THE IMPACT OF IFRS ON THE EUROPEAN UNION. IS IT RELATED TO THE ACCOUNTING TRADITION OF THE COUNTRIES?

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Abstract

Purpose: The purpose of this paper is to discover the quantitative impact of IFRS on financial reporting of European countries and evaluate if this impact is connected with the traditional accounting system in which each country is classified, either the Anglo-Saxon or the continental-European accounting system.

Design: First, we quantify the IFRS impact on each country and we make a comparative analysis of that impact among countries. Then, we apply a cluster analysis in order to group European countries on the basis of the different effects of IFRS application.

Findings: The results obtained show that the first application of IFRS has had different effects on the financial reporting among countries. The cluster analysis identifies four groups which shows that the impact of IFRS on financial statements of European firms is not related to traditional accounting systems.

Originality: The main contribution of the paper is that it studies the impact of mandatory IFRS application for several European countries and shows a comparative analysis, grouping the countries on the basis of that impact. Previous literature mainly gathers research related to specific countries, individually considered, or to different IFRS effects that do not reflect quantitative impacts.

Keywords: IFRS, European Union, financial reporting, quantitative impact, empirical research, cluster analysis

1. INTRODUCTION

The globalization of markets has made firms' financial reporting ever more international. The pressure of European multinationals and the rapid development of global financial markets demand harmonization of accounting standards and approaches around the world. The economic environment is constantly developing which implies a more sophisticated financial reporting system.

After various attempts to harmonize accounting criteria, the Parliament and the Council of the European Union endorsed the IAS Regulation which made it mandatory for listed groups of companies to prepare their consolidated financial statements in accordance with the international standards issued by the IASB and accepted by the European Union. The Regulation was a decisive step towards ensuring the international comparability of financial information and the international harmonization, representing the starting point for the general application of the IASB's standards by the member States.

International accounting harmonization has been discussed by accounting researchers for many years and, currently, the accounting literature provides much research studying the effects of this last step to achieve harmonization of accounting criteria.

The simultaneous adoption of new common accounting standards by different countries to obtain comparability, begs the question of how this change affects the financial statements issued by companies in each country. Likewise, it may be interesting to ask whether this change affects all of the member States equally, or whether different patterns of behaviour are observed in them.

As Soderstorm and Sun (2007) state, the generalized adoption of IFRS will result in a fundamental change in the reporting of the business environment, since, prior to 2005, companies followed a variety of country-specific Generally Accepted Accounting Principles (GAAP). Taking into account the traditional classification of accounting systems in Anglo-Saxon and continental-European accounting models which are highlighted by, for example, Nair and Frank (1980), Salter (1991), Nobes (1992) and Jarne (1997), is the effect of IFRS application linked with the prior accounting model in each member state?. The economic environment has changed and it is interesting to question whether, considering current countries' features and the effects of IFRS on financial information of firms in these countries, we can continue to classify them in accounting systems as has been done so far.

The aim of this paper is to evaluate whether the quantitative effect of IFRS application on European countries has been different, whether these differences are related to accounting system features in each country, and in particular, whether their proximity to the continental European or the Anglo-Saxon accounting model has an impact.

For this, we first quantify the IFRS impact on each country and we make a comparative analysis grouping European countries on the basis of that impact. If clusters obtained corresponded with traditional accounting systems, we could consider accounting models are connected to different impacts of IFRS implementation among European countries.

The main contribution of this paper is that it studies the impact of mandatory IFRS application for several European countries and shows a comparative analysis among European countries grouping them depending on this impact; previous literature mainly reports upon research related to specific countries, individually considered, or different IFRS application effects that are not quantitatively measured.

The paper is structured as follows. The following section provides a brief review of the literature, which is followed by an outline of the sample selection procedure, the definition of the variables employed and a description of the methodology employed. We then go on to present the results obtained and end with our conclusions.

2. PREVIOUS LITERATURE

The mandatory introduction of the IFRS for EU listed companies has instigated many accounting researchers to study different consequences of IFRS application in European firms; both the effects on capital markets and in the image shown by the financial statements, in comparability and so on.

Some studies have focused on the impact of IFRS on a specific area in a single country[1]. Nevertheless, in our paper's context, we consider it more interesting to focus the literature review on that research which has tackled the effects of IFRS adoption on financial reporting; not only from the quantitative point of view, but also from the qualitative characteristics of this information (Table 1).

[Take in Table 1]

In this way, Jermakowick (2004) analyzed the IFRS adoption process in Belgium, which, like Germany, is an example of the continental accounting model. The paper analyzes the impact of IFRS on BEL-20 firms. A survey sent to Belgian companies indicates that implementing IFRS will dramatically change the way these companies design and handle both their internal and external reporting activities, and will increase the comparability of consolidated accounts as well as levels of transparency for many companies. The quantitative impact is only considered in three companies, which were the first companies to adopt IFRS in 2003. The study concludes that the adjustments required to translate Belgian GAAP to IFRS resulted in a significant impact on the firms' reported equity and on net income.

Larson and Street (2004) examined both progress towards and the perceived impediments to convergence in 17 European countries (the 10 new EU members, Switzerland and other EU candidate countries). The authors employ data collected by the former Big Six international accounting firms in their 2002 convergence survey. The results suggest the emergence of a "two-standard" system: IFRS for consolidated financial statements of listed companies and local GAAP for non-listed companies. The two most significant impediments to convergence are the complexity of certain IFRS and the tax-orientation of many national systems.

Weißenberger *et al.* (2004) found that the expectation of gaining standing in the capital markets, improving the supply of information, and achieving the internationalization of their investor base led certain German firms to opt for US GAAP or IFRS rather than German GAAP.

Bartov *et al.* (2005) investigated comparative value relevance. Given the differences between earnings produced under German GAAP and under US GAAP or IAS, they find that earnings prepared under the latter have higher value relevance than earnings determined under the former. Nevertheless, their results hold only for profit observations, suggesting that the

[1] See, for example, Omrod and Taylor (2004), Jones and Luther (2005), Alves and Morais (2007), Haverals (2007), Ernstberger and Vogler (2008) or Van de Poel et al. (2008).

reporting regime does not hold an influence on the quality of earnings in the case of loss firms.

Van Tendeloo and Vanstraelen (2005) address the question of whether the adoption of IFRS is associated with reduced earnings management. They asked whether those German companies that have adopted IFRS engage significantly less in earnings management compared to firms reporting under German GAAP. Their results suggest that the adoption of IFRS cannot be associated with reduced earnings management.

Gassen and Sellhorn (2006) address three research questions motivated by the recent ascent of IFRS in Europe. First, they analyzed the determinants of voluntary IFRS adoption by publicly traded German firms during the period 1998-2004. Then, they document significant differences in terms of earnings quality and finally analyze information asymmetry differences between IFRS and German-GAAP firms.

Schiebel (2006) examined the value relevance of IFRS and German GAAP. The sample included 24 German companies listed on the Frankfurt stock exchange (12 companies publishing exclusively German GAAP consolidated reports for the period 2000-2004 and 12 companies publishing exclusively IFRS consolidated reports for the same period 2000-2004). The author proposed different regressions of market capitalization on consolidated equity book value using a simple linear regression analysis, finding that German GAAP are significantly more value relevant than IFRS.

Horton and Serafeim (2006) examined the market reaction to and value relevance of reconciliation adjustments from UK companies in the transition to IFRS compliance. The sample consisted of 85 firms from the London Stock Exchange FTSE 350 for 2005. The authors employed an event study methodology and a market value model. They found the reconciliation adjustment from UK GAAP to IFRS to be value relevant with respect to earnings but not to shareholders' equity.

Silva and Couto (2007) measured the impact of IFRS on the financial information reported by Portuguese firms included in the Euronext Lisbon Eurolist. Their results show that the structure of the consolidated balance sheet and income statement showed considerable change concerning the measurement of firms' performance and financial position. However, the accounting changes observed were inconsistent and did not display a definite pattern.

Callao et al. (2007) analyzed the effects of international standards on the comparability and relevance of Spanish firms' financial statements. They performed an empirical analysis of the use of IFRS by firms listed on Spanish stock markets (IBEX-35). They examined, on the one hand, the impact of international standards on accounting variables and key economic and financial indicators, and, on the other hand, the difference between book and market value. The study revealed that local comparability is adversely affected if both IFRS and local accounting standards are applied in the same country at the same time. Reforms to bring local rules into line with international standards are therefore urgently required. They also find that there has been no improvement in the relevance of financial reporting to local stock market operators because the gap between book and market values is wider when IFRS are applied. While there has been no gain in terms of the usefulness of financial reporting in the short term, improved usefulness may be achieved in the medium to long term.

Christensen et al. (2007) examined the economic consequences for UK firms of the European Union's decision to impose mandatory IFRS. They hypothesized that the impact varies across firms and it is conditional on the perceived benefit. They found that mandatory

IFRS adoption does not benefit all firms in a uniform way but results in relative winners and losers.

Hung and Subramanyam (2007) examined the effects of the adoption of IFRS on the financial statements reported by firms in European countries that applied Continental-style accounting systems. Their study is based on a sample of German firms over the period 1998 to 2002. They find that total assets and book value of equity, as well as the variability of book value and income, are significantly higher under IFRS than under German GAAP. In addition, book value and income are no more value relevant under IFRS than under German GAAP. Finally, they found weak evidence suggesting that IFRS income exhibits greater conditional conservatism than German GAAP.

Van der Meulen *et al.* (2007) studied attribute differences between US GAAP and IFRS earnings. They tested two market-based earnings attributes and two accounting-based earnings attributes for German New Market firms finding that US GAAP and IFRS only differ with regard to predictive ability. Thus, US GAAP information outperforms IFRS, and this is also after controlling differences in firms' characteristics: size, leverage and audit firm. However, their results also seem to suggest that these differences are not fully valued by investors.

Beckman *et al.* (2007) analyzed reconciliations of net income and shareholders' equity in reports prepared according to German GAAP to IFRS and US GAAP figures. The results show German companies have to reverse significant software and film licensing revenue when reconciling to IFRS or US GAAP. Not surprisingly, other areas of significant difference reveal more conservative reporting under German GAAP than IFRS or US GAAP, particularly in asset capitalizations and write-offs, as well as accruals related with provisions and reserves.

Sellhorn and Skaife (2008) investigated whether mandated IFRS reporting results in more comparable financial information. They examined the valuation usefulness of earnings and book values of French, German and UK firms before and after IFRS adoption. Their results suggest that mandated IFRS reporting does not increase the valuation usefulness of accounting information across countries. However, they found that comparability can be achieved when firms face market incentives to report more comparable information.

Ferrer et al. (2008) analyzed the impact in 11 European countries of the application of IFRS to the financial information reported by listed groups. Their results reveal that the adoption of IFRS has had a material impact on financial information in Spain, France, Ireland, Sweden and United Kingdom. Fixed and current assets, short term and total liabilities and net income are the accounting figures most affected by the change of accounting standards. Likewise, solvency, indebtedness and return on equity are the ratios most affected.

As we can observe, most of the research mentioned above refer to the effect of the application of IFRS in a specific country, but there is little research comparing the quantitative impact in different European countries. This is one of the main contributions of our paper.

3. SELECTION OF THE SAMPLE

The objective of this paper is to compare the quantitative impact of the adoption of international accounting standards by EU member States. We concentrate on eleven of the countries forming part of the EU-15, comprising Denmark, Finland, France, Greece, Ireland, Italy, the Netherlands, Portugal, Spain, Sweden and the United Kingdom.

The sample is made up of listed groups traded on the main stock market in each of the countries included in the study (Table 2), which may be taken as the most represented firms in the stock markets of each of the countries considered. We have excluded firms providing financial services (financial institutions, portfolio companies and holding companies) due to the peculiarities of the financial sector and because the specific regulations governing the sector mean that the financial information reported differs from that of other industries.

To evaluate the impact of IFRS on accounting figures we need comparable data. For this reason, we have focused on the fiscal year 2004, because firms' financial information for that year is available under both the prevailing local standards and the IFRS accepted by the EU.

The final sample consists of 242 firms from eleven countries. The study is based on 2004 balance sheets and income statement figures prepared under local and international standards, the latter extracted from the comparative figures reported in 2005. The data were obtained from the corporate websites of the firms included in the sample.

[Take in Table 2]

4. DEFINITION OF VARIABLES AND METHODOLOGY

4.1. Definition of variables

The analysis of the impact of IFRS implementation refers to the figures contained in the balance sheet and income statement, as well as key financial ratios, as follows:

- Balance Sheet (Fixed assets, Inventories, Debtors, Cash, Current assets, Total assets, Equity, Long term liabilities, Short term liabilities, Total liabilities and Total equity and liabilities);
- Income statement (Operating income, Ordinary income and Net income);
- Financial ratios (Current ratio, Acid test, Cash ratio, Solvency, Indebtedness, Return on assets per operating income and ordinary income, and Return on equity per ordinary income and net income).

Table 3 provides the definition of figures and indicators used in the study. In total, 23 variables are measured based on the local standards and IFRS.

[Take in Table 3]

We calculate the relative impact from the application of international standards as the percentage change in the value of accounting figures and financial ratios following the implementation of the new standards (expression [1]).

$$RELATIVE\ IMPACT = \frac{IFRS\ Value - Local\ GAAP\ Value}{Local\ GAAP\ Value} \qquad [1]$$

Since this variable does not meet normality conditions and exhibits heteroscedasticity problems, we transformed it into an ordinal variable represented by the range of the 242 firms comprising the sample for each figure and ratio. For the new variable normality conditions are not required. In the first place, we assign respective ranges to each variable, and then we apply a change of origin; so, the first range is the impact zero in each variable. This procedure does not affect the results, because the variables generated are unaffected by changes of origin.

As a result of the transformation of the original variable, we work with an ordinal variable that allows us to arrange all cases on the basis of the relative impact of each figure and ratio. So, countries can be classified based on the position taken by their firms in the ranking established by the variables considered in the study.

4.2. Methodology

The study seeks to carry out a cross-country analysis to examine whether the impact on the variables considered was similar or different among countries. To achieve this, we first verify that the series of impacts do not meet normality conditions and then go on to apply the Kruskal-Wallis test. Since the statistical package employed (SPSS 14.0) does not allow us to analyze pairs of countries' differences using the Kruskal-Wallis test, we transform the variable *RELATIVE IMPACT* into an ordinal form in order to apply an ANOVA analysis to the transformed variable[2].We then perform a hierarchical cluster analysis in order to group European countries based on the different impacts of the application of IFRS.

To complement the cluster analysis we carried out a factor analysis, specifically principal components analysis, to reveal the most relevant variables explaining the configuration of the groups. In order to explain the differences and similarities among the groups of countries obtained, we combine the results of the factor analysis, a graphic representation of the mean ranges of the variables for each factor, and the ANOVA results.

5. COUNTRY GROUPING BASED ON THE IFRS IMPACT

First, we used the Kruskal-Wallis test to discover whether the relative impact on firms' financial figures is similar or different among the countries analyzed. The results obtained (Table 4) show that the application of IFRS has different effects on the economic and financial image presented by firms among countries, except for Inventories and Return on equity per ordinary income.

[Take in Table 4]

Then, we perform a comparative analysis of the impact of IFRS in the EU member States, in order to discover what countries have similar behaviour and what variables determine the differences and similarities among the European countries.

The following groups are identified by applying a cluster analysis to the ranks obtained previously:

- Group 1 (G1): Denmark, Netherlands, Ireland and Sweden.
- Group 2 (G2): Spain, Finland, France, Italy and United Kingdom.
- Group 3 (G3): Greece.
- Group 4 (G4): Portugal.

This grouping (Graph 1) emerges from a first division into two groups comprising, on the one hand, G1 and, on the other, groups G2, G3 and G4. This second group is then further segmented into two, consisting of G2 and G3 (Greece) together with G4 (Portugal). Nevertheless, we could also consider groups G3 and G4 are in the same group - characterized by being different from the rest of the countries.

[Take in Graph 1]

[2] The ANOVA test is similar to Kruskal-Wallis test, but it is used with normal and ordinal variables.

Since the inclusion of different countries in the same group does not mean that the impact on the magnitudes was the same, it will therefore be of interest to examine how the groups are configured and the differences arising in each of the clusters obtained[3].

So, in order to explain which variables determine the differences among these groups and differences among countries in different clusters, we supplemented the study with an ANOVA test to observe the pairs of countries exhibiting significant differences for the variables analyzed (Table 5). In this way, we can check if groups obtained in the cluster analysis are consistent with individual differences between pairs of countries. Moreover, we support this study with a factor analysis to identify some factors providing information on the characteristics of each group and the differences among them. We apply this factor analysis on variables in order to group those which have similar impacts. Then, due to these results, we will be able to characterize clusters obtained depending on impacts in these factors.

[Take in Table 5]

Six factors are generated in the factor analysis. Four of them explain 80% of the total variance[4]; so, we are going to employ these four factors to explain the cluster formation (Annex 1, Table 1):

- Factor 1: Debtors, Cash ratio, Cash, Current assets, Short term liabilities and Long term liabilities.
- Factor 2: Return on assets per operating income, Operating income, Return on assets per ordinary income, Return on equity per ordinary income and Ordinary income.
- Factor 3: Equity, Total liabilities, Solvency and Indebtedness.
- Factor 4: Acid test, Cash ratio, Return on equity per net income and Net income.
- Factor 5: Total Assets, Equity + Liabilities and Fixed Assets
- Factor 6: Inventories.

As may be seen, the first factor is based on short term variables and ratios (Long term liabilities have only limited explanatory power in the factor, given its small factorial loading). The second factor is based on economic variables and indicators, and the third on long term variables and indicators. The fourth factor is made up of both short term and economic variables and indicators. Finally, we can consider that the fifth factor explains companies' size and the sixth is only formed by Inventories variable.

As we have explained, we only use Factors 1 to 4 to characterize groups. So, Factors 1 and 2 are mainly responsible for the distinction drawn between the groups in the cluster analysis (inter-group differences), while factors 3 and 4 display differentiated behaviour in some countries of the groups established (intra-group differences).

To end the study, we provide the profile graphs for each factor in relation to each of the groups (Graphs 2 to 5), in order to observe the behaviour of the variables shaping the various factors in the groups of countries generated.

[Take in Graphs 2 to 5]

The following discussion, based on the results obtained from the above analysis, and especially from the factor analysis (Annex 1-Table 2), refers to the distinguishing features and composition of the groups:

[3] This analysis is only relevant for groups formed by more than one country, and we therefore confine ourselves to G1 and G2.

[4] The variables shaping each factor are enumerated in line with the order of entry.

- *Group 1: Denmark, Netherlands, Ireland and Sweden.*

This Group differs significantly from the others in terms of the values obtained for the variables shaping Factor 1, with significantly different factor scores for the countries in this group in relation to the rest. Thus, analyzing Graph 2 it is possible to observe the impact on the Current assets and Debtors variables is closer to zero than in the other groups. The Cash ratio only takes negative ranges for the countries in this Group, while it is positive in the others. This is also the case with Debtors, where the mean ranges observed are close to zero, in contrast to the remaining groups, where the scores are positive and distant from zero. Short and Long term liabilities do not explain differences between this Group and the others because these variables represent only a small part of the factor.

The ANOVA results support grouping these countries for the variables included in the first factor, since significant differences are observable among the countries in this group and the countries included in other groups (see Table 5).

Turning to intra-group differences, The Netherlands, Ireland and Denmark can be grouped together. No statistically significant differences among these countries were found in the impact on the different magnitudes. However, the profile graphs (see Graphs 2 to 5) reveal discrepancies in the impacts on Long term and Short term liabilities (Factor 1). The economic variables and ratios shaping Factor 2 exhibit the strongest negative impacts in the case of Denmark. In Factor 3 variables, however, impacts are closer to zero for Denmark in the case of Equity and the Solvency and Indebtedness ratios. In contrast the Current ratio and Acid test, included in Factor 4, show the highest ranks in relation to the impact in Denmark.

Sweden is the last country included in G1 because it exhibits the greatest differences with the others, as shown in the Factor 2 and Factor 3 scores. Indeed, the ANOVA results show three variables where there are significant differences with The Netherlands (Equity, Net income and the Indebtedness indicator) and two with Ireland (Equity and the Solvency indicator) (see Table 5). The differences between Sweden and the rest of the group can also clearly be seen in the profile graphs of Factors 2, 3 and 4 (see graphs).

- *Group 2: Spain, Finland, France, Italy and United Kingdom*

The second cluster differs from the first for the component variables of Factor 1, as remarked above. The factor scores differ widely between the two majority groups (G1 vs. G2) and between G2 and Portugal. However, the first factor scores do not reveal any major differences in the short term figures and ratios between this group and Greece. In this second group, the negative impact arising in Debtors and Current assets is larger than in G1, but smaller than in Portugal (view Graph 2). However, the Cash and Cash ratio ranks are positive in G2, although lower than in the case of Portugal. The remaining factors justify the differences between this group and Greece, which Factor 1 is not able to explain.

The first grouping in G2 emerges between Finland and France, on the one hand, and Spain and the United Kingdom, on the other. No significant differences are observable between these pairs of countries in either case (Table 5).

Once again, the profile graphs reflect certain differentiated behaviours. In the Finland – France pair, the impact on Long-term liabilities is greater in Finland. The absolute value (though negative) for Debtors and Current assets are higher in France. The impact on the economic variables and ratios (Factor 2) is less positive (or even negative) in France than in Finland (view Graph 3).

In the case of Spain and the United Kingdom, we may observe differences in the Factor 1 variables, with higher absolute values (negative in both countries) for Debtors and Current assets in the United Kingdom (Graph 2). In Factor 2, a larger negative impact on Operating income and the Return on assets per operating income may be observed in Spain (Graph 3).

Then, Italy joins Spain and the United Kingdom. In the ANOVA results they do not show significant differences with either country. This is not surprising, given that the mean ranks in the Italian case are not located at the extremes (see Table 5).

Finally, the two sub-groups analyzed (Finland and France, and the other, Italy, Spain and the United Kingdom) are aggregated. The differences between these two sub-groups are found to be significant for liabilities (Long term in the case of France vs. the United Kingdom, and Short term liabilities in the case of France vs. the United Kingdom, Finland vs. the United Kingdom and France vs. Spain) and for the Current ratio and Acid test indicators (France vs. the United Kingdom).

- *Group 3: Greece*

As mentioned above, the key results in the case of Greece are obtained from Factor 2, 3 and 4, where differences can be observed between behaviour in Greece in comparison with the remaining countries.

In this case, we need to consider not only the high (positive and negative) factor scores exhibited by the country but also the profiles presented (Graphs 3 to 5). We may point here to the economic figures and ratios included in Factor 2, most of which show negative scores, in contrast to other countries where these variables are either positive or close to zero. The differences between Greece and G2 are even clearer in Factor 3 variables. These display high and positive average ranks (Total liabilities and Indebtedness) for the G2 members, in contrast to the negative and low scores for Greece. In contrast, Solvency and Equity show positive average ranks in Greece compared to the negative scores obtained for all countries in G2.

- *Group 4: Portugal*

Portugal forms the other unitary group. The high scores obtained for all factors highlights the differences with the other groups. Furthermore, the graphic representation reinforces this, since Portugal displays extreme values for most of the variables, normally in the same way as Greece.

The distinctions between the two unitary groups (G3 and G4) are clear. In Factor 1, the negative impact in Short term liabilities, Debtors and Current assets are higher in Portugal than in Greece. This is also observable for the two short term variables included in Factor 4. In contrast, a higher positive impact may be observed in Cash and the Cash ratio. The behaviour of the financial variables (Factors 2 and 4) is also unequal, with a more positive impact in Portugal than in Greece (see profile graphs).

Our objective has been to compare the quantitative impact of IFRS on different European countries and to group them on the basis of that impact to evaluate if this grouping is influenced by accounting tradition of the countries. Taking into account the different accounting systems classifications published some decades ago (for example, Nair and Frank (1980), Salter (1991), Nobes (1992) and Jarne (1997)), our paper includes three countries

close to the Anglo-Saxon accounting model (Ireland, The Netherlands and United Kingdom) and eight countries close to continental European systems (Denmark, Finland, France, Greece, Italy, Portugal, Spain and Sweden). However, the groups we obtain are not connected with the traditional accounting system of the countries analyzed.

In fact, Group 1 includes two Anglo-Saxon countries (Ireland and The Netherlands) and two continental European systems (Denmark and Sweden). Four of the five countries in Group 2 have a continental European tradition (Finland, France, Italy and Spain), but we have to emphasize the presence of United Kingdom in the same group, traditionally head of Anglo-Saxon systems. Moreover, two countries which have been always classified as Continental European countries are not in Group 2; Greece is the only country in Group 3 and likewise Portugal in Group 4.

These results show that the impact of IFRS on financial statements of European firms is not related to traditional accounting systems. It may indicate that the differentiation between Anglo-Saxon and continental European accounting systems is not as clear at the present time as it was in the past (Alexander and Archer, 2000, Nobes, 1998, 2003 and 2004, D´ Arcy, 2001 and 2004, Delvaille et al., 2005, Lewis and Salter, 2006). It may also be due to the accounting policies adopted by the firms before the adoption of IFRS were not the most representative of the Anglo-Saxon and continental European accounting systems. This would not be unusual because the firms in the sample are groups traded on the most important European indexes; they are big companies and many of them are multinational companies which are not linked to the country's accounting tradition in the same way as smaller local firms.

6. CONCLUSIONS

We carry out a comparative analysis of the impact of IFRS on financial reporting in 11 European countries in order to discover which countries have similar behaviour and which variables could explain it.

In order to do this, we first evaluate whether the impact of the application of IFRS has been different in the countries considered. The Kruskal-Wallis test reveals the existence of significant differences among the countries in all variables except Inventories and Returns.

Then, we apply a cluster analysis. It identified four groups, two of which are unitary (Greece and Portugal) showing significant differences from the rest. The other two groups are basically differentiated by the impacts produced in short term variables, where the effects are much stronger for the group formed by Spain, Finland, France, Italy and the United Kingdom than for the group made up of Denmark, The Netherlands, Ireland and Sweden. This grouping is not connected with traditional accounting systems, because Anglo-Saxon countries are in the same group as continental European countries.

The results show that the two traditional accounting systems no longer demonstrate such differences as before. The work on harmonization of accounting standards in the EU over the past three decades has made it possible to bring the current accounting models closer, although Europe actually lacks a uniform accounting model.

Anglo-Saxon accounting systems have traditionally been considered closer to IFRS than continental European models. However, the impact of the regulatory change from local standards to IFRS is similar in United Kingdom, head of Anglo-Saxon systems, and Spain or France, examples of continental European accounting models. In this sense, the recent Anglo-Saxon *vs.* Continental accounting model debate has been taken up by some authors who

justify that the United Kingdom should not be considered as an Anglo-Saxon accounting system member.

First, Alexander and Archer (2000) using logical analysis and D'Arcy (2001) using regulations, suggest an EU group including the UK *vs.* an American-led group, where IFRS was included. Finally, Lewis and Salter (2006), using reported results from 20-F filings, find a European model of accounting that clearly includes the UK and a US-influenced model that includes those companies reporting under IFRS.

Another aspect that must be considered is the way on which firms have applied IFRS for the first time, because the exceptions contained in IFRS 1 "First time adoption of IFRS" could be applied by firms in different ways. According to Daske *et al.* (2008) as the mandatory IFRS application forces many firms to adopt IFRS that would not have done so otherwise, they expect first mandatory IFRS reporting to have a smaller effect in countries with weak enforcement regimes or where firms have poor reporting incentives to apply IFRS.

The results reaffirm the importance of the EU' s decision to apply a single set of standards like IFRS in order to achieve *de facto* accounting harmonization with a wider scope than the EU alone. The success of this process will depend to a great extent on the consistent implementation and effective enforcement of IFRS.

Furthermore the implications of our results should be taken into account in the process of accounting harmonization at world-wide level, with reference to the work of the IASB and, regionally, in the ambit of the EU. From the perspective of the work carried out by the IASB, it is clear that efforts for harmonization must not be focused as much on the existing differences among the traditional accounting models (Anglo-Saxon and continental European systems) but more importantly on the divergences between the American model (led by The USA) and the European model (where the United Kingdom would be included). The agreements reached by the IASB and FASB in recent months could lead to an Americanisation of European financial reporting through the application of IFRS (coinciding with Lewis and Salter, 2006) which should be counteracted by an active role of the EU in the IASB.

Likewise, as previously explained, the role of the EU must be relevant within the framework of the process of worldwide accounting harmonization, being able to channel its actions through the IASB. Similarly, in our view, interventions by the European Commission (and by the Accounting Regulatory Committee as advisory organisation) is extremely important in the process of endorsement of the IFRS, with the aim of ensuring the appropriate adaptation of the proposed solutions by the IFRS to the real problem of European countries in the subject of financial information provision.

Further research will be needed to learn the reasons for differences in the IFRS impact on European countries. It would be interesting to examine whether the impact caused by this regulatory change has been influenced by country variables (financing system, capital market development, etc.), or whether the explanation lies rather within the firms´ features (size, main areas of activity, listing in non-local markets, export volumes, etc.). In the same way, it would be interesting to research what harmonization has been achieved in the EU after several years with IFRS, when the firms had defined their accounting policies upon the first application of IFRS.

The main contribution of this paper is that it studies the impact of mandatory IFRS application for several European countries and shows a comparative analysis among European countries, grouping them depending on this impact; previous literature mainly gathers researches related to specific individual countries.

However, this paper has some limitations. Firms included in the sample are the most representative of the stock market in each country, but this also causes problems. Normally, firms listed in main indexes are the largest and often they are multinational companies; their accounting policies are closer to international standards than those of medium-sized companies. We should be cautious in characterizing each country by their largest companies.

Our results should be of interest to the institutions involved in implementing the changes necessary to harmonize European and international accounting. They may also help national standard setters improve the process of reforming local regulation in order to ensure convergence between local accounting standards and IFRS for all companies. Users, such as investment companies, should also benefit from the findings because they highlight the comparability problem between firms that prepare their financial information under local standards or under IFRS.

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Table 1. Papers which analyze the effect of IFRS adoption on financial reporting

AUTHOR	YEAR	COUNTRY ANALYZED	TOPIC	RESULTS
Jermakowick	2004	Belgium	Impact that IFRS conversion has on companies, their internal organization and accounting and finance strategy	Important changes in internal and external reporting activities of companies, and significant impact on their reported equity and net income
Larson and Street	2004	17 European countries	Progress and impediments to convergence to IFRS	Development of "two-standard" system (IFRS for consolidated financial statements of listed companies and local GAAP for non-listed companies); and the two most significant impediments are the complicated nature of particular IFRS and the tax-orientation of many national systems
Weißenberger, Stahl and Vorsitus	2004	Germany	Motives that led German companies to opt for US GAAP or IFRS rather than German GAAP	Expectation of attaining improved standing on the capital markets
Bartov, Goldberg and Kim	2005	Germany	Comparative value relevance of earnings under German GAAP, US GAAP and IFRS	Earnings prepared under US GAAP or IFRS have higher value relevance than earnings under German GAAP
Van Tendeloo and Vanstraelen	2005	Germany	Effects of IFRS on earnings management	Adoption of IFRS cannot be associated with lower earnings management
Gassen and Sellhorn	2006	Germany	Determinants of voluntary IFRS adoption and differences in earnings quality	Significant differences in terms of quality of earnings under German GAAP and IFRS
Horton and Serafeim	2006	United Kingdom	Market reaction to and value relevance of reconciliation from UK GAAP to IFRS adjustments	Reconciliation adjustments are value relevant with respect to earnings but not to shareholders' equity.
Schiebel	2006	Germany	Value relevance of IFRS and German GAAP	German GAAP are significantly more value relevant than IFRS
Silva and Couto	2007	Portugal	Impact of IFRS on the financial information of Portuguese firms	Consolidated balance sheet and income statement suffered considerable change, conditioning the measurement of firms' performance and financial position
Callao, Jarne and Laínez	2007	Spain	Effects of IFRS on the comparability and relevance of Spanish firms' financial statements	Local comparability is adversely affected if both IFRS and there has been no improvement in the relevance of financial reporting to local stock market operators
Christensen, Lee and Walker	2007	United Kingdom	Economic consequences of mandatory application of IFRS	Mandatory IFRS adoption does not benefit all firms in a uniform way
Hung and Subramanyam	2007	Germany	Effects of IFRS in countries with European-continental accounting systems	Total assets and book value of equity are significantly higher under IFRS than under German GAAP
Van der Meulen, Gaeremynck and Willekens	2007	Germany	Attribute differences between US GAAP and IFRS earnings	US GAAP and IFRS only differ with regard to predictive ability
Beckman, Bandres and Eierle	2007	Germany	Reconciliations from German GAAP to IFRS and US GAAP	More conservative reporting under German GAAP than IFRS or US GAAP

Table 1. Papers which analyze the effect of IFRS adoption on financial reporting (continued)

AUTHOR	YEAR	COUNTRY ANALYZED	TOPIC	RESULTS
Sellhorn and Skaife	2008	France, Germany and United Kingdom	Mandated IFRS reporting results in more comparable financial information	IFRS does not increase the valuation usefulness of accounting information across countries
Ferrer, Callao, Jarne and Laínez	2008	11 European countries	Impact of IFRS on the financial information reported by European listed groups	In Spain, France, Ireland, Sweden and the United Kingdom, the firms' image under local standards differs significantly from under IFRS, because the change in standards affects numerous accounting figures and financial ratios. The impact is more moderate in the remaining countries.

Table 2. Indexes of European Stock Exchanges

COUNTRY	INDEX	COMPANIES
Denmark	Copenhagen-20	20
Finland	Helsinki-25	25
France	CAC-40	40
Greece	ASE	44
Ireland	Dublin SE	44
Italy	MIBTEL 30	28
Netherlands	AEX	25
Portugal	PSI 20	20
Spain	IBEX-35	35
Sweden	SX-30	30
United Kingdom	FTSE-100	98

Table 3. Accounting figures and financial ratios

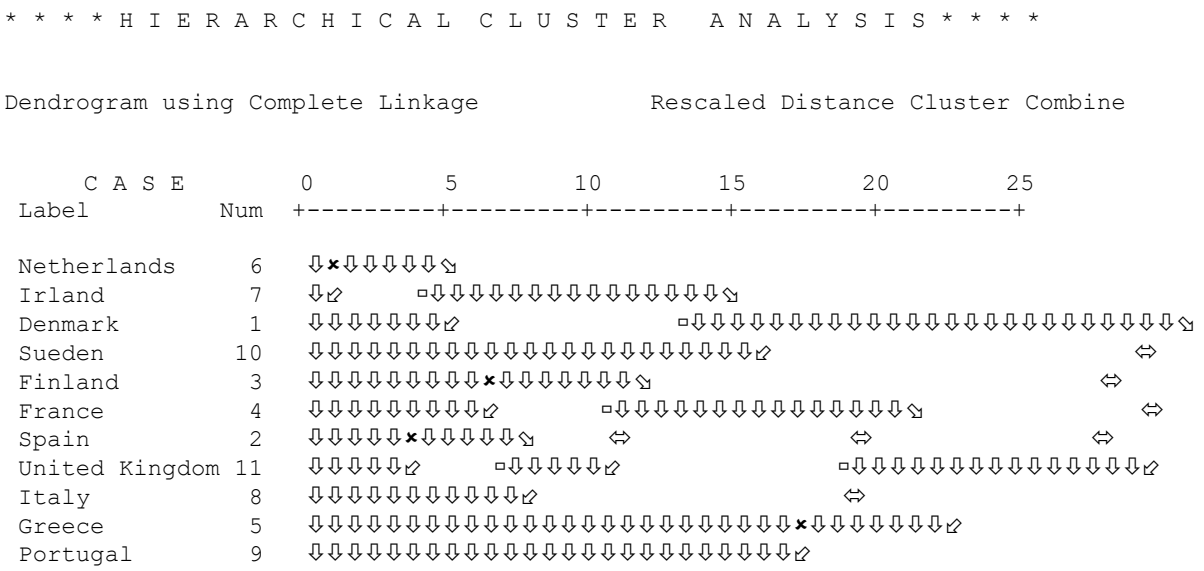
FIGURES	**DEFINITION**
FIXED ASSETS	Intangible assets + Property, plant and equipment + Long-term investments + Goodwill
INVENTORIES	Goods produced for sale + Goods in the process of production + Materials or supplies
DEBTORS	Receivables + short-term investments
CASH	Cash + cash equivalents
CURRENT ASSETS	Inventories + Debtors + Cash (as defined above)
TOTAL ASSETS	Fixed assets + Current assets (as defined above)
EQUITY	Funds contributed by shareholders + Retained earnings + Other reserves + Net income + Minority interest + Deferred income
LONG TERM LIABILITIES	Long-term creditors + Long-term provisions
SHORT TERM LIABILITIES	Long-term creditors + Long-term provisions
TOTAL LIABILITIES	Long-term liabilities + Short-term liabilities (as defined above)
EQUITY+LIABILITIES	Equity + Total liabilities (as defined above)
OPI (Operating income)	Operating income – Operating expenses
ORDI (Ordinary income)	OPI + Financial income – Financial expenses
NETI (Net income)	ORDI + Extraordinary income – Extraordinary expenses - Taxes
RATIOS	**DEFINITION**
CURRENT RATIO	Current assets/Short-term liabilities (as defined above)
ACID TEST	(Debtors + Cash)/ Short-term liabilities (as defined above)
CASH RATIO	Cash/ Short-term liabilities (as defined above)
SOLVENCY	Total assets/Total liabilities (as defined above)
INDEBTEDNESS	Total liabilities/Equity (as defined above)
ROA (OPI)	Operating income/Total assets (as defined above)
ROA (ORDI)	Ordinary income/Total assets (as defined above)
ROE (ORDI)	Ordinary income/Equity (as defined above)
ROE (NETI)	Net income/Equity (as defined above)

Table 4. Results of Kruskall-Wallis test

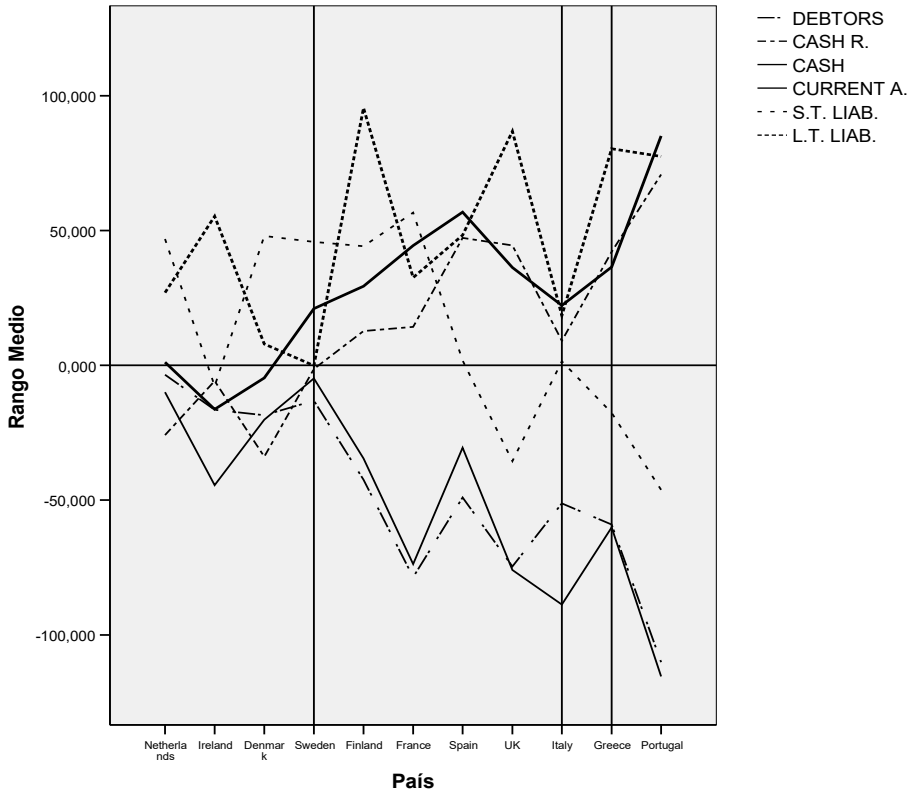
FIGURES	Chi-squared
Fixed Assets	29,453*
Inventories	15,036
Debtors	41,255*
Cash	30,220*
Current Assets	42,786*
Total Assets	18,926**
Equity	36,627*
Long term liabilities	45,879*
Short term liabilities	65,287*
Total liabilities	19,644**
Equity + Total liabilities	18,926**
Operating Income (OPI)	25,016*
Ordinary Income (ORDI)	18,010***
Net Income (NETI)	30,048*
RATIOS	
Current ratio	24,287*
Acid test	17,588***
Cash ratio	41,506*
Solvency	37,303*
Indebtedness	34,270*
ROA (OPI / Assets)	19,257**
ROA (ORDI / Assets)	16,452***
ROE (ORDI/ Equity)	15,208
ROE (NETI / Equity)	32,797*

*. Significant at 1%
**. Significant at 5%
***. Significant at 10%

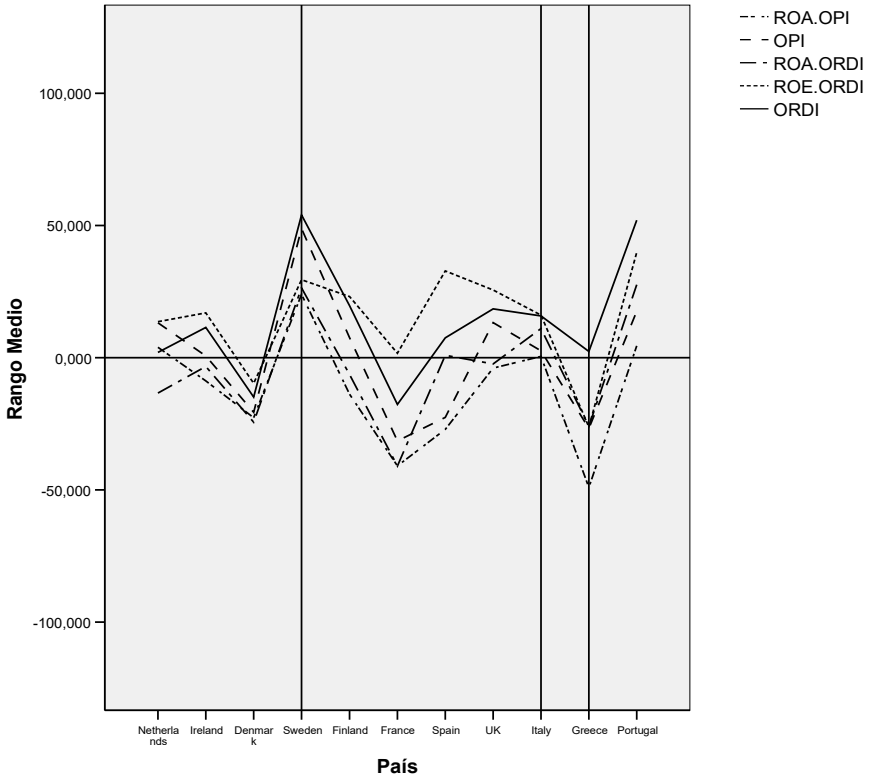
Graph 1: Hierarchical Cluster Analysis



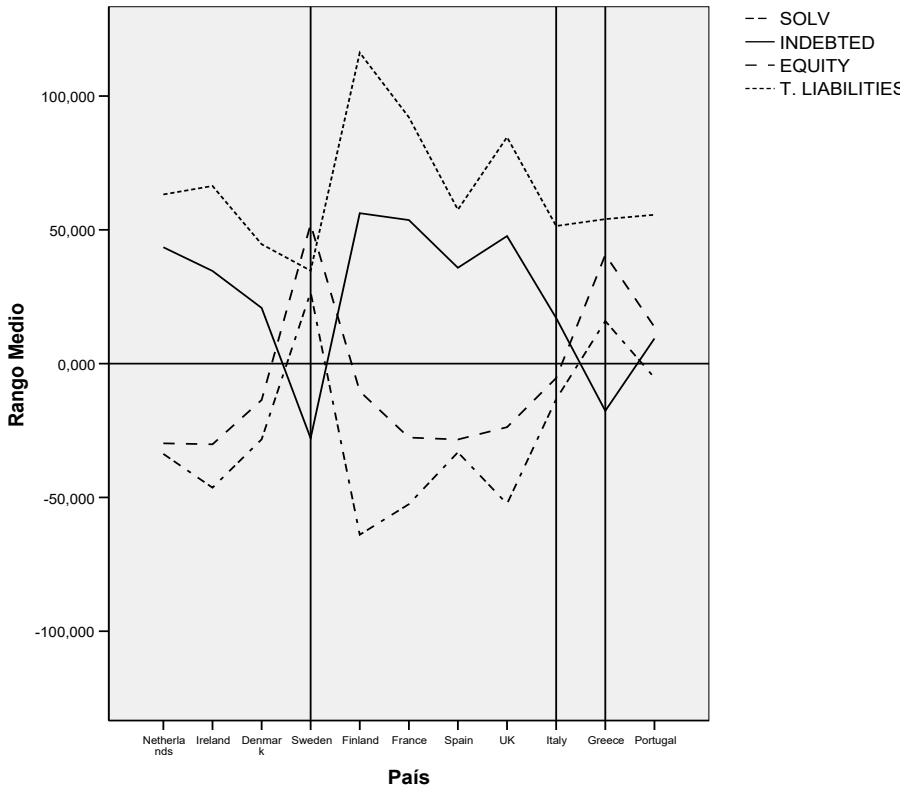
Graph 2. Graph of variables in FACTOR 1


DEBTORS
CASH R.
CASH
CURRENT A.
S.T. LIAB.
L.T. LIAB.
100,000
50,000
0,000
-50,000
-100,000
Rango Medio
Netherlands
Ireland
Denmark
Sweden
Finland
France
Spain
UK
Italy
Greece
Portugal
País

Graph 3. Graph of variables in FACTOR 2



Graph 4. Graph of variables in FACTOR 3



Graph 5. Graph of variables in FACTOR 4

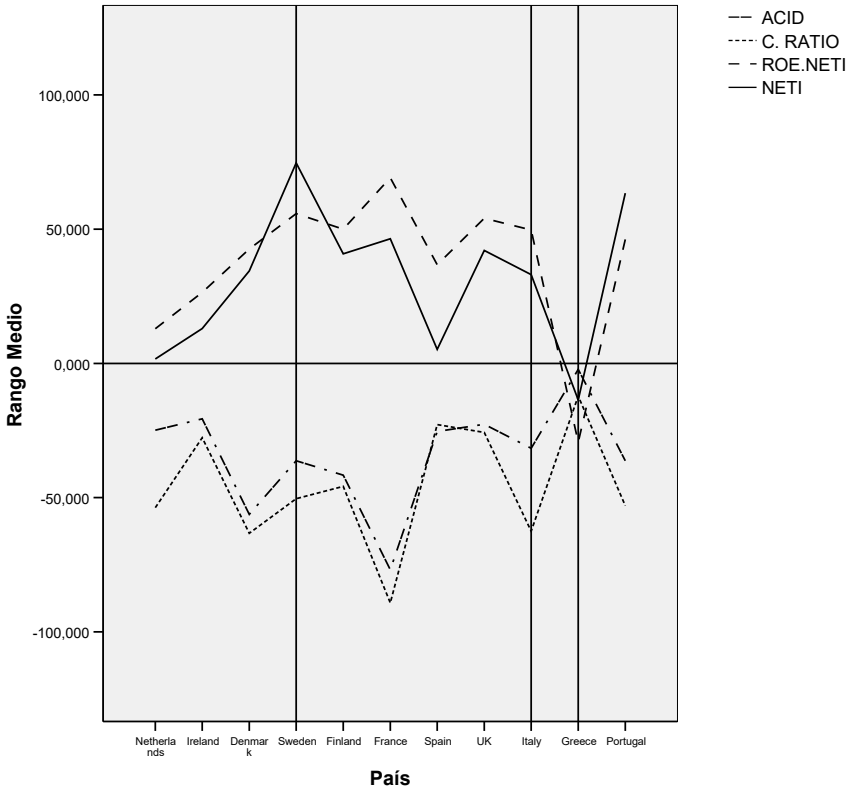


Table 5. Significance of differences between pairs of countries

FIGURES	**PAIRS OF COUNTRIES WITH SIGNIFICANT DIFFERENCES**
FIXED ASSETS	Denmark-Greece***; Spain-France**; Spain-Greece*
INVENTORIES	
DEBTORS	Denmark-Portugal***; France-Netherlands**; France-Ireland***, France-Sweden***; Netherlands-Portugal*; Netherlands-UK*; Ireland-Portugal*; Ireland-UK**; Portugal-Sweden*; Sweden-UK**
CASH	Denmark-Portugal***; Spain-Ireland*; France-Ireland***; Netherlands-Portugal***; Ireland-Portugal*; Ireland-UK**
CURRENT ASSETS	Denmark-Portugal**; Spain-Portugal**; France-Sweden**; Netherlands-Portugal*; Netherlands-UK**; Italy-Sweden**; Portugal-Sweden*; Sweden-UK*
EQUITY	Spain-Greece**; Spain-Sweden*; France-Greece**, France-Sweden*; Greece-Netherlands***; Greece-Ireland**; Greece-UK*; Netherlands-Sweden**; Ireland-Sweden*; Sweden-UK*
LONG TERM LIABILITIES	Denmark-UK**; Finland-Sweden*; France-UK**; Greece-Sweden*; Netherlands-UK***; Portugal-Sweden***; Sweden-UK*
SHORT TERM LIABILITIES	Denmark-Portugal**; Denmark-UK*; Spain-France***; Finland-Portugal**; Finland-UK*; France-Greece*; France-Ireland**; France-Portugal*; France-UK*; Greece-Netherlands***; Greece-Sweden***; Netherlands-Portugal*; Netherlands-UK*; Portugal-Sweden*; Sweden-UK*
TOTAL LIABILITIES	
OPI (Operating income)	Spain-Sweden**; France-Sweden*; Greece-Sweden**
ORDI (Ordinary income)	France-Sweden**
NETI (Net income)	Spain-Sweden**; Greece-Portugal***; Greece-Sweden*; Greece-UK***; Netherlands-Sweden***
RATIOS	
CURRENT RATIO	Spain-France**; France-Greece*; France-Ireland***; France-UK*
ACID TEST	France-Greece**; France-UK***
CASH RATIO	Denmark-Spain**; Denmark-Greece***; Denmark-Portugal**; Denmark-UK**; Spain-Netherlands**; Greece-Netherlands**; Netherlands-Portugal*; Netherlands-UK*; Ireland-Portugal***; Ireland-UK**
SOLVENCY	Finland-Greece***; Finland-Sweden**; France-Greece**; France-Sweden*; Greece-Ireland***; Greece-UK*; Ireland-Sweden**; Sweden-UK*
INDEBTEDNESS	Spain-Sweden***; Finland-Sweden**; France-Greece**; France-Sweden*; Greece-UK*; Netherlands-Sweden***; Sweden-UK*
ROA (OPI)	Greece-Sweden**
ROA (ORDI)	France-Sweden***
ROE (ORDI)	
ROE (NETI)	Spain-Greece**; Finland-Greece***; France-Greece*; Greece-Portugal***; Greece-Sweden*; Greece-UK*

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

Annex 1. Factor analysis

Table 1.A. Factor loading matrix

	Component					
	1	2	3	4	5	6
DEBTORS	-,964	,056	,059	,151	-,135	,107
CASH RATIO	,929	,097	,057	,245	,147	,113
CASH	,890	,072	,119	-,131	,151	,193
CURRENT ASSETS	-,838	-,038	,082	,069	-,049	,505
S.T. LIABILITIES	-,710	-,243	-,048	-,574	,144	,193
L. T. LIABILITIES	,562	-,050	-,400	,490	,454	,166
ROA (OPI)	-,238	,945	,105	-,099	-,016	-,070
OPI	-,197	,907	,189	-,023	,256	,052
ROA (ORDI)	,206	,907	,288	,094	-,047	,024
ROE (ORDI)	,262	,851	-,258	-,096	-,088	,222
ORDI	,263	,843	,354	,071	,250	,127
SOLVENCY	,039	,141	,975	,113	,033	-,078
INDEBTEDNESS	-,005	-,126	-,973	-,144	-,047	,025
EQUITY	,090	,143	,881	,045	,411	,076
T. LIABILITIES	,137	-,158	-,799	-,109	,536	,109
ACID TEST	,017	,168	,202	,953	,065	-,090
CURRENT RATIO	,125	,043	,072	,924	,017	,266
ROE (NETI)	,134	,420	-,327	-,778	-,108	,082
NETI	,203	,568	,127	-,711	,145	,127
TOTAL ASSETS	,091	,134	,065	,043	,979	-,045
EQ + T. LIAB.	,081	,150	,086	,036	,976	-,036
FIXED ASSETS	,539	-,108	,049	-,031	,739	-,370
INVENTORIES	-,062	,196	-,100	,014	-,142	,939

Principal components with Varimax rotation

Table 1.B. Factor scores matrix

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
Denmark	-0,87275	-0,96508	0,40862	-0,83907
Netherlands	-1,52111	0,16916	-0,50285	0,48587
Irland	-0,69126	0,34754	-0,76464	1,03314
Sueden	-0,95438	1,42428	1,82008	-0,74416
Spain	0,64249	-0,22446	-0,26912	0,64741
Finland	-0,31199	0,15682	-1,2637	-0,15642
France	0,48767	-1,41226	-0,60864	-1,99302
Italy	0,01865	0,52609	0,22801	-0,29809
United Kingdom	0,77281	0,64547	-1,05646	0,5872
Greece	0,42811	-1,7311	1,48259	1,58032
Portugal	2,00175	1,06352	0,52612	-0,30318