
MEASURING THE IMPACT OF INTERNATIONAL FINANCIAL REPORTING STANDARDS (IFRS) TO FINANCIAL INFORMATION OF PORTUGUESE COMPANIES*†

O IMPACTO DAS INTERNATIONAL FINANCIAL REPORTING STANDARDS (IFRS) NA INFORMAÇÃO FINANCEIRA DAS EMPRESAS PORTUGUESAS

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ABSTRACT

To increase efficiency of the European finance market, the European Union (EU) recently forced all public companies to publish their financial disclosures with the support of the International Financial Reporting Standards (IFRS), emanated by the International Accounting Standards Board (IASB), beginning January 1, 2005. In this paper, we measure the impact of the application of IFRS to financial information of Portuguese public companies belonging to the *Eurolist by Euronext Lisbon*. The results show that the Balance Sheet and Income Statement structures of the firms studied suffered relevant accounting conversions in the process of compliance. Nevertheless, we did not find a clear pattern for the accounting variations. IFRS implementation conditioned the measure made to the performance and the financial position of the business companies in Portugal.

Key words: Accounting harmonization. International Financial Reporting Standards. Financial Reports.

* Artigo recebido em 05.02.2007. Revisado por pares em 08.07.2007. Reformulado em 05.07.2008. Recomendado em 10.07.2008 por Ilse Maria Beuren (Editora). Publicado em 21.11.2008. Organização responsável pelo periódico: FURB.

† Trabalho apresentado no XI Congresso de Contabilidade e Auditoria, em Coimbra/Portugal, de 16 a 18 de novembro de 2006.

RESUMO

Com o propósito de aumentar a eficiência do mercado financeiro Europeu, a União Europeia obrigou as empresas cotadas nos mercados comunitários regulamentados a divulgar, a partir de 2005, as demonstrações financeiras consolidadas com base nas Normas Internacionais de Contabilidade (NIC), emanadas do International Accounting Standards Board (IASB). Este estudo pretende avaliar o impacto produzido pela adopção das NIC na informação financeira das empresas Portuguesas cotadas no mercado de cotações oficial, circunscrevendo-se ao Eurolist by Euronext Lisbon. Os resultados demonstraram que a estrutura do balanço e demonstração dos resultados sofreu uma conversão contabilística relevante. Contudo, verificou-se que as variações contabilísticas ocorridas não revelaram um padrão, sendo excessivamente inconstantes. A implementação das NIC condicionou a avaliação efectuada ao desempenho e à posição financeira das empresas em Portugal.

Palavras-chave: Harmonização contabilística. *International Financial Reporting Standards*. Demonstrações financeiras.

1 INTRODUCTION

Over the last few years, the importance of international accounting practice studies have been growing in order to meet economic agent demands and to facilitate international business practices. International accounting convergence is an important topic for capital market regulators, investors, managers, governments, and indeed all who deal with the financial information of public companies.

Nowadays, accounting is not only a fiscal tool for authorities and for the financial institutions, but it also turns out to be an important tool for a wide variety of economic agents, due to the expansion of the capital transactions and the dispersion of economic agents. International accounting convergence intends to minimize the negative effects that result from the diversity of accounting practices in different countries.

Despite continual improvements since implementation of the first Accounting Standards Regulation (*Plano Oficial de Contabilidade - POC*) in 1977 in Portugal, adherence to the European Community in 1986 motivated the development of accounting harmonization. In fact, the European Community approved Regulatory Law (CE) n.º 1.606/2002, forcing all public firms, after the year 2005, to have consolidated accounts in accordance with the *International Standard Accounts (IFRS)* as developed by the *International Accounting Standards Board (IASB)*.

Implementation of IFRS practices in all twenty-five countries of the European Union turned out to be an historic event. Possibly, it was the most significant revolution concerning accounting standards and accounting practices ever.

This paper aims to evaluate the impact of implementing the IFRS in the consolidated accounts (Balance Sheet, and Profit and Loss Accounting) of Portuguese firms (with the exception of financial institutions and sporting institutions) in the *Euronext Lisbon* official stock market, in accordance with the Regulatory Law (CE) n.º 1.606/2002, and to determine if there are groups of enterprises with similar adjustment behavior. In addition, this study aims to quantify the differences between some economic and financial ratios, in particular *price earnings ratio* (PER) and the *earnings per share* (EPS), after the IFRS's implementation.

2 LITERATURE REVIEW

Some of the first comparative studies considering international accounting diversity came from Davidson and Kohlmeier (1966) and Abel (1969), who measured the relationship

between financial reports and the development of capital markets. Later on, Gray (1980) found a relationship between accounting practices and a firm's profits. The first studies concerned with accounting harmonization came in the 1980s, with the works of Nair and Frank (1981), Evans and Taylor (1982), Mckinnon and Janell (1984), Doupnik and Taylor (1987), Van der Tas (1988) and FEE (1989). Given the interest in this area of research, some other authors replicated the same methodology for other countries as the case of Japan (Suzuki, 2007) and Belgium (Haverals, 2007).

Understanding accounting diversity may help to explain differing business practices across different countries. This idea was developed by Joos and Lang (1994) and by Krisement and Strasse (1997). For Radebaugh and Gray (1993), differing accounting standards may be explained by different economic, historical, institutional and cultural environments. As the openness of the economy increases, the higher is the necessity for accounting harmonization.

Krisement and Strasse (1997) justify the existence of different accounting standards. History has shown that countries with similar social development have similar accounting practices, since accounting practices reflect social, economic, legal and cultural conditions that are similar (CHOI *et al.*, 1999; CAÑIBANO and MORA, 2000).

Radebaugh and Gray (1993) enumerate the following aspects as to the most relevant terms of accounting orientation: the legal system; financing; tax system; politics, inflation, level of economic development and cultural environment.

Nobes and Parker (2000) found a strong similarity among accounting standards in countries with communitarian cultures on which financial information is directed to the government and financial institutions, and not to investors.

Technological advances allow financial reporting to be easily transmitted and always achievable. In this sense, information can easily be accessed not only by governments, but also by consumers, environmental associations, social institutions and others (RADEBAUGH and GRAY, 1993; CHOI *et al.*, 1999; TITARD and D DiGREGORIO, 2003).

Lawrence (1996) referred to several agents and factors as responsible for the efforts toward an international accounting harmonization: investors, multinationals, international entities, and globalization. The same author also suggested some barriers: legal systems, nationalism, and organizational conflicts. Schultz and Lopes (2001) measured the impact of national influence on accounting estimates and the implications for international accounting standard-setters.

Choi *et al.* (1999) considered three main advantages that result from accounting harmonization:

- a) The ability to compare international financial information, allowing enhanced credibility in the comparison of profits and losses around the world (see also Gray, 1980 and Tweedie, 2004);
- b) Beresford (1990), Radebaugh and Gray (1993), Joos and Lang (1994), infer that in some cases, it is difficult to obtain an exact equivalence in different accounting systems and in the manner of financial reporting. See also Athanasakou, Strong and Walker (2007);
- c) Savings in costs and time consolidating accounts result from different accounting systems. Also Copeland and Galai (1983); Kyle (1985); Glosten and Milgrom (1985) and Leuz and Verrecchia (2001) determine the savings to investors and to stockholders resulting from accounting harmonization;
- d) A stronger consistence concerning economic, social and legal factors across different countries of the world.

3 METHODOLOGY

Most of the empirical studies to date investigate the following themes: benefits and cost of harmonization; obstacles to the process of harmonization; range of harmonization; factors that impel the process of harmonization; and gauging international or national harmonization levels (EMENYONU and GRAY, 1992). Beyond initial studies, the content and scope of these issues were deeply studied, aimed at perfecting accounting knowledge, mainly by the studies of Ashbaugh and Pincus (2001), Cañibano and Mora (2000), Pierce and Weetman (2000), Benau and Grima (2002) and Tagesson *et al.* (2003).

Regarding accounting conversion imposed by the CE Regulation n.º 1.606/2002, it is important to study the impact of the regulation on financial accounts in order to qualify the advantages and disadvantages inherent to the present process of European accounting harmonization. As a singular and exceptional event that has occurred so much in Portugal as in Europe, this is a new instrument to academic research in the accounting area.

For this study, we have used the software, Statistical Package for the Social Sciences (SPSS), in order to statistically analyze the obtained data. The statistical application has covered: descriptive statistics, ratio methods, cluster analyses and linear regression models.

In the first analysis, we have elaborated the distribution of data frequencies using descriptive statistics. Study of the mean and standard deviation was based on the absolute and percentage variations verified in certain accounting items of the Balance Sheet (to a sample of 39 firms) and profits and losses account (in a sample of 37 firms).

Concerning financial analysis, we have used the ratios method, which requires computing the relationship between economic and financial items. The ratios are a support tool for the study of the economic and financial appraisal of the companies over the long term. Thus, we aim to study the difference of these coefficients in the financial analysis, after the introduction of the IAS. An understanding of the changes in the ratios allows measurement of the level of benefit or disadvantage of the involved economic agents, independently of economic and financial conjecture, verified through the implementation of the IAS.

Elaboration of the ratios depends upon the purpose of the analyses and on the sources of information. In this study, we only computed the ratios of frequent use in the financial context whose calculation was feasible, attending to the limitations of the collected data. Therefore, we have examined the following ratios: gearing, PER and EPS, calculated using the information contained in some of the items on the Balance Sheet and Profit and Loss statements, complemented by the value of stock capitalization and by the number of stocks in circulation until the time in which the accounting conversion was observed.

In a third phase, we undertook a clusters analysis, a procedure of multivariate statistics, which requires the grouping of similar firms. Hence, the individuals grouping, in the set of n companies, is made regarding existent information in p variables, so that the resemblance between companies of a certain group are as alike as possible in comparison with the companies of the remaining groups. In synthesis, we have structured the data through presentation of the firms under the nature of a matrix of dimension $n \times p$, equivalent to n lines (firms) and p columns (variables). For such, we have used the statistic tool K-Means Cluster Analysis, which adopts the Euclidian distance to measure the distance, or difference between, each one of the companies, calculated from the square root of the sum of the squares of the values' differences for each variable, as in the following expression:

$$d_{ij} = \sqrt{\sum_{k=1}^p (X_{i,k} - X_{j,k})^2} \quad i = 1, \dots, n \quad j = 1, \dots, n$$

Where:

$X_{i,k}$ is the value of variable k for firm i and

$X_{j,k}$ is the value of variable k for firm j .

The variables considered for the development of clusters analysis were the accounting adjustments after the year 2005 (percentage variations), verified in the Balance Sheet and Profit and Loss statement accounts, such as: intangible assets, tangible fixed assets, investments, other assets, equity, liabilities, operating profits, operating costs, financial accounts, extraordinary accounts, corporation taxes, and minority interests.

In the clusters algorithm, the criterion for aggregation of the firms was based on the *centroid* criteria, which requires calculation of the distance between groups, using the mean distance between their elements.

Lastly, to test the dependent relationship between the percentage variations verified in certain items of the Balance Sheet and Profit and Loss statements, as well as the economic and financial characteristics of the firms considering their dimension and practiced activity (namely, total assets, market capitalization, turnover, profit after taxes and sectors of activity), we have used the linear regression model, computing the t , F and R^2 statistics. These methods evaluate the compliance between two variables (X and Y) with the same quantitative nature, with this relation represented in proximity to a straight-line. The coefficient of R^2 determination measures the adjustment quality in terms of the sample. The models' quality must also be evaluated considering the F test and the t test. The F test analyzes the adjustment in a global manner, while the t test is relative to each one of the parameters of the model.

Therefore, whether positive or negative correlations exist between the percentage variations of the items of the financial accounts (dependent variables) and the total assets, market capitalization, turnover, profit after taxes and sectors of activity (independent variables), is expressed by the following hypothesis:

H_0 : There is a correlation between accounting adjustments and the company's dimension/activity.

H_1 : There is no correlation between accounting adjustments and the company's dimension/activity.

For the null hypothesis, it is necessary to conclude that to different dimensions of the firm or sectors of activity, the major or minor will be the corresponding accounting adjustments resulting from IFRS's implementation.

The model presented represents forty-eight simple linear regressions referring to the combination of each accounting item with each exogenous variable, except the variable's "sectors of activity." This can be represented by the following equation:

$$Vn_i = \beta_0 + \beta_1 DEt_i + \varepsilon_i$$

$$n = 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12$$

$$t = 1, 2, 3, 4$$

$$i = 1, \dots, 39$$

Where:

Vn_i is the value of the n th dependent (endogenous) variable for the i th firm, and

DEt_i is the value of each of the independent (exogenous) variable t for the i th firm.

To accomplish the models, we have used as dependent variables the percentage variations occurring in the following accounting items: intangible assets (V1), tangible fixed

assets (V2), investments (V3), other assets (V4), equity (V5), liabilities (V6), operating profits (V7), operating costs (V8), financial accounts (V9), extraordinary accounts (V10), corporation tax (V11), and minority interests (V12). As independent variables, we have considered the firms' dimension (DE) concerning the total assets (DE1), sales volume (DE2), and market capitalization (DE4).

Relative to regression models, concerning the independent variables "sectors of activity," we have formulated the following model:

$$Vn_i = \beta_0 + \beta_1 S_{Ai} + \beta_2 S_{Bi} + \beta_3 S_{Ci} + \varepsilon_i$$

$$n = 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12$$

$$i = 1, \dots, 39$$

Where:

Vn_i is the value of the n th dependent (endogenous) variable for the i th firm,

S_A is a dummy variable, assuming the value one for the technological sector and Internet,

S_B is a dummy variable assuming the value one for the industrial sector (food, beverage, paper, card, chemical products, non-metal mineral products, machinery and electronic products, gas and steam electricity) and

S_C is a dummy variable assuming the value one for other activities of service rendered to the companies.

The previous model represents 12 multiple regressions, relative to the twelve dependent variables studied and to the exogenous variable "sectors of activity." Therefore, we have excluded the companies pertaining to the following sectors: post offices and telecommunication, construction, retail commerce and commerce agents, catering and logistics, cultural and entertainment activities, auxiliary means of transportation and tourism and travel agents (sectors of activity considered the base in the regression models).

4 THE DATA

In empirical study, we used financial information relative to the end of the year 2004 and to the end of the year 2005 (the last quarter of the year). This information was obtained using the financial reports relative to the first quarter of the year 2006, which gives us two accounts elaborated by both the accounting standards (IFRS and Portuguese Accounting Standards - POC).

Whenever it was impossible to obtain comparative information relative to the Balance Sheet in the first quarter of 2005, we used the first type of "multiple information" as suggested by Van der Tas (1988). That is, whenever the reports did not offer information based in the POC, it was necessary to deduce this information using accounts relative to the year 2004.

In what refers to the Profit and Loss accounts, comparisons between POC procedures and the IFRS were developed essentially in the first quarter of the year 2004, with the exception of two of the firms. In this case, most of the transaction periods report for the year 2004, independently of the rules imposed by the NIC 24.

Table 1 displays transaction periods and the information sources relative to the balance sheet and to the profit and loss accounts for all of the firms.

Table 1 – Source Data

N.º	Analyzed Enterprises	Balance Sheet		Profit and Loss Account	
		Transition	Source Data	Transition	Source Data
1	Brisa - Auto Estradas de Portugal, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
2	Cimpor - Cimentos de Portugal, SGPS, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
3	CIN - Corp. Industrial do Norte, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
4	Cires - Comp. Ind. Resinas Sintéticas, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
5	Cofina, SGPS, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
6	Compta - Equip. Serv. Informática, SA	31-03-2004	1ºQ_05 e 1ºQ_04	31-03-2004	1ºQ_05 e 1ºQ_04
7	Cortiçeira Amorim, SGPS, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
8	EDP - Energias de Portugal, SA	31-03-2004	1ºQ_05 e 1ºQ_04	31-03-2004	1ºQ_05 e 1ºQ_04
9	Efacec Capital, SGPS, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
10	Estoril Sol, SGPS, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
11	Fisipe - Fibras Sintéticas de Portugal, SA	01-01-2004	1ºQ_05	31-03-2004	1ºQ_05
12	Gescartão, SGPS, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
13	Grupo Media Capital, SGPS, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
14	Grupo Soares da Costa, SGPS, SA	31-03-2004	1ºQ_05	31-03-2004	1ºQ_05
15	Ibersol, SGPS, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
16	Imobiliária Construtora Grão-Pará, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
17	Impresa, SGPS, SA	31-12-2004	1ºH_05	31-03-2004	1ºQ_05
18	Inapa - Invest., Part. de Gestão, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
19	Jerónimo Martins, SGPS, SA	31-12-2003	2004 e 2003	31-03-2004	1ºQ_05
20	Modelo Continente, SGPS, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
21	Mota-Engil, SGPS, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
22	Novabase, SGPS, SA	31-03-2004	1ºQ_05 e 1ºQ_04	31-03-2004	1ºQ_05 e 1ºQ_04
23	Papelaria Fernandes - Indust. e Com., SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
24	Pararede, SGPS, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
25	Portucel - Emp. Prod. Pasta de Papel, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
26	Portugal Telecom, SGPS, SA	31-12-2004	1ºQ_05 e 2004	31-03-2004	1ºQ_05
27	PT - MultiMean - Serv.Tel Mult.,SGPS, SA	31-12-2004	1ºQ_05 e 2004	31-03-2004	1ºQ_05
28	Reditus, SGPS, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
29	Sag Gest, SGPS, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
30	Salvador Caetano - Ind. Metal.V. Tran., SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
31	Semapa - Soc. de Inv. Gestão, SGPS, SA	31-12-2004	1ºH_05		
32	Sociedade Comercial Orey Antunes, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
33	Sonae Indústria, SGPS, SA	31-03-2004	1ºQ_05	31-03-2004	1ºQ_05
34	Sonae, SGPS, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
35	Sonae.Com - SGPS, SA	31-12-2002	2003 e 2002		
36	Sumolis - Comp. Ind. Frutas e Bebidas, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
37	Teixeira Duarte - Eng. Construção, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
38	Tertir - Terminais de Portugal, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05
39	VAA - Vista Alegre Atlantis, SGPS, SA	31-12-2004	1ºQ_05	31-03-2004	1ºQ_05

As observed in Table 1, the transition periods do not coincide among the different firms. We are assuming that the transition period does not affect adjustments to the Balance Sheet.

In Portugal, European regulation n.º 1.606/2002 has been enforced since January 2005, for all corporations operating in the stock market with consolidated accounts. The law n.º 505/02 confirms which firms are members of the *Euronext Lisbon*.

The present study is concentrated in the consolidated accounts of the firms in the official stock market of *Euronext Lisbon*, which had to adapt their accounting to the European regulations. As of March 31, 2005, there were 39 corporations, after the exclusion of financial companies (7 companies), sporting companies (2 companies) and foreign-owned companies (2 companies). For this particular study, we have analyzed all of the firms' consolidated financial reports.

Even when all of the adjustments to the assets, liabilities and equity in the Balance Sheet accounts were observable, the notation used was not always the same. Therefore, we had to adapt the most important components of the Balance Sheet, namely: intangible assets, fixed tangible assets, investments, deferred taxes, goods and merchandize, cash, profits after taxes, minority interest, loans and provisions. Other components were aggregated as in "other assets", "other liabilities" or "other capital".

5 EMPIRICAL STUDY

5.1 Descriptive Analysis

The results of descriptive analysis are shown in Tables 2 and 3. As can be seen, *IFRS*'s implementation produced some important variations both in the Balance Sheet (Table 2) as in the Profit and Loss accounts (Table 3).

Table 2 – Balance sheet variations

Balance Sheet Items	Variation		Percent	
	Mean	Std. Deviation	Mean	Std. Deviation
Intangible assets	8.819	99.893	-10.78	58.83
Tangible assets	-61.338	317.173	6.79	22.83
Investments	62.739	323.461	22.70	125.15
Deferred tax assets	14.520	52.302	15.89	57.30
Inventory	13.940	61.966	12.01	49.55
Cash and cash equivalents	2.876	10.624	3.84	12.39
Others assets	-22.325	129.813	-3.60	18.64
Total assets	7.185	298.433	1.50	15.01
Consolidated profit after taxes	2.110	8.860	-12.74	89.15
Minority interests	4.445	48.422	-13.50	32.06
Other equity items	-33.868	369.097	1.59	64.91
Total equity	-28.893	366.558	3.19	58.60
Loans	31.544	109.046	8.37	26.79
Deferred tax liabilities	29.049	87.436	183.96	429.86
Provisions	17.416	169.483	48.31	332.50
Other liabilities items	-15.944	153.055	-0.88	16.72
Total Liabilities	36.079	218.908	3.42	13.32
Total equity and Liabilities	7.185	298.433	1.50	15.01

* Amounts expressed in thousands of euros

The total of the Balance Sheet analysis shows an average variation of 7.185 thousand euros, which is equivalent to a positive variation of 1.5%. Equity is reduced, with the IFRS's implementation in about 28,893 thousand euros; the average percentage of variation was 3.19%. Total liabilities increased on average 36,079 thousand euros, equivalent to 3.42%.

Concerning Table 3, one can see that the adjustments to meet IFRS compliance increased, on average, the Profits after Taxes in 14.66% of the firms, with a standard deviation of 64%, in the first quarter of the year 2004. Operating Profits verified a positive evolution as a result of the decrease in the Operating Costs (a decrease of 2.18%, equivalent to 3,906 thousand euros), compensated to some extent by the average decrease in Operating Revenues, in 1.18% (849 thousand euros).

Table 3 – Profit and Loss Account variations

Profit and Loss Account Items	Variation		Percent	
	Mean	Std. Deviation	Mean	Std. Deviation
Operating revenues	-849	11.534	-1.18	10.23
Operating costs	3.906	11.330	2.18	10.93
Operating profit	3.607	8.216	123.23	605.09
Financial profit	-374	7.249	-29.57	193.49
Operating profits	3.234	6.921	31.52	94.65
Extraordinary profit	-1.066	4.761	-11.89	148.36
Profit before taxes	2.168	7.608	11.89	68.90
Corporation tax	-1.035	4.195	4.43	80.15
Minority interests	110	795	1.94	37.08
Consolidated profit after taxes	1.242	5.878	14.66	64.00

* Amounts expressed in thousands of euros

We can also observe a negative average variation of 11.89% in Extraordinary Profits, and of 29.57% in the Financial Profits accounts. Tax estimates, in the Corporation Tax Account and the Minority Interests Account, varied on average about 4.43% and 1.94% respectively.

Nevertheless, there is not a clear pattern in the variations' behaviour (absolute and percentage variations), both for the Balance Sheet and for the Profit and Loss Statement.

5.2 The Ratios

In attention to the results of this study, we expected some variations in the economic and financial ratios of the firms. Table 4 shows some important changes in the ratios. As demonstrated, there is a distortion of the performance and financial conditions of the firms, which results merely from an accounting adjustment.

Table 4 – Ratios Variations

Ratios	Variation		Percent	
	Mean	Std. Deviation	Mean	Std. Deviation
Gearing	-1.555	9.147	-1.79	50.00
Price Earning Ratio (PER)	50.633	331.088	107.55	620.28
Earnings Per Share (EPS) *	-0.002	0.047	-4.23	65.57

* Amounts expressed in euros

Gearing ratios show an average decrease of 1.6 percentage points; therefore firms' capacity for paying their debt in the long term is lesser, signalling a greater risk for investors in these firms.

The ratios measuring the capital market influence relative to the first quarter 2004, the PER as well as the EPS, suggested a small lose for stockholders. On average, the PER changed in the value 50.6. This implies a decrease in the firms' growth potential in the stock market, or in alternative, a recursive policy of dividend distribution, as well as an increase in risk level, by changing the roles of the accounts elaborated by both the accounting standards (IFRS and Portuguese Accounting Standards - POC).

5.3 Cluster Analysis

In order to aggregate the firms into different groups according to the variations resulting from the IFRS's implementation, we used *K-Means Cluster Analysis*. This procedure optimizes the allocation of the firms to a predefined number of groups. We repeated the exercise for different numbers of clusters, between two and ten clusters.

Tables 5 and 6 show the results for the Balance Sheet and for Profit and Loss Statement, respectively. Both tables show the significance for each of the variables used in the cluster analysis and the number of firms within each group.

Table 5 – Results of clusters analysis (balance sheet)

Variables	Variable's Significance								
	2 Cluster s	3 Cluster s	4 Cluster s	5 Cluster s	6 Cluster s	7 Cluster s	8 Cluster s	9 Cluster s	10 Cluster s
Intangible assets	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Tangible assets	0.021	0.017	0.000	0.000	0.001	0.001	0.000	0.002	0.003
Investments	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Others assets	0.248	0.338	0.655	0.759	0.500	0.737	0.894	0.092	0.112
Total equity	0.510	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Liabilities	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
Clusters number	Number of cases in each cluster								
Cluster 1	37	2	2	2	2	1	1	1	1
Cluster 2	2	4	6	6	2	1	19	2	2
Cluster 3		33	28	1	1	24	8	24	5
Cluster 4			3	28	29	9	2	5	1
Cluster 5				2	2	2	1	1	1
Cluster 6					3	1	1	1	1
Cluster 7						1	6	1	1
Cluster 8							1	1	1
Cluster 9								3	23
Cluster 10									3

At a 5% significance level, we found as significant variables in the Balance Sheet the intangible assets: Fixed Tangible Assets, Investments, Equity and Liabilities. Nevertheless, the firms' allocation to the different groups is quite asymmetric.

Table 6 – Results of clusters analysis (Profit and Loss Account)

Variables	Variable's Significance								
	2 <i>Cluster</i> <i>s</i>	3 <i>Cluster</i> <i>s</i>	4 <i>Cluster</i> <i>s</i>	5 <i>Cluster</i> <i>s</i>	6 <i>Cluster</i> <i>s</i>	7 <i>Cluster</i> <i>s</i>	8 <i>Cluster</i> <i>s</i>	9 <i>Cluster</i> <i>s</i>	10 <i>Cluster</i> <i>s</i>
Operating revenues	0.933	0.996	0.997	0.973	0.964	0.982	0.993	0.997	0.772
Operating costs	0.903	0.982	0.991	0.971	0.957	0.973	0.990	0.996	0.675
Financial profit	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Extraordinary profit	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Corporation tax	0.341	0.503	0.002	0.000	0.000	0.000	0.000	0.000	0.000
Minority interests	0.939	0.344	0.494	0.717	0.818	0.000	0.000	0.000	0.828
<i>Clusters number</i>	<i>Number of cases in each cluster</i>								
<i>Cluster 1</i>	2	1	1	1	20	19	2	2	8
<i>Cluster 2</i>	37	2	33	2	13	11	9	1	13
<i>Cluster 3</i>		36	2	33	2	1	5	1	1
<i>Cluster 4</i>			3	1	1	1	1	1	1
<i>Cluster 5</i>				2	1	2	2	12	1
<i>Cluster 6</i>					2	2	17	2	10
<i>Cluster 7</i>						3	1	1	1
<i>Cluster 8</i>							2	2	2
<i>Cluster 9</i>								17	1
<i>Cluster 10</i>									1

Relative to the Profit and Loss Statement, the significance level for most of the variables is low, reflecting their inability to differentiate the clusters.

5.4 Linear Regression

Table 7 shows the principal results when studying the relationship between the different variables.

In order to avoid influential cases, we dropped from our sample the firms *EDP-Energia de Portugal* and *PT-Portugal Telecom*, given that the dimension of these firms is significantly greater than the dimension of the other firms included in the sample.

Table 7 shows the results for the different regressions, relative to the Balance Sheet with exclusion of the two firms.

Table 7 – Results of the regression models (balance sheet)

Dependent variables	Independent variables			
	Total assets	Turnover	Profit after taxes	Market capitalization
Intangible assets				
R^2	0.229	0.223	0.116	0.105
<i>B</i>	1.784E-05	2.127E-05	3.222E-04	2.156E-05
<i>Sig. t / F</i>	0.003	0.003	0.039	0.050
<i>C</i>	-29.844	-27.261	-21.885	-22.946
<i>Sig. C</i>	0.006	0.010	0.043	0.042
Tangible assets				
R^2	0.071	0.078	0.050	0.100
<i>B</i>	-3.810E-06	-4.830E-06	-8.100E-05	-8.090E-06
<i>Sig. t / F</i>	0.112	0.095	0.185	0.056
<i>C</i>	11.468	11.134	10.180	11.926
<i>Sig. C</i>	0.012	0.011	0.019	0.007
Investments				
R^2	0.298	0.454	0.158	0.118
<i>B</i>	4.383E-05	6.545E-05	8.112E-04	4.920E-05
<i>Sig. t / F</i>	0.000	0.000	0.015	0.037
<i>C</i>	-23.293	-27.031	-4.402	-4.263
<i>Sig. C</i>	0.280	0.142	0.842	0.856
Others assets items				
R^2	0.008	0.001	0.001	0.015
<i>B</i>	-1.060E-06	-5.050E-07	-7.530E-06	-2.650E-06
<i>Sig. t / F</i>	0.609	0.841	0.887	0.473
<i>C</i>	1.627	0.892	0.761	1.975
<i>Sig. C</i>	0.674	0.811	0.835	0.601
Total equity				
R^2	0.021	0.024	0.006	0.027
<i>B</i>	5.615E-06	7.206E-06	7.760E-05	1.122E-05
<i>Sig. t / F</i>	0.388	0.359	0.639	0.333
<i>C</i>	-1.474	-1.052	1.835	-1.760
<i>Sig. C</i>	0.903	0.928	0.873	0.881
Total Liabilities				
R^2	0.010	0.000	0.007	0.041
<i>B</i>	-8.720E-07	-2.680E-08	-1.920E-05	-3.170E-06
<i>Sig. t / F</i>	0.558	0.988	0.611	0.229
<i>C</i>	4.346	3.445	4.074	5.181
<i>Sig. C</i>	0.123	0.204	0.126	0.059

It is possible to conclude from the significant relationships estimated ($\text{Sig. } t < 0.05$), that as long as the firm's size increases (measured by total assets, turnover, profit after taxes and market capitalization), the larger the percentage adjustments resulting from the IFRS's implementation in the Intangible Assets and in Investments.

In Table 8, we can also verify some statistical relationships between firm's size and the variations in Financial Profits and in Minority Interests. The percentage adjustment in Financial Profits is expected to be larger for larger companies.

Table 8 – Results of the regression models (Profit and Loss Account).

Dependent variables	Independent variables			
	Total assets	Turnover	Profit after taxes	Market capitalization
Operating revenues				
R^2	0.030	0.000	0.110	0.000
b	1.948E-06	-2.130E-07	9.564E-05	-3.320E-07
<i>Sig. t / F</i>	0.309	0.927	0.045	0.923
C	-1.026	1.195	-2.200	1.216
<i>Sig. C</i>	0.772	0.730	0.494	0.730
Operating costs				
R^2	0.016	0.002	0.004	0.033
b	9.117E-07	3.981E-07	1.106E-05	2.306E-06
<i>Sig. t / F</i>	0.450	0.786	0.719	0.282
C	1.151	1.809	1.740	0.836
<i>Sig. C</i>	0.608	0.407	0.416	0.702
Financial profit				
R^2	0.283	0.611	0.210	0.131
b	-6.610E-05	-1.170E-04	-1.001E+00	-8.020E-05
<i>Sig. t / F</i>	0.001	0.000	0.004	0.028
C	39.964	59.942	18.984	14.621
<i>Sig. C</i>	0.236	0.015	0.567	0.685
Extraordinary profit				
R^2	0.000	0.000	0.001	0.000
b	-1.150E-06	-6.610E-07	-1.440E-03	3.650E-06
<i>Sig. t / F</i>	0.943	0.973	0.873	0.900
C	-18.782	-20.505	-17.778	-22.023
<i>Sig. C</i>	0.536	0.482	0.534	0.459
Corporation tax				
R^2	0.068	0.043	0.027	0.025
b	-1.410E-05	-1.360E-05	-2.260E-04	-1.540E-05
<i>Sig. t / F</i>	0.120	0.217	0.331	0.345
C	15.620	11.149	8.374	9.287
<i>Sig. C</i>	0.351	0.493	0.602	0.578
Minority interests				
R^2	0.051	0.000	0.184	0.002
b	1.078E-05	-9.590E-07	5.179E-04	3.616E-06
<i>Sig. t / F</i>	1.177	0.922	0.008	0.802
C	-1.107	11.013	-7.220	8.275
<i>Sig. C</i>	0.940	0.450	0.576	0.576

Table 9 shows the type of relationship between the endogenous and exogenous variables related to the firm's dimension, whenever there is a significant statistical relationship at a 5 percent significance level.

Table 9 – Correlation between the variables

Dependent variables	Independent variables			
	Total assets	Turnover	Profit after taxes	Market capitalization
Intangible assets	Positive	Positive	Positive	Positive
Tangible assets				
Investments	Positive	Positive	Positive	Positive
Others assets				
Total equity				
Total Liabilities				
Operating revenues			Positive	
Operating costs				
Financial profit	Negative	Negative	Negative	Negative
Extraordinary profit				
Corporation tax				
Minority interests			Positive	

6 CONCLUSIONS

Despite the objective of normalizing accounting standards within the European Community, IFRS's implementation generated differences in the short term, creating a distortion of accounting information based on traditional national accounting standards.

This study's conclusions are directed toward a significant impact of IFRS's implementation in the financial reports of Portuguese firms, publicly-traded in the stock market. All of the items from the Balance Sheet and the Profit and Loss Statements registered important variations, increasing, in general, the total value of the Assets, Capital, Liabilities and Net Results in 1.5%, 3.2%, 3.4% and 14.7% respectively.

The most significant impacts on the Balance Sheet reporting result from the adjustments to Fixed Financial Assets and Debt, which contributed on a large scale to the positive variations in Total assets and Liabilities. With regard to the Profit and Loss Statement, the increase in Profits after Taxes creates a large reduction in operational costs.

IFRS's implementation conditioned the evaluation of a firm's financial performance. The ratios PER and EPS suggest depreciation in the position of stockholders with the new accounting standards.

Besides the distortion in accounting resulting from IFRS's implementation in the firms studied, there is also a caution to consider when comparing numbers before and after IFRS's implementation: a conversion of the accounts must be developed in order to accurately create such a comparison.

In this study, we did not find clusters of firms with significant differences in the way they adapt their accounting to the IFRS's standards, and we did not find any clear evidence of different adaptation procedures between firms from different activity sectors. Nevertheless, we found some evidence of a relationship between percentage variations in some of the items on the Balance Sheet and the Profit and Loss Statement within the firms' dimension.

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