significant variables are the same before and after the introduction of IFRS, and that the signs for the coefficients of those variables are also the same for both periods shows that the use of IFRS does not have an impact on incentives or disincentives for manipulation, backing the idea that those variations in earnings management for both periods, as shown before, might be due to there being more room for manipulation under international standards when compared with local standards.

In addition, the results reveal that a change in the basis of accounting in itself is not enough to reduce earnings management, but that it is necessary to act on institutional factors in order to limit those practices or discourage firms from implementing them.

4.6. FREQUENCY DISTRIBUTION OF RETURN ON ASSETS (ROA)

Appendix 1 shows the frequency distribution of ROA for the periods 2003-2004 and 2005-2006 for each country under study.

As can be seen in almost all histograms, there is a significant "leap" around level 0 of ROA (profit) as shown by means of a continuous line in the graphs. The frequencies observed are much higher in the interval immediately above level 0 for profit with respect to the immediately previous interval, which shows lower losses. Therefore, we observe that, under both local and international rules, managers take action in order to avoid small losses, which might entail a negative appraisal of their management. The implementation of IFRS has not done away with those practices.

Through the comparison of distributions for each country regarding the periods 2003-2004 and 2005-2006, we can assess the impact of the adoption of IFRS. Depending on how big the "leap" about 0 ROA is, the higher the "leap", the higher the practices implemented to avoid losses.

In eight of the countries under study (Belgium, Finland, France, Germany, Greece, Spain, Sweden and the UK), there is a higher discontinuity under IFRS than under local standards, which entails a higher level of manipulation. In contrast, for Italy, the Netherlands and Portugal, discontinuity is lower, that is, the adoption of IFRS has lowered management discretionary acts.

These results are consistent with those obtained for the analysis of discretionary accruals, whereby it can be said that IFRS implementation has resulted in a higher level of earnings management in the EU.

If the comparison of results generated when studying discretionary accruals is made country by country, it can be observed that, except for the cases of Germany and

Italy, the conclusions drawn are the same. That is, under both methods the adoption of IFRS has benefited or damaged the reliability, and so, the quality of financial information in the same countries.

5. DISCUSSION OF RESULTS

With respect to hypothesis 1, the results obtained show that discretionary accruals have increased after the mandatory implementation of IFRS in European firms.

These results seem to confirm that principles-based accounting models leave more scope for earnings management. Nelson (2003) points out that relatively young standard-setting regimes, such as IFRS in the EU, appear more principles-based because they have not had as much time to accrete rules. Over time there appears implementation guidance, interpretations and technical rules, and the standards tend to become more rules-based. This would be consistent with the results obtained, especially with regards to continental European countries, whose accounting models have been traditionally legalistic.

Yet, it is not totally correct to think that standards with a higher component of principles than rules must necessarily generate greater manipulation. In this sense, Nelson (2003) analyzes the problem from two viewpoints: "communication" (level of understanding the standards in order to facilitate a shared understanding of the meaning of financial reports) and "constraint" (role of standards to constraint reporting that is biased to produce an outcome consistent with management incentives).

As for communication he says that, while it is true that general rules may be interpreted in an inconsistent way, it is also true that those additional rules which increase exactness may be too complex to be correctly implemented.

Regarding 'constraint' both rules-based models and principles-based models are information biased, since there are incentives for manipulation. In the first case, incentive-consistent reporting choices can be justified via transaction structuring or by aggressive interpretation of the evidence that is evaluated and compared to standards' requirements. In the second case, an aggressive interpretation of standards (principles) can generate bias.

Therefore it seems to be clear that, although each type of standard has particular characteristics, they both may be wrongly implemented to the interests of managers.

In this context, those accounting policies adopted by the management will be related to the corporate characteristics of the companies and country factors, although none of them explain the increase in earnings management after the introduction of IFRS, since the results obtained with respect hypothesis 2 are the same before and after that.

Thus, we have detected a positive and significant relationship between two company variables (size and leverage) and the level of discretionary accruals. As can be logically inferred the bigger a firm, the larger the gap between management, shareholders and external users of information. Thus, within the framework of the agency theory, more manipulation practices can be implemented by the management, seizing the opportunity provided by the accounting standards discretion[6]. These accounting choices generate agency costs in the sense that they are opportunistic rather than optimal (Jensen and Meckling 1976, Fama 1980 and Fama and Jensen 1983). Moreover, the bigger firms may have more incentives to manage earnings because they are more visible than small firms (Watts and Zimmerman 1990 and Scott 1991).

The results show that leverage also increases earnings management, according to the debt-equity hypothesis, which suggests a positive relation between a firm's debt-

equity ratio and managers' choice of accounting methods that increase income (Watts and Zimmerman 1978, 1986). Our results are in line with those obtained by Lilien and Pastena (1982), Bartov (1993) or Jelinek (2007). However, Fields et al. (2000) state that the evidence on whether accounting choices are motivated by debt covenant concerns is inconclusive. Other authors have focused on samples of firms either close to violating or had already violated covenants, avoiding the use of debt as proxy of debt covenants, and they have obtained different results (Healy and Papelu 1990, DeAngelo et al. 1994, Sweeny 1994 or DeFond and Jiambalvo 1994). According to Beatty and Weber (2003), these studies may underestimate the effect of debt contracting on accounting choice for cases in which companies have effectively used accounting changes to provide slack in financial covenants, and thus never come close to covenant violations.

With regard to the country factors, the existence of incentives to manipulate accounting figures makes it necessary to provide the accounting standards with appropriate enforcement mechanisms and certain institutional provisions and characteristics, such as protection for investors. In fact, in our study it has become evident that there is a significant and negative relationship between legal enforcement and manipulation, as well as protection for investors. This seems to coincide with results by Leuz et al. (2003) and Burgstahler et al. (2006).

Although the focus of our study has been on accounting earnings management, we must discuss, in line with Ewert and Wagenhofer (2005), real earnings management (changes in the timing or structuring of real transactions). A strong legal system with tighter accounting standards can increase earnings quality, but the marginal benefit of earnings management increases due to a closer association between reported earnings and the market price reaction. It is a motivation to increase real earnings management, which is costly and directly reduces firm value. Accounting standards are unlikely to

decrease real earnings management, so management behaviour is key to limiting total earnings management. It may be appropriate that accounting rules be less strict, thereby reducing the marginal benefit gained from real earnings management which could have a direct impact on the book value.

In short, in line with Ball et al. (2003), reporting quality ultimately is determined by underlying economic and political factors influencing managers' and auditors' incentives, and not by accounting standards *per se*. Our study shows that the relationship between company and country variables and earnings management is the same before and after IFRS.

In our opinion, accounting standards play a relevant role in the quality of financial information, although we should not underestimate the importance of other factors, such us legal enforcement, investor protection or some corporate characteristics.

It is also necessary for professionals and management teams to implement the standards in a consistent way, giving importance to professional ethics and limiting therefore aggressiveness in financial reports. In accordance with Daske et al. (2008), only in this way will the adoption of IFRS be beneficial for stock markets. Therefore, it is necessary for there to be strong legal enforcement and for companies to have incentives to be transparent[7].

6. CONCLUSIONS

The main aim of this study was to examine whether the adoption of IFRS in the European Union increased or decreased earnings management by comparing discretionary accruals in the periods preceding and immediately after the regulatory change. We have not only looked at total discretionary accruals but have broken these

down into current and long-term adjustments, comparing results both before and after the adoption of IFRS. Another objective was to determine if some firms´ features and country factors explain or not the earnings management before and after IFRS. The study was based on a sample of non-financial firms listed on 11 European stock markets.

The results obtained show that earnings management has intensified since the adoption of IFRS in Europe, as discretionary accruals have increased in the period following implementation. Long-term discretionary accruals have risen significantly in all of the countries considered except Italy, where the increase was not significant. This fact may be connected to the differences between IFRS and local standards with regard to the valuation criteria of property, plant and equipment, an item that concerns long-term discretionary accruals. Meanwhile, current and total accruals have risen significantly in three and four countries respectively. The decreases observed were not significant in any case.

These results suggest that IFRS have actually encouraged discretionary accounting and opportunistic behaviour, with a consequent impact on the quality of financial information. All this is reinforced by evidence obtained through other alternative measurements for earnings management, such as the existence of higher discontinuities around the 0 value for ROA.

However, and despite the fact that results give evidence of an increase in earnings management after the adoption of the IFRS, those variables explaining accounting discretion are the same before and after the change of standards. For both periods there can be seen a significant and positive relationship between discretionary accruals and business size (asset volume) and its leverage (use of liabilities). In contrast, the relationship between those accruals and institutional variables is negative for both

periods, which implies that the level of investor protection and legal enforcement used in implementing the standards have helped to keep in check those manipulative practices.

The countries where earnings management has increased the most, with a significant increase for the current, long term and total discretionary accruals are France and the UK, countries traditionally regarded as representative of continental European accounting model, in the case of France, and Anglo Saxon model in the case of the UK. This allows us to think that the source accounting model is not decisive for the impact of the IFRS on earnings management.

The reasons for this increase in earnings management may be related to certain features of IFRS, which have been discussed in the literature as possible causes of unfavourable quality outcomes. As mentioned above, these matters include flexibility, which is often greater than in the previous national standards, the subjectivity implicit in the application of certain criteria such as fair value, and the lower level of requirements related to the financial statements presentation format. Examples of options in IFRS are the choice of capitalisation or expensing for interest costs on assets; choice of cost or fair value measurement for classes of property, plant and equipment or for some types of intangible assets; choice of content of statement of changes in equity, no format requirements for balance sheet or income statement, and so on.

Nevertheless, our study focuses on the impact of IFRS on reliability, one of the main attributes of accounting quality. Future research could study other attributes, such as timelines, conservatism, earnings volatility, etc.

Our results should be interpreted considering some limitations. First, the analysis focuses on a transitional period involving change and adaptation to the new standards, and firms may have made the most of this to behave opportunistically. The study

reveals the actions of firms in the face of this major regulatory change. However, it would be necessary to conduct studies with a longer time horizon after the application of IFRS in the EU if we are to reach any final conclusion about earnings management under international standards by European firms. Second, the behaviour of discretionary accruals is difficult to estimate by simple models. Third, the variables influencing on discretionary accruals may be outside those considered in our paper.

Our results contribute to the current debate surrounding the need for professional ethics to overcome opportunism, especially in the early years of IFRS application, and for effective control mechanisms to ensure that financial reporting achieves the desired level of quality, which will not be attained simply by the switch from local to international accounting standards. Until now, there is literature on the impact of IFRS on comparability or relevance of accounting figures, but not on the quality of financial information measured from the perspective of earnings management. In this sense, the present study contributes to literature by also comparing a high number of countries in the EU.

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[1] IFRS model is considered to be close to Anglo-Saxon accounting systems, which have traditionally been considered less uniform than continental European accounting model. However, some studies have been shown that accounting practices adopting by firms are not always more uniform in European continental countries. For example, Feige (1997) compares the degree of uniformity of corporate reports of British and German groups with regard to foreign currency translation, and he obtains that accounting practices of British firms are more uniform than German practices.

[2] A comment on the strengths and weaknesses of the main accruals models, and specifically about Jones´s model and its extension can be seen in Ye (2007).

[3] This method has been used in numerous papers, including Wang (1994), Hall and Stammerjohan (1997), Han and Wang (1998), Erickson and Wang (1999), and Arcas and Vidal (2004).

[4] This was done to gain a more nuanced analysis of the Wilcoxon test ranks, since it was possible that the result would show a larger number of positive (negative) ranks but the mean increment in the discretionary accruals made by the positively ranked firms would at the same time be lower (higher) than the mean decrease in the discretionary accruals made by negatively ranked firms.

[5] Other institutional variables which could have been introduced for the model are real estate concentrations, importance of the stock market or accounting tradition. They were ruled out due to their high correlation (above 70%) with the variables eventually chosen.

[6] In the level of earnings management, variables related with the corporate governance will have influence, as shown in the papers by Beasley (1996), Dechow et al. (1996), Klein (2002), Leuz et al. (2003), Xie et al. (2003) and Peasnell et al. (2005).

[7] Whittington (2008) points out that in as much as the enforcement of the standards may vary significantly across countries, the quality of IFRS financial reports is not comparable.

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Table 1. Sample

COUNTRY	NUMBER OF FIRMS	NUMBER OF OBSERVATIONS
Belgium	46	184
Finland	60	240
France	225	900
Germany	100	400
Greece	205	820
Italy	36	144
Netherlands	90	360
Portugal	39	156
Spain	77	308
Sweden	119	476
United Kingdom	411	1644
	1,408	5,632

Table 2. Differences in the variation of discretionary accruals among countries. Results of the Kruskal-Wallis test

	PANEL 1: TOTAL DA	PANEL 2: CURRENT DA	PANEL 3: LONG-TERM DA
Chi Squared	35.879*	45.325*	20.003**

*: significant at 1%; **: significant at 5%; ***: significant at 10%

Table 3. Differences between discretionary accruals before and after IFRS in each country. Results of the Wilcoxon test

	PANEL 1: TOTAL DA (1)		PANEL 2: CURRENT DA (1)		PANEL 3: LONG-TERM DA (1)	
Belgium	Positive ranks	11	Positive ranks	9	Positive ranks	12
	Negative ranks	6	Negative ranks	8	Negative ranks	5
	Z = -1.599***		Z = -0.544		Z = -1599***	
Finland	Positive ranks	25	Positive ranks	27	Positive ranks	38
	Negative ranks	23	Negative ranks	21	Negative ranks	10
	Z = -0.287		Z = -1.398		Z = -4.052*	
France	Positive ranks	73	Positive ranks	70	Positive ranks	81
	Negative ranks	22	Negative ranks	25	Negative ranks	14
	Z = -5.155*		Z = -5.375*		Z = -6.607*	
Germany	Positive ranks	25	Positive ranks	26	Positive ranks	48
	Negative ranks	39	Negative ranks	38	Negative ranks	16
	Z = 0.101		Z = -1.665		Z = -4.128*	
Greece	Positive ranks	90	Positive ranks	76	Positive ranks	130
	Negative ranks	74	Negative ranks	88	Negative ranks	34
	Z = -2.375**		Z = -0.878		Z = -7.942*	
Italy	Positive ranks	7	Positive ranks	7	Positive ranks	8
	Negative ranks	6	Negative ranks	86	Negative ranks	5
	Z = -1.349		Z = -0.874		Z = -1.393	
Netherlands	Positive ranks	36	Positive ranks	32	Positive ranks	66
	Negative ranks	36	Negative ranks	40	Negative ranks	6
	Z = -0.139		Z = -0.084		Z = -6.476*	
Portugal	Positive ranks	8	Positive ranks	7	Positive ranks	17
	Negative ranks	13	Negative ranks	14	Negative ranks	4
	Z = -0.921		Z = -1.498		Z = -2.897*	
Spain	Positive ranks	36	Positive ranks	40	Positive ranks	39
	Negative ranks	27	Negative ranks	23	Negative ranks	24
	Z = -0.615		Z = -1.937***		Z = -3.282*	
Sweden	Positive ranks	50	Positive ranks	54	Positive ranks	73
	Negative ranks	49	Negative ranks	45	Negative ranks	26
	Z = -0.115		Z = -0.349		Z = -4.754*	
United Kingdom	Positive ranks	196	Positive ranks	203	Positive ranks	249
	Negative ranks	135	Negative ranks	128	Negative ranks	82
	Z = -3.540*		Z = -4.411*		Z = -9.852*	

(1): Positive ranks indicate that DA after the application of IFRS (2005-2006) exceed DA before IFRS (2003-2004), while negative ranks indicate the opposite.

*: significant at 1%; **: significant at 5%; ***: significant at 10%

Table 4. Mean change in discretionary accruals for positive and negative ranks

	PANEL 1: TOTAL DA (1)		PANEL 2: CURRENT DA (1)		PANEL 3: LONG-TERM DA (1)	
Belgium	Positive ranks	0.068	Positive ranks	0.055	Positive ranks	0,018
	Negative ranks	0.027	Negative ranks	0.049	Negative ranks	0,012
Finland	Positive ranks	0.027	Positive ranks	0.026	Positive ranks	0,009
	Negative ranks	0.026	Negative ranks	0.024	Negative ranks	0,004
France	Positive ranks	0.081	Positive ranks	0.077	Positive ranks	0,013
	Negative ranks	0.036	Negative ranks	0.025	Negative ranks	0,005
Germany	Positive ranks	0.052	Positive ranks	0.049	Positive ranks	0,009
	Negative ranks	0.061	Negative ranks	0.064	Negative ranks	0,004
Greece	Positive ranks	0.076	Positive ranks	0.051	Positive ranks	0,011
	Negative ranks	0.046	Negative ranks	0.050	Negative ranks	0,009
Italy	Positive ranks	0.129	Positive ranks	0.088	Positive ranks	0,028
	Negative ranks	0.024	Negative ranks	0.043	Negative ranks	0,009
Netherlands	Positive ranks	0.042	Positive ranks	0.033	Positive ranks	0,012
	Negative ranks	0.044	Negative ranks	0.034	Negative ranks	0,006
Portugal	Positive ranks	0.034	Positive ranks	0.044	Positive ranks	0,009
	Negative ranks	0.039	Negative ranks	0.047	Negative ranks	0,005
Spain	Positive ranks	0.053	Positive ranks	0.051	Positive ranks	0,009
	Negative ranks	0.039	Negative ranks	0.049	Negative ranks	0,002
Sweden	Positive ranks	0.056	Positive ranks	0.048	Positive ranks	0,017
	Negative ranks	0.051	Negative ranks	0.047	Negative ranks	0,010
United Kingdom	Positive ranks	0.054	Positive ranks	0.050	Positive ranks	0,013
	Negative ranks	0.046	Negative ranks	0.043	Negative ranks	0,009

(1): Positive ranks indicate that DA after the application of IFRS (2005-2006) exceed DA before IFRS (2003-2004), while negative ranks indicate the opposite.

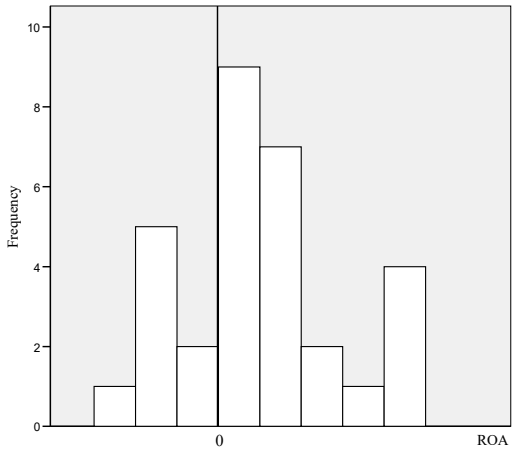
Table 5. Results of regression (8)

$$\frac{DA_{it}}{A_{it-1}} = \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{A_{it}}{A_{it-1}} + \alpha_3 \frac{\Delta SALES_{it}}{A_{it-1}} + \alpha_4 \frac{LIAB_{it}}{A_{it-1}} + \alpha_5 INVPROTEC + \alpha_6 LEGALENF + eit$$

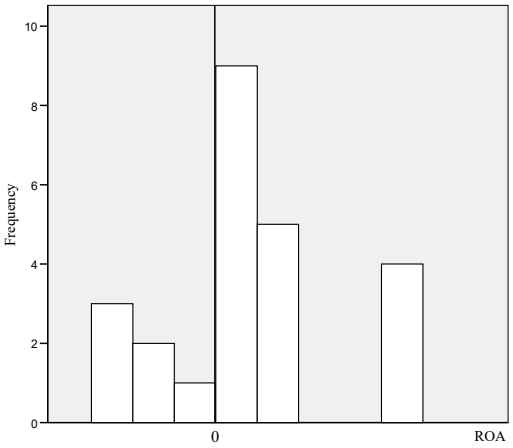
	Constant	A_{it}	$\Delta SALES_{it}$	$LIAB_{it}$	INVPROTEC	LEGALENF	R^2
2003-2004	-0.039*	0.03*	0.038	0.022**	-0.015*	-0.018*	0.083
2005-2006	-0.031**	0.015***	0.002	0.038*	-0.011*	-0.011*	0.263

DA_{it} : discretionary accruals of company i for period t.
A_{it} : total assets of company i for period t.
$\Delta SALES_{it}$: change in sales of company i for period t with respect to period t-1.
$LIAB_{it}$: liabilities of company i for period t.
INVPROTEC: investor protection.
LEGALENF: legal enforcement.
A_{it-1}: total assets of company i at the beginning of the period.

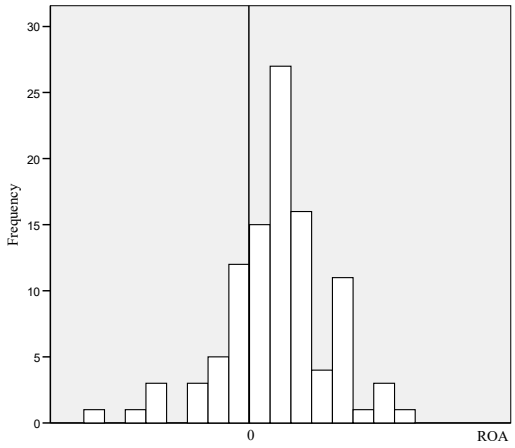
APPENDIX 1. Frequency histograms of Return on Assets (ROA)
(Earnings before interests and taxes/Total assets)



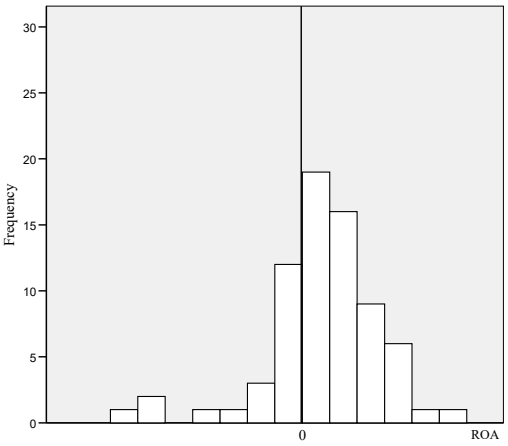
Belgium 2003-2004
Intervals of 0,04 from -0,13 to 0,25



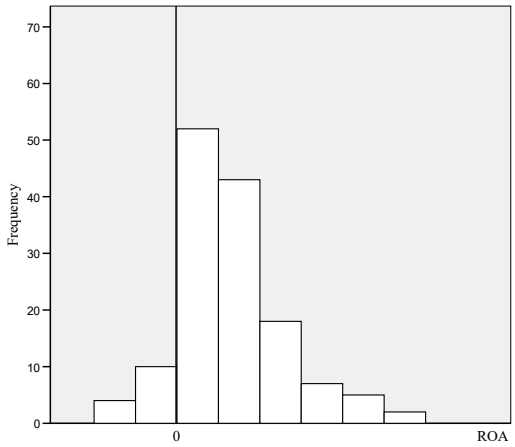
Belgium 2005-2006
Intervals of 0,04 from -0,13 to 0,25



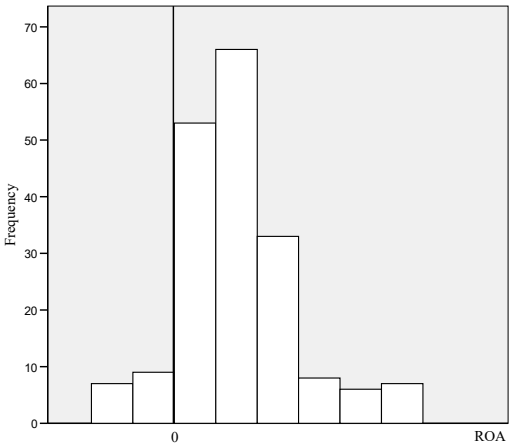
Finland 2003-2004
Intervals of 0,04 from -0,39 to 0,4



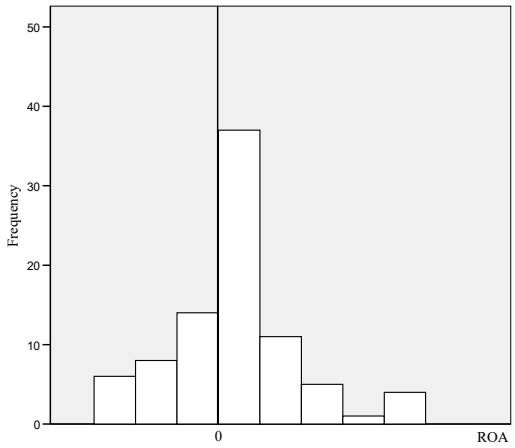
Finland 2005-2006
Intervals of 0,04 from -0,39 to 0,4



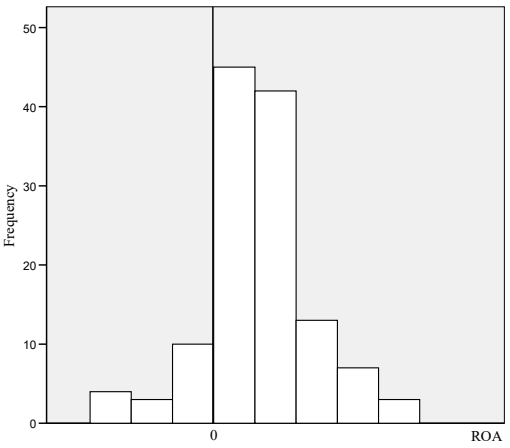
France 2003-2004
Intervals of 0,04 from -0,09 to 0,3



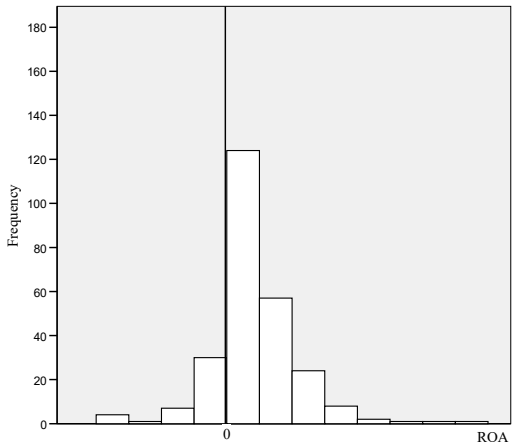
France 2005-2006
Intervals of 0,04 from -0,09 to 0,3



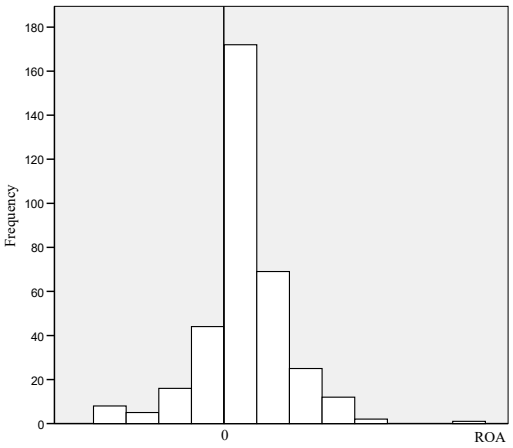
Germany 2003-2004
Intervals of 0,04 from -0,13 to 0,25



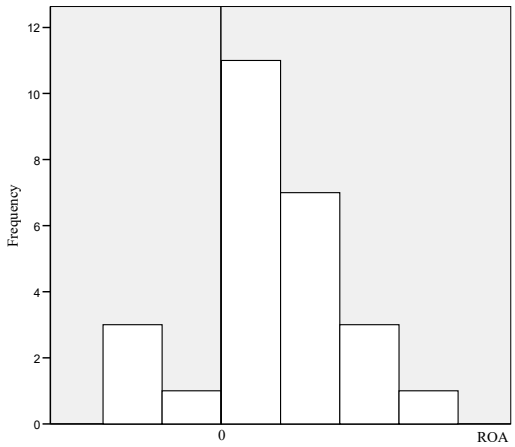
Germany 2005-2006
Intervals of 0,04 from -0,13 to 0,25



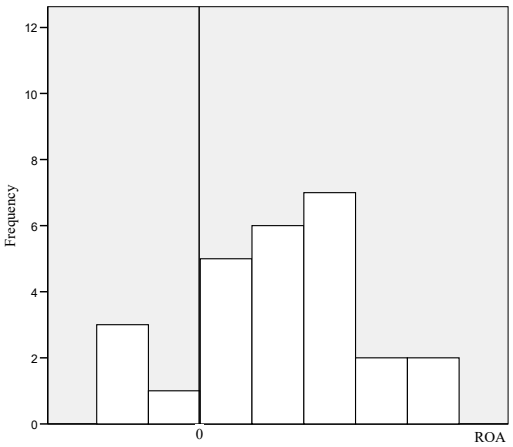
Greece 2003-2004
Intervals of 0,04 from -0,19 to 0,4



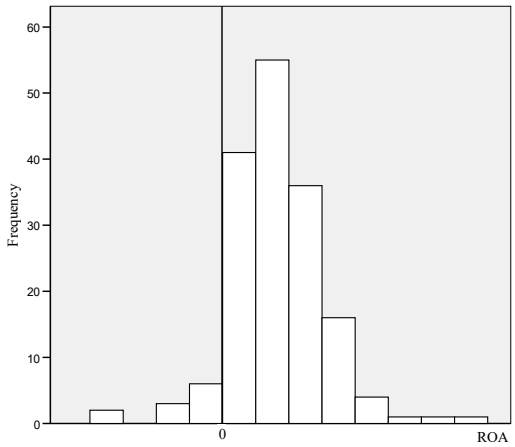
Greece 2005-2006
Intervals of 0,04 from -0,19 to 0,4



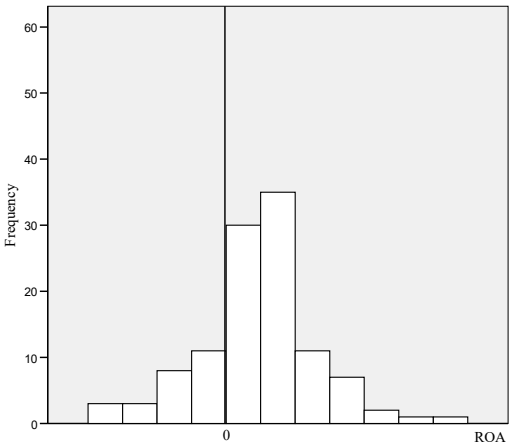
Italy 2003-2004
Intervals of 0,049; from -0,149 to 0,2



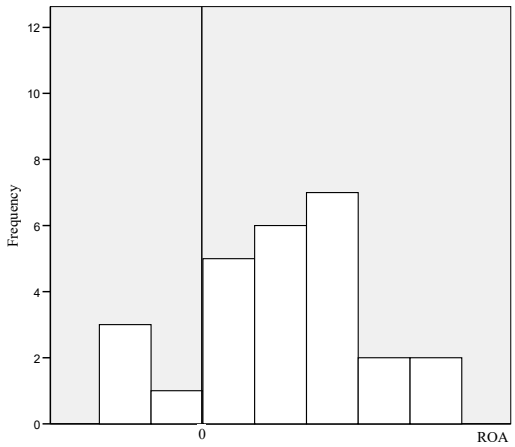
Italy 2005-2006
Intervals of 0,049; from -0,149 to 0,2



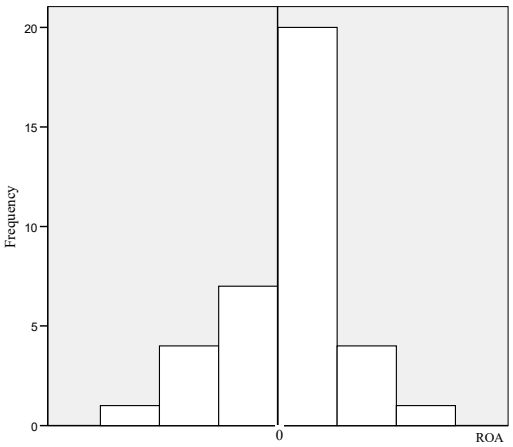
Netherlands 2003-2004
Intervals of 0,04 from -0,19 to 0,4



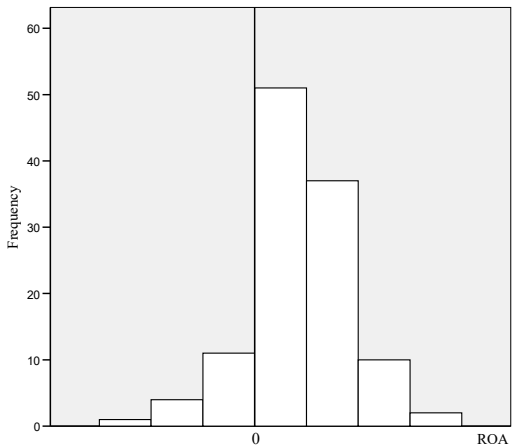
Netherlands 2005-2006
Intervals of 0,04 from -0,19 to 0,4



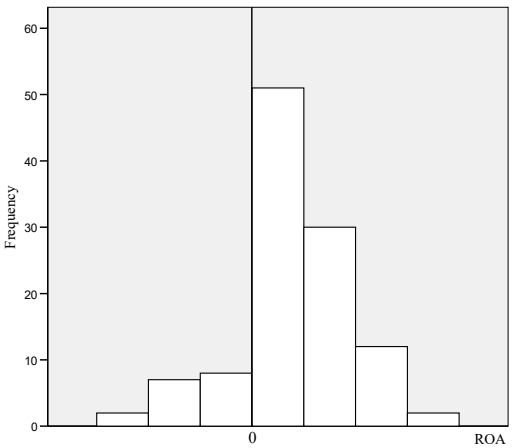
Portugal 2003-2004
Intervals of 0,049 from -0,149 to 0,15



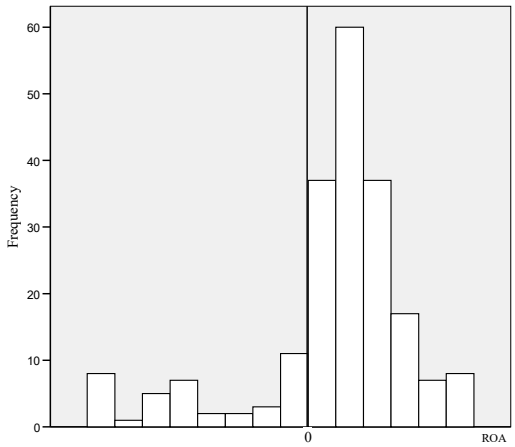
Portugal 2005-2006
Intervals of 0,049 from -0,149 to 0,15



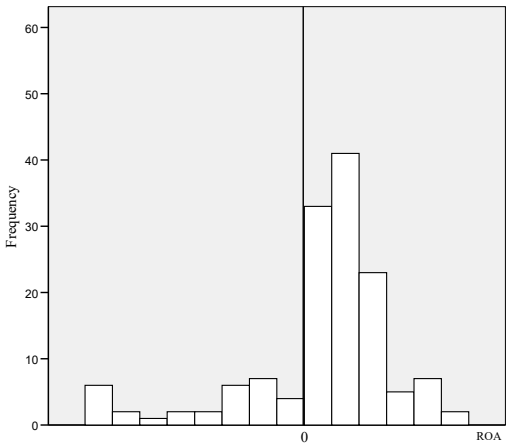
Spain 2003-2004
Intervals of 0,049 from -0,149 to 0,2



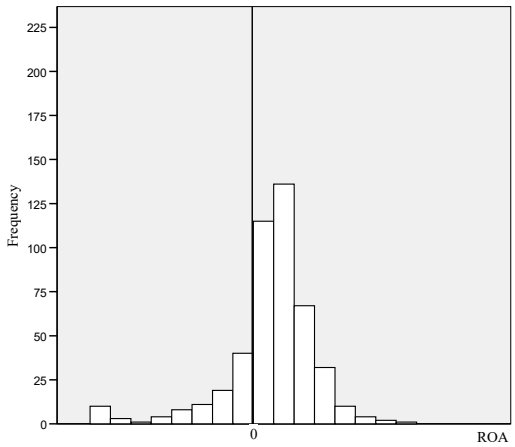
Spain 2005-2006
Intervals of 0,049 from -0,149 to 0,2



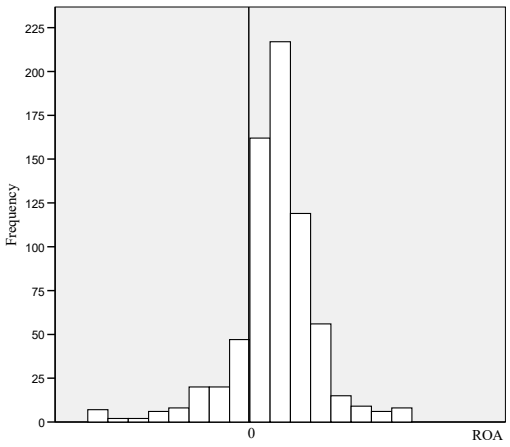
Sweden 2003-2004
Intervals of 0,04 from -0,39 to 0,3



Sweden 2005-2006
Intervals of 0,04 from -0,39 to 0,3



United Kingdom 2003-2004
Intervals of 0,04 from -0,39 to 0,4



United Kingdom 2005-2006
Intervals of 0,04 from -0,39 to 0,4