

Empirical Evaluation Of The Overall Impact And By Industries Of Comprehensive Income On European Groups Listed On NYSE And NASDAQ

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ABSTRACT

The purpose of this article is to assess the Overall Impact, and by Industries, of Comprehensive Income on Net Income for a sampling of 136 European groups listed on NYSE and NASDAQ from 1999 to 2004. To this end we took as reference the consolidated information disclosed pursuant to SFAS 130 issued by FASB in the reconciliations to the US GAAP when they presented their Annual Reports to the SEC with form 20-F and Industry Classification Benchmark -ICB- (Dow Jones Indexes and FTSE). In order to contrast the corresponding hypotheses, a set of non-parametric tools were used, as the data was far from normality. The results of our paper, which are ground-breaking at an international level, show a statistically significant impact of Comprehensive Income on Net Income for the sample group in most of the years that were analyzed. However, when this impact is itemized by Industries we find that there are hardly any statistically significant differences between them, which allows us to affirm that by adopting Comprehensive Income, within the context that we have studied, we are witness to a phenomenon which, along general lines, affects corporate groups in a similar fashion, independently of the nature of the activities that they carry out.

Keywords: Comprehensive Income; Net Income; Overall Impact; Impact on Industries; ICB (Dow Jones Indexes and FTSE); Non Parametric Tools; SFAS 130 by the FASB; European Groups Listed on NYSE and NASDAQ

1. INTRODUCTION

Since the decade of the nineties American companies are required to disclose their Comprehensive Income in the main body of their periodical financial statements pursuant to SFAS 130 (1997) by the FASB, whereas companies from the rest of the world that apply international regulations must also report the same pursuant to IAS 1 (1997, revised in 2003 and 2007) by the IASB.

Comprehensive Income is associated more with stock price fluctuations and exchange rates than is traditional net income. Thus, the purpose guiding the most influential accounting standard setters around the world when they require that companies disclose their Comprehensive Income is to confer more relevance to financial information for users, particularly for investors, considered in the Conceptual Framework [SFAC 1 (1978) by the FASB] as reference users.

Within the context of these currents in international financial information, and after reviewing the accounting literature on the subject, our research establishes the aim to empirically assess the overall impact, and by industries, of Comprehensive Income on Net Income for a sampling of 136 European groups listed on NYSE and NASDAQ from 1999 to 2004, which comprises most of the European Union blue chips.

To this end we took as reference the consolidated information disclosed by these corporate groups pursuant to SFAS 130 issued by FASB in the reconciliations to the US GAAP when they presented their Annual Reports to the SEC with form 20-F and Industry Classification Benchmark -ICB- (Dow Jones Indexes and FTSE).

In order to test the corresponding hypotheses, a set of non-parametric tools were used, as the data was clearly far from normality. Specifically, we used the Wilcoxon Signed Ranks Test to contrast the overall impact of Comprehensive Income on Net Income on the sample group, and for the industry study we used the Kruskal-Wallis Test, backed by the Mean Test as *a priori* tests; and the Mann-Whitney U Test, backed by the Kolmogorov-Smirnov Two-Sample Test as *a posteriori* tests.

We wish to point out that although several empirical studies have been carried out on Comprehensive Income in recent years, there are no papers that have researched a similar problem, with the aim, sampling and methods that we propose, thus we have a study that is ground-breaking in the international setting.

We can anticipate that our results show a significant impact of Comprehensive Income on Net Income for the sample group in most of the years that were analyzed which, along general lines, shows a larger statistically significant disclosure relevance of the first regarding the second.

However, when this impact is itemized by industries we find that there are hardly any statistically significant differences between them, which allows us to affirm that by adopting Comprehensive Income, within the context that we have studied, we are witness to a phenomenon which, along general lines, affects corporate groups in a similar fashion, independently of the nature of the activities that they carry out.

2. COMPREHENSIVE INCOME: CONCEPTUAL FRAMEWORK, REGULATION AND EMPIRICAL RESEARCH

In order to provide theoretical backing to our research, we find it necessary to make a short reference to the fundamental conceptual grounds on which Comprehensive Income is based.

Thus FASB was the pioneering standard setter in incorporating the concept of Comprehensive Income in SFAC 3 (1980), replaced by SFAC 6 (1985), defined in paragraph 70 as:¹

“The change in equity of a business enterprise during a period from transactions and other events and circumstances from non-owner sources. It includes all changes in equity during a period except those resulting from investments by owners and distributions to owners.”

Pursuant to this definition, we are close to the concept of income set forth by the British Nobel Prize Laureate Hicks (1939, p. 172), when he states in his book *Value and Capital* that the purpose of calculating profit is to disclose how much a person can consume without becoming poor, for which he formulated the following central concept of income:

“A man’s (*sic*) income is the maximum value which he can consume during a period and still expect to be as well off at the end of the period as he was at the beginning.”

If we transfer this concept to accounting, pursuant to Alexander (1950, p. 15), we can define corporate income as the amount of dividends it can distribute among its owners without diminishing the capital invested, that is, remaining at the same level of wellbeing at the end of a certain financial year as at the beginning.²

This definition leads us to take a stand with the *clean surplus* theory [Brief and Peasnell (1996); Feltham and Ohlson (1995); Beale and Davey (2000) and Mattessich (2002); among others], pursuant to which corporate performance captures relevant events from the point of view of value, and is determined comparing the book value of equity at the end of a financial year with that registered at the beginning of said period, once transactions with the owners are eliminated.

In short, in adopting Comprehensive Income we see an important occurrence for Accounting, which is the approximation to the concept of economic income advocated by authors of the classical normative-deductive approach (MacNeal, 1939; Edwards and Bell, 1961; Alexander, 1950; Moonitz, 1961 and Sprouse and Moonitz, 1962, among others), but not conceived as a sole and unquestionable *a priori* magnitude, rather devised to satisfy the needs of the users, particularly those of the investors, given that they contribute to the efficient functioning of the market and to usefulness of the accounting information for market valuation of corporations (Mora, 2004, p. 10).

As regulated by SFAS 130 (1997) of FASB and coinciding in many aspects with IAS 1 (1997, revised in 2003 and 2007) of IASB, Comprehensive Income is determined based on Net Income, to which are added a series of elements which in the past were recognized directly in equity without going through the Income Statement, which in the case of said American regulations are Foreign Currency Translation Adjustments, Unrealized Gains and Losses on Securities, Minimum Pension Liability Adjustment and Derivatives and Cash Flow Hedges. Thus it is much more connected to the reality of the market than traditional net income.

On the other hand, it is worth pointing out that since the nineties, when accounting standard setters around the world included Comprehensive Income in their respective regulations, numerous empirical studies were undertaken worldwide on the subject, and given the nature of their different objectives and methods, they can be classified in three major groups.

We have a set of descriptive-informative papers (Beale and Davey, 1997; Luecke and Meeting, 1998; Bhamornsiri and Wiggins, 2001; Mazza and Porco, 2004, quoted in Hunton *et al.* 2006; Pandit, Rubenfield and Phillips, 2006; among others), a series of studies aimed at evaluating the impact of Comprehensive Income presentation formats on users, especially investors and analysts (Hirst and Hopkins, 1998; Maines and McDaniel, 2000; and Hunton *et al.*, 2006) and a set of studies geared at the capital market (Cheng *et al.*, 1993; Dhaliwal *et al.*, 1999; O'Hanlon and Pope, 1999; Cahan *et al.*, 2000; Wang *et al.*, 2003; and Hodder *et al.*, 2006, among others).

Given our prior review of the existing empirical literature, there are no studies that have carried out research with the purpose and the methods that we set forth in our study, as to whether Comprehensive Income has a significant impact on Net Income for a set of corporate groups, or whether there are significant differences among the diverse industries in which the companies operate regarding the relative discrepancy between both types of income. Thus this research is of particular interest as it is a ground-breaking study at an international level.

3. OVERALL IMPACT AND IMPACT BY INDUSTRIES OF COMPREHENSIVE INCOME ON EUROPEAN GROUPS LISTED ON NYSE AND NASDAQ

Once the conceptual ground on which Comprehensive Income is essentially based has been defined, and reference has been made to its regulation, along with review of the empirical research that has been carried out internationally on the matter, we now proceed with our proposed empirical research.

3.1 Sample

We have confined our study to the period 1999-2004 in order to include the largest number of corporate groups in the sample. The problem, on the one hand, is that although SFAS 130 was approved at the end of 1997, certain companies did not trade in these markets in 1997 and 1998.

On the other hand, since the first of January 2005, the listed companies of the European Union, for the formulation of their consolidated financial statements, must apply the IFRS of the IASB. In this normative body the disclosure of Comprehensive Income is already considered, specifically in IAS 1 (2003, revised in 2007), and certain companies in the reconciliation with US GAAP in 20-F filed with the SEC decided not to include Comprehensive Income when making it equivalent with that disclosed according to IASB GAAP, although they do not actually agree in all aspects.

In any case, the analysis period 1999-2004 encompasses the phases of an economic cycle, very similar to the stock market, characterized by expansion at the end of the nineties, significant stock market drops at the

beginning of the century, and recovery in the later years, thus we have a suitable time frame for studying the impact of Comprehensive Income on Net Income. On the other hand, in order to homogenize the information we have had to apply the corresponding filters, which led us to exclude certain corporate groups from the European companies listed on NYSE and NASDAQ on 31st December 2004.

The reasons for excluding them were fundamentally: The companies were not listed the entire period from 1999-2004, they did not disclose Comprehensive Income in a clear way, or they formulated their financial statements on a date other than the 31st of December (the majority being British companies). We are thus able to make consistent comparisons when linking Comprehensive Income with the prices of the securities and currency markets. Working with information related to different dates would distort the analysis.

After making these considerations, we chose a sampling of 136 corporate groups of 19 European countries representing 56% of the total of companies on the European continent listed on NYSE and NASDAQ on 31st December 2004, and comprises most of the European Union’s blue chips.

Moreover, in order to carry out the corresponding study by industries, we have associated each of the groups included in the sample to their corresponding industry pursuant to the Industry Classification Benchmark (ICB) —Dow Jones Indexes and FTSE—, with the results shown in Table 1.

Table 1
Division by Industries of European Corporate Groups listed on NYSE and NASDAQ on 31st December 2004
Pursuant to the Industry Classification Benchmark (ICB) Dow Jones Indexes and FTSE

INDUSTRY	CODE	SECTOR	Number of corporate groups	Percentage of groups of each industry included in the sample
Oil & Gas	OIG	Oil & Gas Producers, Oil Equipment & Services, Alternative Energy.	10	66,7 %
Basic Materials	BSM	Chemicals, Forestry & Paper, Industrial Metals & Mining, Mining.	9	52,9 %
Industrials	IND	Construction & Materials, Aerospace & Defence, General Industrials, Electronic & Electrical Equipment, Industrial Engineering, Industrial Transportation, Support Services.	22	68,8 %
Consumer Goods	CSG	Automobiles & Parts, Beverages, Food Producers, Household Goods & Home Construction, Leisure Goods, Personal Goods, Tobacco.	12	38,7 %
Healthcare	HEC	Health Care Equipment & Services, Pharmaceuticals & Biotechnology.	19	61,3 %
Consumer Services	CSS	Food & Drug Retailers, General Retailers, Media, Travel & Leisure.	10	43,5 %
Telecommunications	TEL	Fixed Line Telecommunications, Mobile Telecommunications.	17	60,7 %
Utilities	UTI	Electricity, Gas, Water & Multiutilities.	4	40,0 %
Financials	FIN	Banks, Nonlife Insurance, Life Insurance, Real Estate Investment & Services, Real Estate Investment Trusts, Financial Services, Equity Investment Instruments, Nonequity Investment Instruments.	16	59,3 %
Technology	TEC	Software & Computer Services, Technology Hardware, & Equipment.	17	58,6 %
Total.....			136	56 %

Source: authors’ calculations, based on the database and ICB, <http://www.icbenchmark.com>.

3.2 Hypotheses and Testing Methods

As stated at the beginning of our paper, we firstly wish to evaluate the impact of Comprehensive Income on Net Income for the period 1999-2004, taking as reference the aforementioned sampling, to which purpose we formulated the following null hypothesis along with its corresponding alternative hypothesis:

H₀1 Comprehensive Income (CI) does not show a significant impact regarding Net Income (NI) for each of the years in the period 1999-2004, both determined pursuant to US GAAP, for the European corporate groups listed on NYSE and NASDAQ.

$$\theta_{CI1999} = \theta_{NI1999}$$

$$\theta_{CI2000} = \theta_{NI2000}$$

$$\theta_{CI2001} = \theta_{NI2001}$$

$$\theta_{CI2002} = \theta_{NI2002}$$

$$\theta_{CI2003} = \theta_{NI2003}$$

$$\theta_{CI2004} = \theta_{NI2004}$$

H₁1 Alternative hypothesis: $\theta_{CI} \neq \theta_{NI}$ for at least a year k .

In order to test this hypothesis and its corresponding alternative hypothesis, it might be pertinent to compare the means between Comprehensive Income and Net Income for the period 1999-2004 with the parametric tool Student's T Test for paired samples.

However, pursuant to the Kolmogorov-Smirnov One-Sample Test, we reject the null hypothesis of normality for the variables comprising the difference between both types of income in each of the years studied. Thus, as the data does not fit in with a normal distribution, we must use for comparison purposes the alternative non-parametric tool Wilcoxon Signed-Rank Test, with a confidence level of 95%, and therefore a significance value of $p < 0.05$.

The Wilcoxon Signed-Rank Test contrasts the null hypothesis that the medians of two related variables are equal, which applied to the specific scope of our investigation will allow us to prove whether Comprehensive Income differs significantly from net income, both determined pursuant to US GAAP for the period 1999-2004 for the set of European groups listed on NYSE and NASDAQ.

With this, we aim to join the debate on additional disclosure content of Comprehensive Income on Net Income. On the one hand, those in charge of formulating financial statements, in particular financial entities, strongly pressured the standard setters for the regulations on Comprehensive Income not to be approved for fear that it would overload their income statements as they would be more linked to market reality [Joint Working Group of Banking Associations on Financial Instruments (1999), Dean (2000), Hirst *et al.* (2002), referenced in Hodder *et al.* (2006), among others]. On the other hand, investors and analysts pressured for exactly the opposite, to thus confer more importance to information in the area of income (AIMR, 1993, current CFA Institute).

Moreover, as was stated, we wish to provide empirical proof regarding whether there are differences between industries with respect to the relative discrepancy between Comprehensive Income and Net Income for the aforementioned sampling and period. To do this we formulated this null hypothesis along with its alternative hypothesis:

H₀2 Among the different Industries in which the European corporate groups listed on NYSE and NASDAQ operate, there are no significant differences for each of the years in the period 1999-2004 regarding relative impact of Comprehensive Income on Net Income, both disclosed pursuant to US GAAP.

$$\begin{aligned} \theta_{OIG-1999} &= \theta_{BSM-1999} = \theta_{IND-1999} = \theta_{CSG-1999} = \theta_{HEC-1999} = \theta_{CSS-1999} = \theta_{TEL-1999} = \theta_{UTI-1999} = \theta_{FIN-1999} = \theta_{TEC-1999} \\ \theta_{OIG-2000} &= \theta_{BSM-2000} = \theta_{IND-2000} = \theta_{CSG-2000} = \theta_{HEC-2000} = \theta_{CSS-2000} = \theta_{TEL-2000} = \theta_{UTI-2000} = \theta_{FIN-2000} = \theta_{TEC-2000} \\ \theta_{OIG-2001} &= \theta_{BSM-2001} = \theta_{IND-2001} = \theta_{CSG-2001} = \theta_{HEC-2001} = \theta_{CSS-2001} = \theta_{TEL-2001} = \theta_{UTI-2001} = \theta_{FIN-2001} = \theta_{TEC-2001} \\ \theta_{OIG-2002} &= \theta_{BSM-2002} = \theta_{IND-2002} = \theta_{CSG-2002} = \theta_{HEC-2002} = \theta_{CSS-2002} = \theta_{TEL-2002} = \theta_{UTI-2002} = \theta_{FIN-2002} = \theta_{TEC-2002} \\ \theta_{OIG-2003} &= \theta_{BSM-2003} = \theta_{IND-2003} = \theta_{CSG-2003} = \theta_{HEC-2003} = \theta_{CSS-2003} = \theta_{TEL-2003} = \theta_{UTI-2003} = \theta_{FIN-2003} = \theta_{TEC-2003} \\ \theta_{OIG-2004} &= \theta_{BSM-2004} = \theta_{IND-2004} = \theta_{CSG-2004} = \theta_{HEC-2004} = \theta_{CSS-2004} = \theta_{TEL-2004} = \theta_{UTI-2004} = \theta_{FIN-2004} = \theta_{TEC-2004} \end{aligned}$$

H₁2 Alternative hypothesis: $\theta_{i,k} \neq \theta_{j,k}$ for at least a pair of industries i and j in a year k

The relative impact of Comprehensive Income (CI) on Net Income(NI) in each of the years for each corporate group included in its corresponding sector is determined by the expression: $CINI = [(CI - NI) / |NI|] \cdot 100$. This formulation expresses the percentage discrepancy of the group of elements that Comprehensive Income includes in income, and since both the numerator and the denominator may have positive or negative values, we have had to apply absolute values in the denominator so that in all cases the real percentage discrepancy between both income types is expressed.

In order to test this hypothesis and its corresponding alternative hypothesis, given that we have a between-subjects factor in the sense that not all of the subjects or corporate groups undergo the same treatments, as evidently each one is associated to its corresponding sector, it might be suitable to use a One Way ANOVA model, which allows to prove whether there are significant differences between multiple groups.³

However, having applied the Kolmogorov-Smirnov One-Sample Test, we rejected the null hypothesis of normality for the variables object of contrast. Therefore as the data does not fit in with normal distribution, a necessary assumption in order to apply ANOVA models, we must use the alternative non-parametric Kruskal-Wallis test for comparison, also known as the Kruskal-Wallis one-way analysis of variance by ranks (Siegel and Castellan, 1988). This test allows to compare whether a set of k independent samples come from the same population, that is, whether a factor, in our case the sector factor, which subdivides the population of origin, significantly affects its central value.

But this test assumes that the variables being the subject of contrast are distributed similarly between the different groups, in this case between the different sectors, and pursuant to the study of the corresponding boxplots we are far from this assumption, because we have a large number of extreme values and outliers distributed in quite a heterogeneous manner between the different sectors and years.

Therefore, it is necessary to validate the results obtained with the Median Test, which is known not to need this requirement. But in turn, its weakness is that it was not designed to take into account the distance from the median, which the Kruskal-Wallis Test does.

If these two *a priori* tests show significant differences between the diverse sectors, working with a confidence level of 95%, and thus a significance level of $p < 0,05$, we will have to carry out the corresponding *post hoc* tests, and thus find in which pairs of sectors and in which specific years do the stated differences truly exist.

To this purpose the Mann-Whitney U Test should be suitable. This allows us to contrast the null hypothesis that two independent samples come from the same population. However, this test also assumes that the variables object of contrast have a similar distribution between the two groups compared, in our case between those

corresponding to the different pairs of industries. However our data is far from fulfilling this requirement for the same reasons previously explained regarding the *a priori* tests.

Thus we are going to use the stated Kolmogorov-Smirnov Two-Sample Test in order to validate the assumption of similar distributions, which contrary to the Mann-Whitney U Test does not assume this condition, which confers flexibility but at the same time makes it very sensitive to the differences both in location and scale.

By these comparisons we intend to prove the impact of Comprehensive Income on Net Income by sectors for the sample studied. In principle special attention will be paid to the financial sector over the rest, due to the particularities of the companies operating in that sector, which have a large amount of elements in their statements that affect Comprehensive Income given the nature of the activities they carry out.

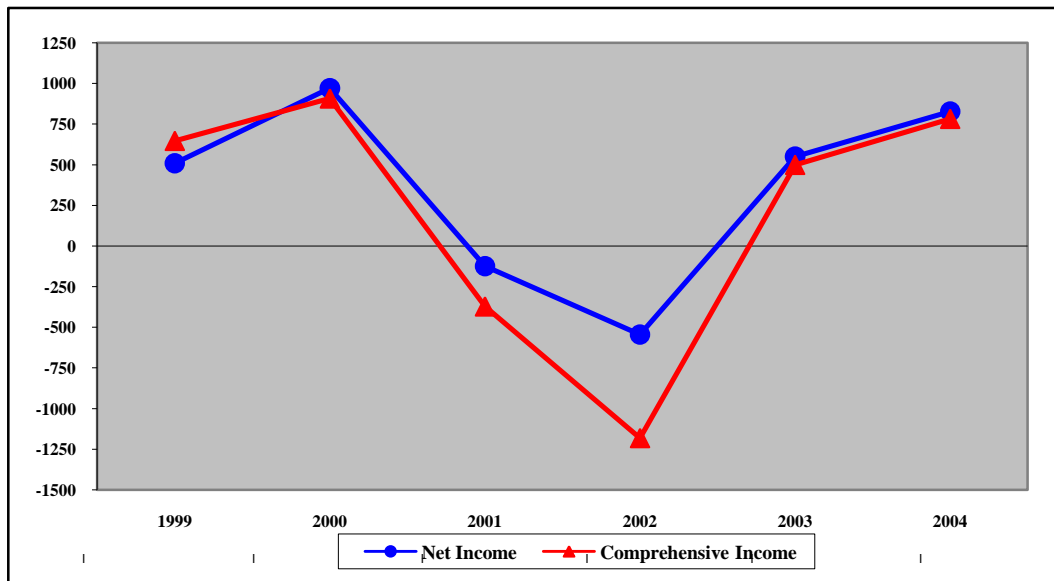
3.3. Research Results

Once the sample group has been defined, the hypotheses designed and the testing methods justified, we now intend to show and analyze the results of our research in the following sections.

3.3.1 Overall Impact

We proceed to contrast the first hypothesis formulated and its corresponding alternative hypothesis, after showing in Graphic 1 the profile of the Comprehensive Income and Net Income means, and in Table 2 the descriptive statistics of both types of income for the sample group in the six years researched, associated to the variables with which the corresponding comparisons will be made.

Graphic 1
Profile of the Means of Comprehensive Income (CI) and Net Income (NI) in the Period 1999-2004 for the Aggregate of European Groups Listed on NYSE and NASDAQ
 (Variables expressed in millions of Euros)



Source: authors' calculations, based on the database and SPSS v.15.0.

Table 2
Descriptive Statistics for Net Income(NI) and Comprehensive Income (CI) in the period 1999-2004 for the European groups listed on NYSE and NASDAQ
 (Variables expressed in millions of Euros)

Variable	N	Mean	Standard Deviation	Minimum	First Quartile	Median	Third Quartile	Maximum
NI1999	136	508,10	1,034.18	-3,523	2	112.00	632	5,746
CI1999	136	647.80	1,315.31	-3,894	1,25	114.00	868.75	7,988
NI2000	136	970.60	2,148,85	-1,236	5,5	160.00	874	13,513
CI2000	136	908.86	2,005.69	-1,738	-4.25	101.00	835.25	11,244
NI2001	136	-124.89	2,531.40	-19,278	-102.75	29.00	371.75	6,317
CI2001	136	-371.61	2,748.23	-18,157	-209.25	11.00	316.75	6,795
NI2002	136	-545.11	5,253.55	-43,857	-184.50	22.50	390.75	8,007
CI2002	136	-1,182.33	5,907.31	-48,051	-586.75	-6,00	131	10,054
NI2003	136	549.83	1,587.46	-3,670	-14.75	118.50	544.25	10,406
CI2003	136	500.27	1,883.21	-3,946	-20.75	85.00	541.75	15,905
NI2004	136	827.80	1,708.16	-2,100	7	192.00	974	12,547
CI2004	136	783.49	1,736.66	-2,223	0	141.50	815	12,754

Source: authors' calculations, based on the database and SPSS v.15.0.

We see that the period 1999-2004 covered in our empirical study comprises an economic cycle, similar to the stock market cycle, where we appreciate, both for Comprehensive Income and net income, the boom of the end of the nineties, the stock market crisis of the beginning of the century and the recovery of later years, not forgetting the strong euro/USA dollar depreciations/appreciations, given the foreign trade of the corporations included in the sample.

In addition, we must point out the pronounced negative impact of Comprehensive Income on Net Income in the years 2001 and 2002 for the mean of the sample, essentially caused by the stock market drops in those years and the unfavorable euro/USA dollar exchange rates, which reveals a higher sensitivity of the first as opposed to the second in capturing market impact on income.

However, even though these discrepancies and similarities between said mean values of Comprehensive Income and Net Income have a descriptive value, ultimately the comparison with the corresponding non-parametric test that we analyze hereunder, based on ranks, will confirm whether or not there are significant differences between both types of income.

Proceeding with the analysis of the corresponding comparisons, Table 3 shows in the first place an analysis of the ranks in the comparisons of Comprehensive Income and Net Income for the period 1999-2004 for the 136 groups comprised in the sample. This shows a noticeable difference between positive and negative ranks, as well as in the median ranks associated with them, which on the other hand display a behavior pattern that differs between Comprehensive Income and Net Income in the years researched, obviously due to the different manner in which the new items included in Comprehensive Income have an impact on the income of the corporate groups included in the sample.

Table 3
Ranks of Wilcoxon Signed Rank Test for Comparison of Comprehensive Income (CI) and Net Income(NI)
for the Period 1999-2004 for European Groups Listed on NYSE and NASDAQ

	N	Mean Rank	Sum of Ranks
Positive Ranks	52 (a)	51.99	2,703.50
CI1999-NI1999 Negative Ranks	67 (b)	66.22	4,436.50
Ties	17 (c)		
Total	136		
Positive Ranks	65 (d)	63.25	4,111.00
CI2000-NI2000 Negative Ranks	59 (e)	61.68	3,639.00
Ties	12 (f)		
Total	136		
Positive Ranks	79 (g)	65.16	5,147.50
CI2001-NI2001 Negative Ranks	39 (h)	48.04	1,873.50
Ties	18 (i)		
Total	136		
Positive Ranks	92 (j)	68.71	6,321.50
CI2002-NI2002 Negative Ranks	29 (k)	36.53	1,059.50
Ties	15 (l)		
Total	136		
Positive Ranks	66 (m)	64.35	4,247.00
CI2003-NI2003 Negative Ranks	56 (n)	58.14	3,256.00
Ties	14 (o)		
Total	136		
Positive Ranks	73 (p)	65.43	4,776.50
CI2004-NI2004 Negative Ranks	48 (q)	54.26	2,604.50
Ties	15 (r)		
Total	136		

a CI1999 < NI1999; b CI1999 > NI1999; c CI1999 = NI1999; d CI2000 < NI2000; e CI2000 > NI2000; f CI2000 = NI2000; g CI2001 < NI2001; h CI2001 > NI2001; i CI2001 = NI2001; j CI2002 < NI2002; k CI2002 > NI2002; l CI2002 = NI2002; m CI2003 < NI2003; n CI2003 > NI2003; o CI2003 = NI2003; p CI2004 < NI2004; q CI2004 > NI2004; r CI2004 = NI2004; Source: authors' calculations, based on the database and SPSS v.15.0.

These discrepancies between ranks lead to significant differences as $p < 0.05$ for the years 1999, 2001, 2002 and 2004, as stated in Table 4, which leads us to reject the null hypothesis H_0 , and consequently to accept its alternative hypothesis H_1 .

Table 4
Statistics of the Wilcoxon Signed Rank Test for Comparison of Comprehensive Income (CI) and Net Income(NI)
for the Period 1999-2004 for European Groups Listed on NYSE and NASDAQ

	CI1999/NI1999	CI2000/NI2000	CI2001/NI2001	CI2002/NI2002	CI2003/NI2003	CI2004/NI2004
Z	-2.298 (a)	-0.589 (b)	-4.396 (b)	-6.806 (b)	-1.266 (b)	-2.809 (b)
Asymp. Sig. (2-tailed)	0.022	0.556	0.000	0.000	0.205	0.005

a Based on positive ranks. b. Based on negative ranks. Source: authors' calculations, based on the database and SPSS v.15.0.

The results of these comparisons allow us to state that for the set of European corporate groups listed on NYSE and NASDAQ for the period 1999-2004, Comprehensive Income differs significantly from Net Income in the years 1999, 2001, 2002, and 2004, both determined pursuant to US GAAP.

This, along general lines, shows a material disclosure impact of the first regarding the latter, caused by the market impact on income by valuating specific assets and liabilities, that in the past were recognized directly in

equity but now are included in income according to SFAS 130 of the FASB and in a similar way pursuant IAS 1 of the IASB.

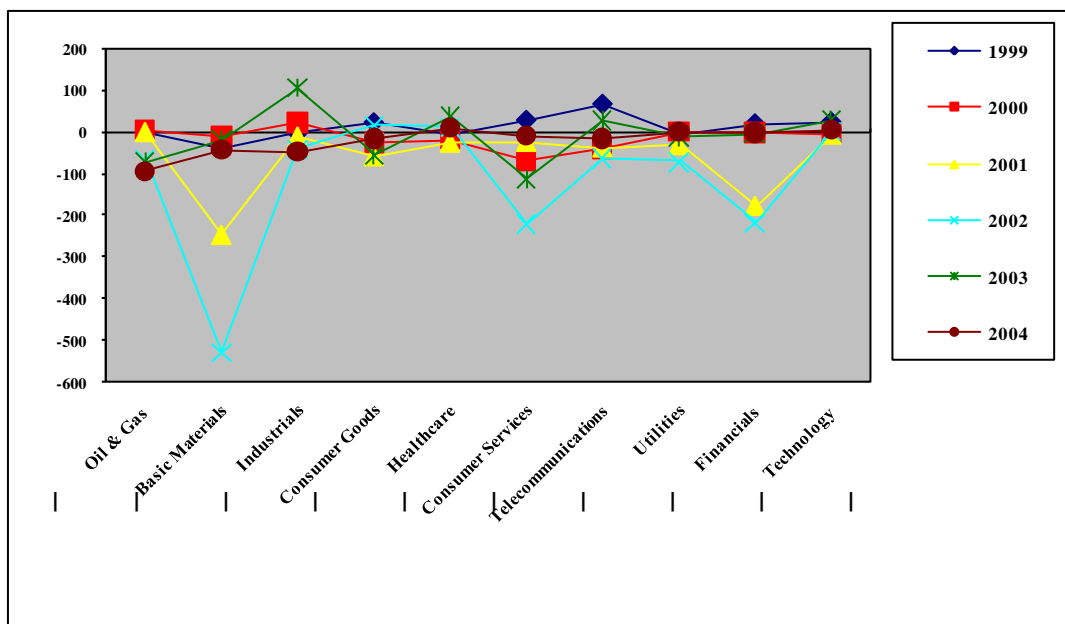
If we add to the pronounced impact of Comprehensive Income on net income, as shown in Graphic 1 and Table 2, the previous empirical evidence, we are faced with a situation that justifies the strong pressure exerted by large corporations on standard setters, particularly those of the United States and of the European Union, for the rules that regulate Comprehensive Income not to be approved for fear that it would overload their income statements as they would be more linked to market reality [Joint Working Group of Banking Associations on Financial Instruments (1999), Dean (2000), Hirst *et al.* (2002), referenced in Hodder *et al.* (2006), among others].

Moreover, the empirical proof discovered strengthens the position of the AIMR (1993), current CFA Institute, leading association of United States Financial Analysts, when it took exactly the opposite stance, that is, it took a stand for approval of those regulations that currently oblige disclosure of Comprehensive Income in order to confer more importance to information, particularly for investors and analysts, as corporate performance is more attached to market reality.

3.3.2 Impact by Industries

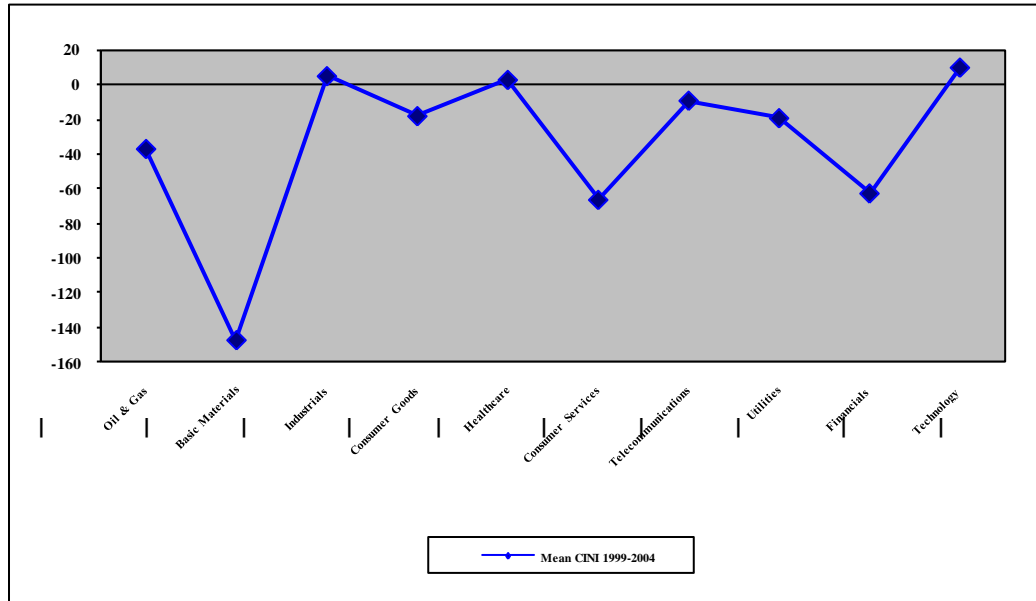
We now centre on the relative impact of Comprehensive Income on Net Income by Industries, for which as initial approximation in Graphics 2 and 3 and in Tables 5 and 6, we have shown descriptive statistics and itemized means for each of the years of the period 1999-2004 regarding relative discrepancy between both types of income.

Graphic 2
Profile of the Means of Relative Discrepancy of Comprehensive Income on Net Income for Each of the Years in the Period 1999-2004, by Industries, for European Groups Listed on NYSE and NASDAQ
 Values expressed in percentage terms and calculated using the expression $CINI = [(CI - NI) / |NI \cdot 100|]$



Source: authors' calculations, based on the database and SPSS v.15.0.

Graphic 3
Profile of the Means of Relative Discrepancy of Comprehensive Income on Net Income
During the Period 1999-2004, by Industries, for European Groups Listed on NYSE and NASDAQ
 Consolidated values, expressed in percentage terms and calculated using the expression $CINI = [(CI - NI) / |NI| \cdot 100]$



Source: authors' calculations, based on the database and SPSS v.15.0.

Table 5
Descriptive Statistics of Relative Impact of Comprehensive Income (CI) on Net Income(NI) for the Sampling Group for
Each of the Years in the Period 1999-2004 for European Groups Listed on NYSE and NASDAQ
 Consolidated values, expressed in percentage terms and calculated using the expression $CINI = [(CI - NI) / |NI| \cdot 100]$

Variable	N	Mean	Standard Deviation	Minimum	First Quartile	Median	Third Quartile	Maximum
CINI1999	136	15.41	125.43	-626.56	-11.11	0.00	36.86	605.88
CINI2000	136	-10.96	92.63	-530.00	-21.19	0.00	7.68	600.00
CINI2001	136	-54.87	244.08	-2,057.14	-36.38	-2.94	2.65	281.71
CINI2002	136	-93.56	421.10	-3,714.29	-69.30	-18.54	0.00	1,000.00
CINI2003	136	10.09	236.74	-700.00	-29.78	0.00	36.85	2,300.00
CINI2004	136	-18.26	105.25	-766.67	-19.94	-1.67	8.29	187.50

Source: authors' calculations, based on the database and SPSS v.15.0.

Table 6
Impact by Industries of the Means of Relative Discrepancy of Comprehensive Income on Net Income for Each of the
Years in the Period 1999-2004 for European Groups Listed on NYSE and NASDAQ

Consolidated values, expressed in percentage terms and calculated using the expression $CINI = [(CI - NI) / |NI|] \cdot 100$

INDUSTRY	CODE	CINI1999	CINI2000	CINI2001	CINI2002	CINI2003	CINI2004	Mean 1999-2004
Oil & Gas	OIG	1.28	6.50	0.46	-66.40	-69.36	-93.16	-36.78
Basic Materials	BSM	-40.55	-9.14	-245.49	-529.23	-17.03	-41.11	-147.09
Industrials	IND	-1.65	24.11	-10.28	-39.46	105.63	-47.04	5.22
Consumer Goods	CSG	24.50	-23.59	-57.27	17.42	-54.06	-13.95	-17.83
Healthcare	HEC	-3.20	-16.67	-24.77	14.748	37.15	11.08	3.06
Consumer Services	CSS	30.38	-66.95	-22.90	-220.42	-109.97	-7.05	-66.15
Telecommunications	TEL	69.49	-39.93	-36.30	-61.84	28.93	-14.01	-8.94
Utilities	UTI	-6.89	1.51	-30.60	-70.69	-9.79	2.49	-19.00
Financials	FIN	21.88	-0.78	-175.82	-216.90	-2.93	-0.13	-62.45
Technology	TEC	26.06	-2.93	-5.39	5.34	31.30	6.56	10.16
Total		15.41	-10.96	-54.87	-93.56	10.09	-18.26	-25.36 ⁴

Source: authors' calculations, based on the database and SPSS v.15.0.

In accordance with the descriptive statistics of the preceding section, the impact of the crisis of the beginning of the century and the unfavorable exchange rates are obvious for most of the industries. This entails a very important fact: Comprehensive Income as opposed to Net Income has caused a decline of over twenty-five per cent in the income of the 136 groups included in the sample for the period 1999-2004.

As shown is Graphic 3, the most negatively affected sector is that of Basic Materials, with a very high average relative discrepancy, followed by Consumer Services, Financials, and Oil & Gas at a greater distance.

The sectors that have had a moderate negative impact were Consumer Goods, Utilities, and to a lesser extent Telecommunications. The impact on the Industry and Healthcare was slightly positive and Technology was the most positively affected.

On the other hand, as we can see from Tables 7 to 10, the item with a higher average impact of all sectors was Foreign Currency Translations Adjustments, followed at a great distance by Unrealized Gains and Losses on Securities and with little impact of Derivatives and Cash Flow Hedges. Regarding the item Minimum Pension Liability Adjustment there is a slight average impact in all sectors, except for Basic Materials, which was quite high.

After this initial approximation to the relative impact of Comprehensive Income on Net Income by industries for the period 1999-2004, the fact that the financial sector was one of the most affected sectors is an expected result due to the particularities of the companies within that sector, and also fits in with the international debate of recent years regarding accounting of financial instruments with their natural effect on Comprehensive Income.

But it is surprising that sectors such as Basic Materials or Consumer Services, in which financial business is not at the forefront given the nature of their activities, have been very negatively impacted, even more so than financial entities themselves.

In this sense we must take into account the influence of the extreme values and outliers, which in the case of the British company *Imperial Chemical Industries*, the French *Publicis Groupe* and the German *Deutsche Bank*, respectively dealing with Basic Materials, Consumer Services, and Financials, show the most extreme values of the 136 companies of the sample group, particularly for the years 2001 and 2002, which has noticeably affected the average values of their corresponding sectors.

In any case, with the corresponding non-parametric tools and given that they are based on ranks and, therefore, immune to extreme observations, we will later be able to better discern whether the differences found among sectors in this first approximation by analysis of the descriptive statistics are significant or not.

Table 7
Impact by Industries of the Means of Relative Discrepancy of the Item Foreign Currency Translations Adjustments (FCTA) on Net Income for Each of the Years in the Period 1999-2004 for European Groups Listed on NYSE and NASDAQ

Consolidated values, expressed in percentage terms and calculated using the expression $IMPACT\ FCTA = [FCTA / |NI| \cdot 100]$

INDUSTRY	CODE	FCTA1999	FCTA2000	FCTA2001	FCTA2002	FCTA2003	FCTA2004	Mean 1999-2004
Oil & Gas	OIG	0.52	6.26	3.48	-58.06	-117.42	-56.83	-37.01
Basic Materials	BSM	-50.70	-11.32	-61.59	-132.78	-2.21	-31.34	-48.32
Industrials	IND	-10.70	26.28	5.27	-16.34	32.17	-34.29	0.40
Consumer Goods	CSG	-3.83	14.63	-22.75	40.01	-107.97	-9.94	-14.98
Healthcare	HEC	-4.88	-22.59	-24.04	16.17	36.51	12.02	2.20
Consumer Services	CSS	2.16	-88.20	38.97	-139.51	-127.94	-12.95	-54.58
Telecommunications	TEL	-22.27	-13.63	-25.54	-58.78	0.45	1.00	-19.80
Utilities	UTI	-0.01	4.62	-20.51	-57.00	-11.49	1.84	-13.76
Financials	FIN	32.88	11.57	5.06	-91.28	-42.78	-21.94	-17.75
Technology	TEC	7.37	4.74	-3.82	5.28	28.06	7.05	8.11
Total		-3.90	-4.00	-9.15	-39.27	-19.22	-13.47	-14.84

Source: authors' calculations, based on the database and SPSS v.15.0.

Table 8
Impact by Industries of the Means of Relative Discrepancy of the Item Unrealized Gains and Losses on Securities (UGLS) on Net Income for Each of the Years in the Period 1999-2004 for European Groups Listed on NYSE and NASDAQ

Consolidated values, expressed in percentage terms and calculated using the expression $IMPACT\ UGLS = [UGLS / |NI| \cdot 100]$

INDUSTRY	CODE	UGLS1999	UGLS2000	UGLS2001	UGLS2002	UGLS2003	UGLS2004	Mean 1999-2004
Oil & Gas	OIG	0.85	0.20	0.56	-0.47	27.89	-27.07	0.33
Basic Materials	BSM	11.95	6.37	-0.04	-2.60	-0.52	1.66	2.80
Industrials	IND	16.51	-4.03	-7.39	-1.37	1.13	-1.76	0.52
Consumer Goods	CSG	25.19	-37.17	-16.84	1.18	19.46	-3.84	-2.00
Healthcare	HEC	1.58	5.93	3.45	-0.79	2.01	0.35	2.09
Consumer Services	CSS	19.01	27.11	-34.47	-59.07	2.18	3.31	-6.99
Telecommunications	TEL	91.76	-25.27	-6.59	-1.41	30.43	-5.26	13.94
Utilities	UTI	-7.16	-4.64	-9.62	1.91	9.72	4.22	-0.93
Financials	FIN	-10.94	-12.36	-214.78	-157.90	40.87	15.17	-56.66
Technology	TEC	19.50	-7.52	-1.40	-0.02	3.37	0.52	2.41
Total		19.77	-6.36	-31.25	-23.48	13.68	-0.90	-4.76

Source: authors' calculations, based on the database and SPSS v.15.0.

Table 9

Impact by Industries of the Means of Relative Discrepancy of the Item Derivatives and Cash Flow Hedges (DCFH) on Net Income for Each of the Years in the Period 1999-2004 for European Groups Listed on NYSE and NASDAQ

Consolidated values, expressed in percentage terms and calculated using the expression $\text{IMPACT DCFH} = \left[\frac{\text{DCFH}}{|\text{NI}|} \cdot 100 \right]$

INDUSTRY	CODE	DCFH1999	DCFH2000	DCFH2001	DCFH2002	DCFH2003	DCFH2004	Mean 1999-2004
Oil & Gas	OIG	0.00	0.00	-1.12	-4.11	19.21	-9.53	0.74
Basic Materials	BSM	0.00	0.00	-2.19	4.22	2.72	0.67	0.90
Industrials	IND	-8.64	1.47	-3.33	9.65	2.70	8.21	1.68
Consumer Goods	CSG	-0.87	0.18	-0.82	-0.13	23.19	-1.00	3.43
Healthcare	HEC	0.00	0.00	-4.17	1.85	-1.01	-0.56	-0.65
Consumer Services	CSS	0.00	0.00	-3.83	0.18	1.26	0.15	-0.37
Telecommunications	TEL	0.00	0.64	0.06	2.46	0.84	-1.58	0.40
Utilities	UTI	0.00	0.00	3.21	-0.89	-5.97	-2.48	-1.02
Financials	FIN	0.00	0.00	-0.00	-0.25	0.60	1.28	0.27
Technology	TEC	-0.13	0.36	0.17	0.57	-0.11	0.28	0.19
Total		-1.49	0.38	-1.58	2.12	4.01	0.43	0.65

Source: authors' calculations, based on the database and SPSS v.15.0.

Table 10

Impact by Industries of the Means of Relative Discrepancy of the Item Minimum Pension Liability Adjustment (MPLA) on Net Income for Each of the Years in the Period 1999-2004 for European Groups Listed on NYSE and NASDAQ

Consolidated values, expressed in percentage terms and calculated using the expression $\text{IMPACT MPLA} = \left[\frac{\text{MPLA}}{|\text{NI}|} \cdot 100 \right]$

INDUSTRY	CODE	MPLA1999	MPLA2000	MPLA2001	MPLA2002	MPLA2003	MPLA2004	Mean 1999-2004
Oil & Gas	OIG	-0.09	0.04	-2.47	-3.76	0.97	0.26	-0.84
Basic Materials	BSM	-1.27	-3.87	-181.68	-398.07	-16.96	-12.10	-102.33
Industrials	IND	1.64	0.40	-4.86	-31.40	69.91	-19.20	2.75
Consumer Goods	CSG	3.98	-0.93	16.96	-23.41	11.27	0.83	1.45
Healthcare	HEC	0.00	0.00	0.00	-2.33	-0.13	-0.76	-0.54
Consumer Services	CSS	0.00	-0.03	-11.71	-20.38	13.62	2.44	-2.68
Telecommunications	TEL	0.00	-1.67	-3.61	-4.11	-2.80	-1.82	-2.34
Utilities	UTI	0.28	1.53	-3.72	-14.36	-1.98	-0.72	-3.16
Financials	FIN	0.01	-0.01	-3.35	-11.98	-2.98	5.22	-2.18
Technology	TEC	-0.68	-0.51	-0.34	-0.48	-0.02	-1.29	-0.55
Total		0.45	-0.50	-16.34	-37.99	11.48	-3.54	-7.74

Source: authors' calculations, based on the database and SPSS v.15.0.

Proceeding to the analysis of the corresponding comparisons, Table 11 shows in the first place the mean ranks of the Kurskal-Wallis Test by industries regarding relative discrepancy of Comprehensive Income on net income.

Table 11
Mean Ranks of Kruskal-Wallis Test for Comparison of Relative Discrepancy of Comprehensive Income on Net Income, by Industries, for Each of the Years in the Period 1999-2004 for European Groups Listed on NYSE and NASDAQ

INDUSTRY	CODE	N	Mean Ranks					
			CINI1999	CINI2000	CINI2001	CINI2002	CINI2003	CINI2004
Oil & Gas	OIG	10	64.70	86.85	80.00	58.60	60.00	48.80
Basic Materials	BSM	9	73.22	54.89	40.89	41.78	55.67	66.89
Industrials	IND	22	71.77	71.36	73.45	64.30	68.98	61.86
Consumer Goods	CSG	12	77.83	76.63	55.71	57.58	58.83	55.63
Healthcare	HEC	19	52.74	65.18	66.84	103.37	85.76	87.05
Consumer Services	CSS	10	83.20	49.10	74.80	59.90	50.85	77.50
Telecommunications	TEL	17	72.53	63.09	76.85	68.12	71.12	61.00
Utilities	UTI	4	53.00	83.25	44.75	48.25	68.75	83.75
Financials	FIN	16	68.38	77.56	64.63	48.25	65.94	67.06
Technology	TEC	17	66.12	64.00	78.00	91.91	77.32	77.85
Total		136						

Source: authors' calculations, based on the database and SPSS v.15.0.

We find that in general mean ranks do not differ greatly between the different sectors, except for the year 2002, when the largest financial and stock market crisis is observed compared to the other years of the research period, not forgetting the appreciation of the euro against the USA dollar.

Therefore, for this year the sectors of Healthcare and Technology are clearly those of highest mean ranks, with a higher positive impact of Comprehensive Income on Net Income for the referenced year, at a great distance from the rest, especially from those of Basic Materials, Financials and Utilities, which have the lowest mean ranks.

All of these facts, as shown by Table 12, lead to $p < 0.05$ and therefore to significant differences only for the year 2002.

Table 12
Kruskal-Wallis Test Statistics in the Comparison of Relative Discrepancy of Comprehensive Income on Net Income, by Industries, for Each of the Years in the Period 1999-2004 for European Groups Listed on NYSE and NASDAQ

	CINI1999	CINI2000	CINI2001	CINI2002	CINI2003	CINI2004
Chi-Square	6.351	8.382	10.557	32.625	8.803	11.363
df	9	9	9	9	9	9
Asymp. Sig.	0.704	0.496	0.307	0.000	0.456	0.252

Source: authors' calculations, based on the database and SPSS v.15.0.

Similarly, by carrying out the Median Test to reinforce the results of the previous Kruskal-Wallis Test for the reasons that we have given, we find statistically significant differences only for 2002, which we do not specify in the corresponding Tables for brevity reasons.

Consequently, in accordance with the results that fully coincide in both tests, we reject the null hypothesis H_0 , and we accept its alternative hypothesis H_1 , given that there are significant differences between sectors regarding the relative discrepancy of Comprehensive Income on Net Income, even if this is true for only one year of the period 1999-2004.

Once we know thanks to these *a priori* comparisons that there are significant differences between sectors regarding the said discrepancy, we carry out the Mann-Whitney U Test as a *post hoc* test to determine for which

pairs of sectors the differences arose for said year. The results are shown in Tables 13 to 16, where due to the forty-five possible comparisons per pairs for each year between the 10 sectors considered and for brevity purposes those with $p \geq 0.05$, obviously not significant, have been omitted.

Table 13
Ranks of Mann-Whitney U Test in the Comparison of Relative Discrepancy of Comprehensive Income on Net Income, by Industries, for Each of the Years in the Period 1999-2004 for European Groups Listed on NYSE and NASDAQ

(Comparisons for the variable CINI2002 of the Healthcare industry as opposed to the rest of industries, except Technology)

INDUSTRY	CODE	N	Mean Rank	Sum of Ranks
Healthcare	HEC	19	20.11	382.00
Consumer Goods	CSG	12	9.50	114.00
Total.....		31		
Healthcare	HEC	19	13.79	262.00
Utilities	UTI	4	3.50	14.00
Total.....		23		
Healthcare	HEC	19	23.74	451.00
Financials	FIN	16	11.19	179.00
Total.....		35		
Healthcare	HEC	19	27.45	521.50
Industrials	IND	22	15.43	339.50
Total.....		41		
Healthcare	HEC	19	18.16	18.16
Oil & Gas	OIG	10	9.00	90.00
Total.....		29		
Healthcare	HEC	19	17.84	339.00
Basic Materials	BSM	9	7.44	67.00
Total.....		28		
Healthcare	HEC	19	17.95	341.00
Consumer Services	CSS	10	9.40	94.00
Total.....		29		
Healthcare	HEC	19	23.74	451.00
Telecommunications	TEL	17	12.65	215.00
Total.....		36		

Source: authors' calculations, based on the database and SPSS v.15.0.

Table 14
Mann-Whitney U Test Statistics in the Comparison of Relative Discrepancy of Comprehensive Income on Net Income, by Industries, for Each of the Years in the Period 1999-2004 for European Groups Listed on NYSE and NASDAQ

(Significant tests for the variable CINI2002 of the Healthcare industry as opposed the rest of industries, except Technology)

	HEC/CSG	HEC/UTI	HEC/FIN	HEC/IND	HEC/OIG	HEC/BSM	HEC/CSS	HEC/TEL
Mann-Whitney U	36.000	4.000	43.000	86.500	35.000	22.000	39.000	62.000
Wilcoxon W	114.000	14.000	179.000	339.500	90.000	67.000	94.000	215.000
Z	-3.171	-2.767	-3.613	-3.206	-2.761	-3.130	-2.574	-3.161
Asymp. Sig. (2-tailed)	0.002	0.006	0.000	0.001	0.006	0.002	0.010	0.002
Exact Sig. [2*(1-tailed Sig.)]	0.001 (a)	0.003 (a)	0.000 (a)		0.005 (a)	0.001 (a)	0.009 (a)	0.001 (a)

(a) Not corrected for ties. Source: authors' calculations, based on the database and SPSS v.15.0.

Table 15
Ranks of Mann-Whitney U Test in the Comparison of Relative Discrepancy of Comprehensive Income on Net Income, by Industries, for Each of the Years in the Period 1999-2004 for European Groups Listed on NYSE and NASDAQ

(Comparisons for the variable CINI2002 of the Technology industry as opposed to the rest of industries, except Healthcare and Consumer Services)

INDUSTRY	CODE	N	Mean Rank	Sum of Ranks
Technology	TEC	17	18.47	314.00
Consumer Goods	CSG	12	10.08	121.00
Total.....		29		
Technology	TEC	17	12.47	212.00
Utilities	UTI	4	4.75	19.00
Total.....		21		
Technology	TEC	17	21.82	371.00
Financials	FIN	16	11.88	190.00
Total.....		33		
Technology	TEC	17	24.47	416.00
Industrial	IND	22	16.55	364.00
Total.....		39		
Technology	TEC	17	16.47	280.00
Oil & Gas	OIG	10	9.80	98.00
Total.....		27		
Technology	TEC	17	16.76	285.00
Basic Materials	BSM	9	7.33	66.00
Total.....		26		
Technology	TEC	17	21.00	357.00
Telecommunications	TEL	17	14.00	238.00
Total.....		34		

Source: authors' calculations, based on the database and SPSS v.15.0.

Table 16
Mann-Whitney U Test in the Comparison of Relative Discrepancy of Comprehensive Income on Net Income, by Industries, for Each of the Years in the Period 1999-2004 for European Groups Listed on NYSE and NASDAQ
 (Significant tests for the variable CINI2002 of the Technology industry
 as opposed to the rest of industries, except Healthcare and Consumer Services)

	TEC/CSG	TEC/UTI	TEC/FIN	TEC/IND	TEC/OIG	TEC/BSM	TEC/TEL
Mann-Whitney U	43.000	9.000	54.000	111.000	43.000	21.000	85.000
Wilcoxon W	121.000	19.000	190.000	364.000	98.000	66.000	238.000
Z	-2.631	-2.265	-2.962	-2.159	-2.127	-3.009	-2.063
Asymp. Sig. (2-tailed)	0.009	0.024	0.003	0.031	0.033	0.003	0.039
Exact Sig. [2*(1-tailed Sig.)]	0.008 (a)	0.024 (a)	0.002 (a)	0.031 (a)	0.035 (a)	0.002 (a)	0.041 (a)

(a) Not corrected for ties. Source: authors' calculations, based on the database and SPSS v.15.0.

Thus, Table 13 shows the noticeable differences in the averages of the ranks of the Healthcare sector, as opposed to all of the sectors that we have considered, except Technology, which led to significant differences with p clearly inferior to 0.05 (Table 14).

Likewise, regarding the Technology sector, Table 15 also shows noticeable differences in the mean ranks compared to the rest of sectors, except for Healthcare and Consumer Services, which similarly led to significant tests with $p < 0.05$ (Table 16).

On the other hand, when the Kolmogorov-Smirnov Two-Sample Test was carried out to reinforce the results of the previous Mann-Whitney U Test for the reasons already explained, we find statistically significant differences in the year 2002 for the Healthcare sector compared to the other sectors, except for Technology, which is not shown here due to reasons of brevity. Thus the coincidence is complete regarding the Mann-Whitney U Test.

Likewise, when the Kolmogorov-Smirnov Two-Sample Test was carried out to reinforce the results of the previous Mann-Whitney U Test, now for the Technology sector compared to the other sectors, we find significant differences between the same and Consumer Goods, Financials, Industrial, Oil & Gas, which are not shown here for reasons of brevity, and for which the Mann-Whitney U Test also showed significant differences compared to Utilities and Telecommunications.

If we keep in mind that for each year we have forty-five possible combinations of pairs of industries to compare, which means a total of two hundred and seventy comparisons for the years studied, the results of both tests greatly coincide in the sense that they find significant differences in a small number of the said comparisons, and these differences are registered between the same sectors except for the aforementioned non-coincidence.

As corollary of all the comparisons made in this section, we have empirical evidence to affirm that considering all the years included in the study, 2002 is the only one when there are significant differences in industries regarding relative discrepancy of Comprehensive Income on Net Income, which led us to reject the null hypothesis H_0 , and consequently to accept the alternative hypothesis H_1 , but quite lightly, given that significant differences were only registered in a very small number of the two hundred and seventy possible combinations of pairs of industries to be compared.

On the other hand, we must remember that 2002 was precisely the year when the largest financial crisis was observed along with the Stock Markets' lowest point of the whole cycle analyzed, and the year of noticeable appreciation of the euro regarding the US dollar; thus the "crisis effect" essentially caused the significant differences between a small group of pairs of industries out of the forty-five possible pairs for the referred year.

In this sense, as could be foreseen, it is remarkable that a sector such as Financials, containing a large amount of items related to Comprehensive Income, especially financial investments, does not show significant

differences regarding more sectors in more years, given that it performs practically the same as the rest, that is, with significant differences in comparison with Technology and Healthcare, only for 2002.

In addition, as we were able to verify with the analysis of the corresponding descriptive statistics, the item Foreign Currency Translations Adjustments has had a noticeable effect on practically all sectors, which has subsumed the effect of the other items. This may largely explain the homogenized behavior of the sectors with regards to the relative impact of Comprehensive Income on Net Income throughout the analyzed period.

In short, for the period and sample studied, we have shown a picture in which, except for the year 2002 just analyzed, far from what could have been predicted by the noticeable differences between sectors given by the descriptive statistics, also influenced by the extreme and atypical values, the impact of Comprehensive Income on Net Income hardly shows significant differences. This means that we have a phenomenon which in general similarly affects different companies, independently of the nature of the activities that they carry out.

4. CONCLUSIONS

We have undertaken empirical evaluation of the overall impact, and on industries, of Comprehensive Income on Net Income for a sampling of 136 European groups listed on NYSE and NASDAQ from 1999 to 2004, both disclosed pursuant to the US GAAP when they presented their accounts to the SEC with form 20-F.

An outstanding particular of the analysis of the descriptive statistics is the fact that for the aggregate of the sample, made up mostly by the European Union blue chips, Comprehensive Income on Net Income has in average decreased the performance of corporate groups by more than twenty-five per cent, mainly due to the unfavorable exchange rates and the stock market drop of the beginning of the century.

Such a pronounced impact of Comprehensive Income on Net Income in the corporate groups when applying the Wilcoxon Signed Ranks Test entailed statistically significant differences for the years 1999, 2001, 2003, and 2004.

However, when the study was itemized by industries, applying as *a priori* tests the Kurskal-Wallis Test and the Median Test, and as *post hoc* tests the Mann-Whitney U Test and the Kolmogorov-Smirnov Two-Sample Test, significant differences are registered only regarding relative impact of Comprehensive Income on Net Income for the year 2002, and for a very small number of pairs of sectors over the total of two hundred and seventy possible comparisons.

Consequently, this empirical evidence allows to affirm that we have a material or statistically significant impact of Comprehensive Income on Net Income for most of the years analyzed. But when the analysis is specified by industries, we have a phenomenon which, in general, similarly affects corporate groups, independently of the nature of the activities they carry out.

The reason that explains this similar behavior between sectors is essentially the noticeable impact of the item Foreign Currency Translations Adjustments on practically all of them. This item has essentially subsumed the effect of the remaining elements that make up the Comprehensive Income, and consequently this was the factor that led to homogeneity between sectors.

As we stated at the beginning, if by adopting Comprehensive Income we have an event so important to Accounting as is the approximation to the concept of economic income, advocated since several decades by authors of the classic normative-deductive school of thought, the empirical evidence found in our research confirms this approximation. In the context used for our research, Comprehensive Income shows a statistically significant impact on the more traditional Net Income as the first is much more associated with the oscillations in the stock market and exchange rates, and in general, independent from the nature of the corporate groups' activities.

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NOTES

¹ We do not have an explicit definition of comprehensive income in the IASB (1989) Conceptual Framework, although if we look at the definitions of the elements of financial statements contained therein, particularly those of income and expenses, we see a conceptualisation of comprehensive income similar to that proposed by FASB over two decades ago.

² In order to delve into further detail on the conceptual background of comprehensive income, or on an equivalent approach provided by clean surplus, the following, among others, may be consulted Feltham and Ohlson (1995), Brief and Peasnell (1996), Linsmeier *et al.*, AAA (1997), Beale and Davey (2000), Mattessich (2002) and Sousa (2007).

³ Likewise, since values are taken repeatedly for the same subjects during the years of the period 1999-2004, a repeated measures ANOVA model may also be used, using as within-subjects factor the year and as between-subjects factor the sector.

⁴ One will notice that the sum of the averages of the four items contained in Tables 7, 8, 9 and 10 (-26.69) does not coincide with the global average of -25.36 for the entire study period. The difference of -1.33 corresponds to the "Other" item, which we have not considered in the analysis as it obviously does not represent relative importance, in addition to integrating items of a very different nature that certain corporate groups considered suitable to disclose.