

The ERICA series:

9. The value relevance of consolidated financial information

ERICA (European Records of IFRS Consolidated Accounts) WG
European Committee of Central Balance Sheet Data Offices (ECCBSO)

April 2018



ERICA Working Group
eccbso
European Committee of Central
Balance Sheet Data Offices

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9. The value relevance of consolidated financial information

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IMPORTANT INFORMATION ABOUT THE SOURCE USED (ERICA¹ DATABASE)

The data used in this note are obtained from publicly available financial statements of European non-financial listed groups, having been treated manually, by CBSO statistics and accounting specialists, to be fitted on a standard European format (ERICA format); this manual treatment involves, in some cases, the interpretation of the original data, a constraint that readers of this document should bear in mind.

The database does not represent the total population of European non-financial groups; nevertheless, the coverage attained with ERICA (in the whole dataset of around 1.000 groups, as well as in ERICA+, a subset of around 200 groups with extra accounting details) on the listed European groups is well-attuned to the situation and national composition of the stock markets.

The opinions of the authors of this note do not necessarily reflect those of the national central banks to which they belong or those of the ECCBSO.

The “ERICA series” complement the annual report prepared on the ERICA database, with additional pieces of information and/or analysis on specific issues, using the full database ERICA, or its subset ERICA+. Due to its interest and/or the speciality of the themes treated, these short notes are diffused apart from the annual report, in the ECCBSO webpage (www.eccbso.org).

¹ ERICA (European Records of IFRS Consolidated Accounts) is a database of the European Committee of Central Balance Sheet Data Offices.

THE VALUE RELEVANCE OF CONSOLIDATED FINANCIAL INFORMATION

1. INTRODUCTION

The main purpose of financial reporting is to provide useful information about groups' financial performance and positions. According to the International Accounting Standards Board (IASB)², financial information should be relevant, transparent and comparable, its main users being investors, lenders and other creditors. If financial reports provide useful information, that is, if financial information correctly represents a group's performance and position, investors will be able to more accurately assess the value of a given entity. Higher-quality financial reporting should lead to better-informed decisions, which will then promote capital allocation efficiency.

Since the 2005 financial year, preparation of consolidated financial statements in compliance with International Financial Reporting Standards (IFRS) became mandatory for groups listed on stock markets in the European Union (EU). Given the development and internationalisation of financial markets, providing comparable information within groups from different countries through international standards yields additional importance. With the deeper integration of European capital markets and increasingly dynamic capital flows, cross-border investment has gained significance. Thus, the benefits in terms of capital allocation of producing relevant financial information have become even greater. This points up just how important it is to assess the relevance of financial information.

Financial information is relevant if it is used by agents when making economic decisions. As the IFRS Conceptual Framework (Chapter 3, QC6 and QC7) states:

“Relevant financial information is capable of making a difference in the decisions made by users. (...) Financial information is capable of making a difference in decisions if it has predictive value, confirmatory value or both.”

This study examines the value relevance of financial information for each year from 2012 until 2016, per country, throughout sectors and also within group size categories. The value relevance measures the extent to which financial information can explain investors' decisions, which are reflected in the groups' market value. IFRS need to be flexible³ enough, so that they can be applied to different contexts and to particular business environments. Note that international standards must also fit countries with different economic and social frameworks. Besides, nowadays, groups face innovative and constantly changing environments which demand adaptable and flexible accounting standards. This shows the importance of assessing time, country, size and sector dimensions separately. Since all groups use the same accounting standards, differences in the value relevance of accounting information between countries (sectors, dimensions or years) are likely to be associated with the specific features of countries (sectors, dimensions or years). For instance, some groups may have more incentives to provide bank-oriented information if they finance themselves through bank debt. Groups that rely on publicly issued bonds as well as groups listed on dynamic stock markets may be

² International Financial Reporting Standards (IFRS) are disclosed by the IASB. See IFRS conceptual framework.

³ See, for example, ERICA series 6: Flexibility in classification options within the statement of cash flow.

more likely to disclose investor-oriented information. Groups from countries where taxation and accounting are linked to a greater extent may produce reports that are less investor-oriented.

Assessing the value relevance is an important diagnostic given that if investors receive more relevant information, they have more on which to base their decisions to buy, sell or hold equities, just as an agent that is deciding on buying, selling or holding some kind of debt instrument. Again, the information is relevant if it is used by investors. If investors have more (relevant) information at their disposal, their decisions will also be backed by more information, which reduces the risk they face and boosts confidence in the respective choices. This is likely to soft returns demanded by investors, which will in turn facilitate investment.

Comparability, transparency and usefulness are all desirable qualitative attributes of groups' reports. All these attributes should enhance the value relevance of financial information. Addressing the value relevance of financial information is also checking whether groups' reports have, at least to some extent, these characteristics.

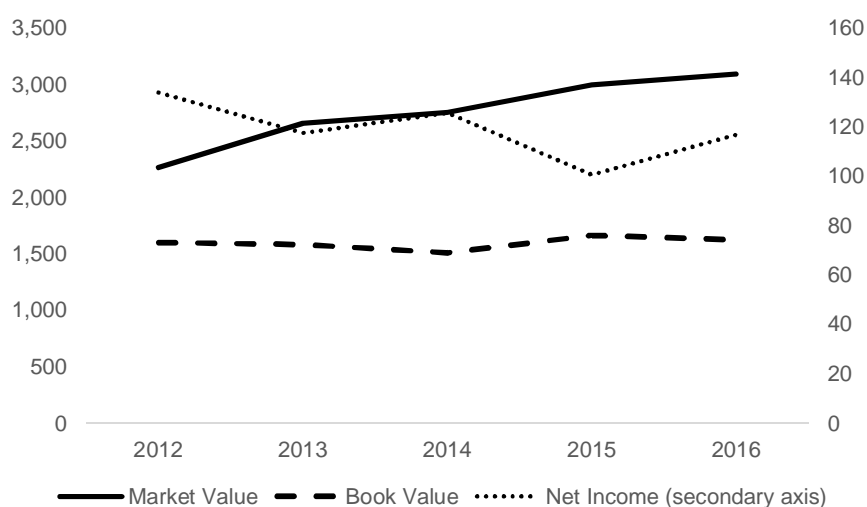
Some researchers have addressed the value relevance of IFRS. Usually, these studies have compared the value relevance of information that was in compliance with IFRS and individual countries' Generally Accepted Accounting Principles (GAAP). Most of them focus on the first few years following a country's IFRS adoption. These researchers produced important insights. Still, they related to years in which groups and investors were still adjusting to IFRS. Thus, they mainly gauge the short-term impact of mandatory use of IFRS. The value relevance of financial reports should be continuously assessed, because new standards continued to be released. In addition, the value relevance of financial information would only be constant over time by chance, especially when one considers the dynamism of the business environments. Assessing the impact and implementation of IFRS is the primary focus of the ERICA WG.

Section 2 provides a description of the dataset used. Sector 3 defines the methodology. The results are presented in Section 4. Section 5 gives the main conclusions.

2. DESCRIPTION OF THE DATASET

This analysis uses consolidated annual data available in the ERICA database for the years 2012 to 2016. The study relies on a fixed sample, that is, groups considered are the same for all years. Three main variables are used: Total capitalisation (code G0173 in the ERICA database) as a measure of the group's market value; profit (loss) attributable to owners of the parent company (code cc_10_29 in the ERICA database) which represents groups' net income; equity (code cc_50_56 in the ERICA database), which refers to groups' book value. Groups' market value was available in the ERICA database only for ERICA+ cases from 2014 onwards. As a result, groups' market value was retrieved from Thomson Reuters' database. The variable used is denominated as "market capitalisation". Groups' data from the ERICA database and Thomson Reuters were matched through their International Securities Identification Number (ISIN). ERICA's fixed sample, that runs from 2012 to 2016, includes 677 groups. As it was not possible to match all the ISINs, the final sample is composed of a total of 632 groups for the years of 2012-2016, meaning that 3,160 observations are used. Chart 1 shows the evolution of the variables considered during the sample period. It hints that groups' market value has been rising, although their book value appears to be rather stable over time.

CHART 1 MARKET VALUE, BOOK VALUE AND NET INCOME – ALL GROUPS (€ billion)



Source: own calculations based on ERICA 2016 database and Thomson Reuters.

The number of groups per country is displayed in the second column of table 1. France and Germany have the highest number of groups, 182 and 138, respectively. At the other end of the scale, Austria (29), Portugal (35) and Greece (37) have the lowest number of groups.

Groups were classified by their size into three different categories, depending on their revenue⁴. The distribution of groups by size is rather dispersed between the three categories: Small groups account for 37% of the sample, while medium-sized and large groups' share is close to 31% each (Table 1). Still, there are countries where the small groups have a higher share, which is the case for Portugal (51%), Belgium (47%), Italy (46%) or Greece (45%). Germany (28%) and Austria (28%) have the lowest shares. Also worth noting is that the percentage of large groups is particularly low for Greece (12%), followed by Portugal (21%). By contrast, their share is highest in Germany (38%).

Each group was classified by sector through mapping with the NACE code for the group's main activity. The ERICA database code G0150 gives the sector of the groups' main activity. Groups' distribution by sector is displayed in table 1. Industry (44%) and services (42%) have the biggest weight in the sample. The aggregate shares of these sectors are even higher for France and Germany (93% for both)⁵.

⁴ Criteria are shown in table 7 of the Annex.

⁵ Detailed information on the number of observations for each country, by size and per sector is presented in the Annex (Table 8).

TABLE 1 GROUPS' DISTRIBUTION BY SIZE AND SECTOR IN 2016

Country	Nº of groups	Size			Sector			
		Small	Medium	Large	Construction	Energy	Industry	Services
Austria	29	28%	37%	34%	10%	10%	59%	21%
Belgium	52	47%	31%	22%	8%	5%	55%	33%
France	182	36%	31%	33%	2%	4%	40%	53%
Germany	138	28%	34%	38%	1%	6%	49%	44%
Greece	37	45%	43%	12%	12%	14%	27%	47%
Italy	82	46%	26%	28%	6%	17%	53%	25%
Portugal	35	51%	28%	21%	9%	9%	26%	57%
Spain	77	35%	30%	35%	14%	10%	38%	39%
Total	632	37%	31%	31%	6%	8%	44%	42%

Source: ERICA 2016 database.

Table 2 presents descriptive statistics by size. Statistics disclosed are mean, median, coefficient of variation (Coef. var.), skewness and kurtosis. It shows that the coefficient of variation of the three variables under analysis is higher for small groups. A higher coefficient of variation entails greater heterogeneity. The skewness of the distribution of the variables also decreases with size. Absolute values closer to zero indicate that the data is less skewed, that is, the distribution of the data is more symmetric. Hence, within small groups, there is more asymmetry, followed by medium groups. The kurtosis shows the weight of extreme values, that is, how heavy the tails of the distribution are. When it comes to market and book value, the kurtosis decreases with size. Thus, one can find groups that present relatively more extreme values among small groups. Overall, within smaller groups, there is more heterogeneity, asymmetry and particularly extreme values.

Groups from the energy sector are the biggest, whether one considers mean or median values. Besides, energy and construction sectors are more homogeneous and less asymmetric, given that both the coefficients of variation and skewness are higher for groups of those sectors. Industry and services include more particular cases, which is reflected in higher values for kurtosis. This is consistent with the energy and the construction sectors being the ones with more large groups, which were shown to be more homogeneous and symmetric, while also including relatively less particular cases.

TABLE 2 DESCRIPTIVE STATISTICS BY SIZE AND SECTOR (2012 – 2016)

Size / Sector	Variable	Mean (€ millions)	Median (€ millions)	Coef. var.	Skewness	Kurtosis
Small	<i>MV</i>	184	68	2.21	5.07	30.14
	<i>BV</i>	115	56	2.40	6.98	59.20
	<i>NI</i>	6	3	6.28	5.50	74.88
Medium	<i>MV</i>	851	363	1.64	3.94	20.54
	<i>BV</i>	506	273	1.90	5.86	47.82
	<i>NI</i>	34	18	4.36	0.30	99.67
Large	<i>MV</i>	12,540	4,472	1.70	3.51	16.27
	<i>BV</i>	7,572	2,499	1.76	3.23	12.06
	<i>NI</i>	573	179	2.98	3.00	34.30
Construction	<i>MV</i>	1,920	298	2.64	4.62	23.73
	<i>BV</i>	1,647	431	1.88	3.04	9.80
	<i>NI</i>	87	20	5.86	1.24	11.27
Industry	<i>MV</i>	6,011	410	3.00	5.03	31.66
	<i>BV</i>	3,017	241	3.10	5.65	39.05
	<i>NI</i>	321	15	3.96	7.49	87.61
Services	<i>MV</i>	2,297	211	2.69	6.12	52.31
	<i>BV</i>	1,387	189	2.91	5.77	38.76
	<i>NI</i>	109	12	3.76	1.84	56.12
Energy	<i>MV</i>	9,965	1,998	1.82	3.21	12.21
	<i>BV</i>	9,535	1,925	1.78	2.29	4.62
	<i>NI</i>	269	82	6.74	-0.35	15.05

Source: ERICA 2016 database.

3. METHODOLOGY

To study the value relevance of financial information, this research paper will follow an approach known as the price regression model. This model follows the idea that if investors rely on financial reports to make economic decisions and given that groups' market value is the result of investors' orders, then financial information should explain groups' market value. The model assesses the extent to which book value and net income explain groups' market value.

The structure of the model was formulated by Ohlson (1995) and Feltham and Ohlson (1995). Embedded in the development of the model are two major points. The first one is described as the "clean surplus relation". It refers to the idea that changes in book value over two consecutive periods must be equal to net income minus dividends. Also, dividends paid do not have any impact on current net income, but they do reduce groups' book value. The second point relates to the assumption that a group's market value equals the present value of expected future dividends. This is usually described as the dividend discount model and was firstly put forward by Gordon (1959). By assuming that these

two ideas hold, Ohlson (1995) was able to show that the present value of future expected dividends can be computed through accounting figures. Another important feature of the model is market efficiency (Beisland, 2009). It plays a role because one is actually assessing the extent to which equity investors adjust to information. The semi-strong form of market efficiency points that prices incorporate at least all publicly available information, such as listed groups' reports (Fama, 1970).

The price regression model has been widely applied to assess the impact of IFRS adoption. Because the model measures the extent to which accounting data explains market valuation, the explanatory power of financial statements within the first few years of mandatory adoption of IFRS was frequently compared to the explanatory power of accounting information before the mandatory adoption, in which firms were using their respective national GAAP. Regarding the countries from ERICA WG, consider for example Callao *et al.* (2008) who developed an analysis for Spain, Tsalavoutas *et al.* (2012) for Greece, Paglietti (2009) for Italy, Paananen and Lin (2008) for Germany or Morais and Curto (2008) for Portugal. There are also researchers who applied this model for different countries at the same time, which make comparisons between countries easier. As examples, one can consider Aharony *et al.* (2010), Clarkson *et al.* (2011) or Devalle *et al.* (2010). Their analyses assess the impact of IFRS adoption for countries such as Austria, Belgium or France⁶.

Overall, the price regression model is a generally accepted and widely used approach to assess the value relevance of financial information. The model is estimated through the following equation:

$$MV_{it} = \beta_0 + \beta_1 \cdot BV_{it} + \beta_2 \cdot NI_{it} + \varepsilon_{it} \quad (1)$$

Where, for group *i* and year *t*,

MV: Market value;

BV: Book value of equity;

NI: Net income;

ε : Residuals;

$\beta_0, \beta_1, \beta_2$: Regression coefficients to be estimated.

Equation (1) is applied for each country, year, sector and size. It enables comparisons to be drawn on the value relevance of financial information between different countries, years, sectors and sizes. The value relevance is measured by the adjusted R-squared of each regression. The R-squared corresponds to the coefficient of determination which indicates the proportion of the variance of the dependent variable that is explained by the independent ones. The adjusted R-squared, in contrast to the R-squared, does not assume that all independent variables are statistically significant.

Robustness checks are applied. While focusing on one of the four dimensions considered (e.g. country) the model is augmented with dummy variables that incorporate information regarding all other dimensions. For example, when estimating the model for a certain country, dummy variables are

⁶ The results are rather mixed. There are different research papers for the same country that present conflicting results, although in most cases this can be explained by differences in the sample and methodologies applied. For a recent review of the value relevance literature, see De George *et al.* (2016).

added to capture sectoral, size and year effects. This may be important for countries whose groups are, for example, scattered around different sectors. In addition, the model is also re-estimated but instead of considering the groups' market value at the end of year t , groups' next year ($t+1$) average market value is applied.

4. RESULTS

4.1 SIZE: THE BIGGER THE SIZE OF GROUPS, THE HIGHER THE VALUE RELEVANCE OF FINANCIAL INFORMATION.

Following the approach described in the preceding section, the model was firstly estimated for each group size. The results are presented in Table 3. Row 2 of Table 3 displays the adjusted R-squared of the estimations computed for each size. The adjusted R-squared proxies for value relevance. The next rows present, for each size, the p-value of a t-test in which the null hypothesis is that the independent variables' coefficient is 0. If the p-value is smaller than 0.05 or 0.01, that points the variables' coefficients are statistically significant (different from 0) at 95% or 99% confidence level, respectively.

The bigger the size of groups, the higher the value relevance of financial information. As can be seen, the adjusted R-squared appears to be increasing dependent on group size. Besides, the significance of net income is not even statistically significant at a 95% confidence level for small groups. In section 2, it was shown that homogeneity, symmetry and less particular cases were also positively related to group size. These attributes may, to some extent, help clarify the results obtained.

TABLE 3 RESULTS OF SIZE-LEVEL ESTIMATES

	Small	Medium	Large
Adj. R-Squared	0.24	0.52	0.73
Const. – p-value	0.00	0.00	0.00
BV – p-value	0.00	0.00	0.00
NI – p-value	0.06	0.00	0.00

Source: own calculations.

4.2 SECTOR: INVESTORS SEEM TO BE MORE RESPONSIVE TO FINANCIAL INFORMATION OF GROUPS FROM THE CONSTRUCTION AND THE ENERGY SECTORS.

The results of sector-level estimations are set out in table 4. Accounting information has the lowest value relevance for groups in the industry sector (0.77), followed by services (0.84). These are also the two sectors with the highest shares of observations. Investors appear to be more responsive to financial information of groups from the construction and the energy sectors. The adjusted R-squared of the estimations for these sectors was 0.91 and 0.88, respectively. It should be also emphasised that, although industry and services sectors are the ones with higher representativeness, they both have bigger shares of small groups, while construction and energy sectors are, to a greater extent,

composed of large groups. Overall, the results indicate that, for all sectors, both book value and net income contribute significantly to investors' decisions.

TABLE 4 RESULTS OF SECTOR-LEVEL ESTIMATES

	Construction	Services	Industry	Energy
Adj. R-Squared	0.91	0.84	0.77	0.88
Const. – p-value	0.00	0.00	0.00	0.00
BV – p-value	0.00	0.00	0.00	0.00
NI – p-value	0.00	0.00	0.00	0.00

Source: own calculations.

4.3 COUNTRY: FINANCIAL INFORMATION APPEARS TO BE MORE RELEVANT IN BELGIUM AND ITALY, WHEREAS GREECE DISPLAYS THE LOWEST VALUE.

Table 5 discloses the results for country-level estimations. Considering the weighted mean and the median (both approximately equal to 0.78) of the adjusted R-squared as a benchmark, it is possible to show that financial information's relevance is relatively moderate in Portugal (0.75), Spain (0.75), Austria (0.78), Germany (0.79) and France (0.83). The countries in which financial information appears to be more relevant are Belgium (0.97) and Italy (0.88), whereas Greece displays the lowest value (0.49). Greece is the country with the smallest percentage of large groups, which are the ones whose financial information seems to be more relevant. At a 99% confidence level, both book value and net income are statistically significant for all estimations, except for Portugal, where net income is significant only at a 95% confidence level.

TABLE 5 RESULTS OF COUNTRY-LEVEL ESTIMATES

	Austria	Belgium	France	Germany	Greece	Italy	Portugal	Spain
Adj. R-Squared	0.78	0.97	0.83	0.79	0.49	0.88	0.75	0.75
Const. – p-value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BV – p-value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NI – p-value	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00

Source: own calculations.

4.4 YEAR: VALUE RELEVANCE HAS BEEN DECREASING SINCE 2013, STANDING IN 2016 CLOSE TO THE LEVEL OF 2012.

Year-level estimates are shown in table 6. The value relevance of financial information increased from 2012 (0.78) to 2013 (0.84). Still, it has been declining since, coming close in 2016 (0.77) to the level seen in 2012 (0.78). Also, net income lost statistical significance in 2016. Chart 2 illustrates the decreasing trend that the relevance of financial information has been following. Confidence intervals were calculated using a 95% confidence level. The equation presented is representative of the trend line. Although there was an increase in the value relevance from 2012 to 2013, the trendline still has a

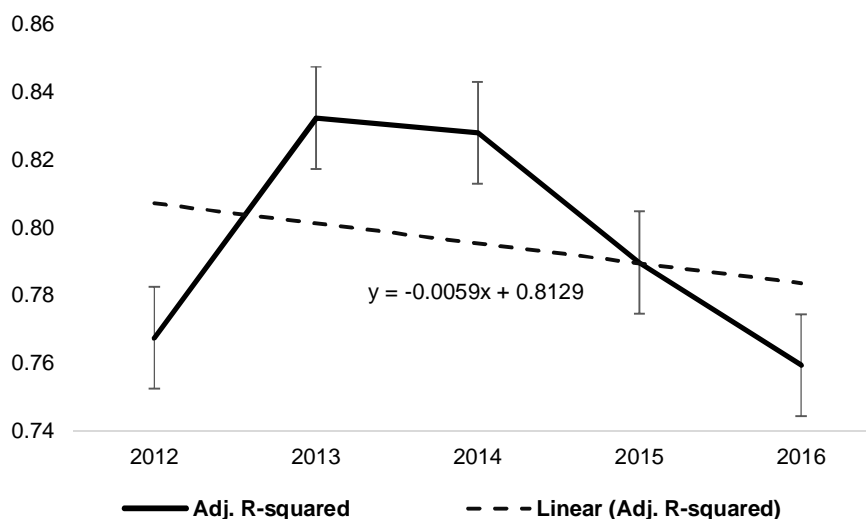
negative slope. Overall, the results show that there has been a decline in the value relevance of financial information since 2013.

TABLE 6 RESULTS OF YEAR-LEVEL ESTIMATES

	2012	2013	2014	2015	2016
Adj. R-Squared	0.78	0.84	0.83	0.80	0.77
Const. – p-value	0.17	0.05	0.23	0.41	0.27
BV – p-value	0.00	0.00	0.00	0.00	0.00
NI – p-value	0.00	0.00	0.00	0.00	0.03

Source: own calculations.

CHART 2 ADJUSTED R-SQUARED BY YEAR

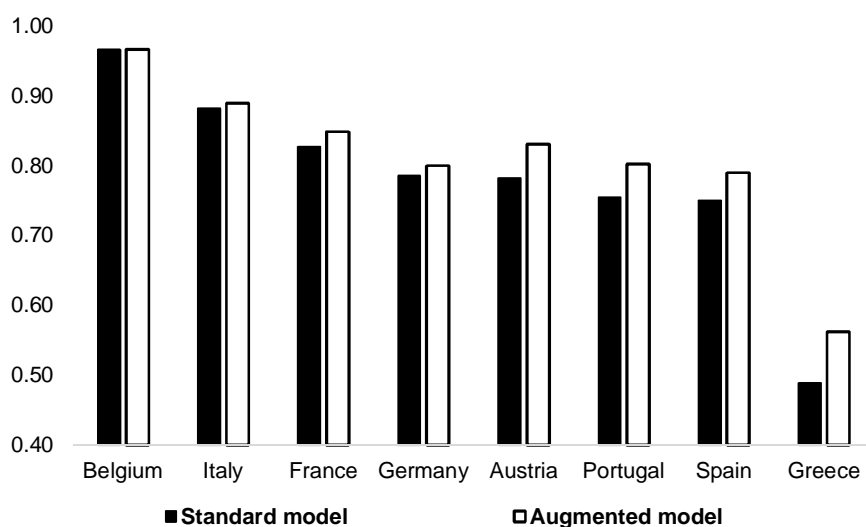


Source: own calculations.

4.5 ROBUSTNESS CHECKS

To assess the robustness of the results, some checks were made. Firstly, the original model was augmented with dummy variables, just as described in section 3. This approach did not meaningfully change the results, except for the country-level estimates. For the analysis focusing on value relevance differences across countries, the impact of incorporating sector, size and year dummy variables is presented in chart 3.

CHART 3 ADJUSTED R-SQUARED – STANDARD VS AUGMENTED MODEL



Source: own calculations.

As expected, the adjusted R-squared of the models with dummy variables is higher for all countries, although only slightly for some of them. The difference is most noticeable in countries that presented the lowest values in the original model, that is, Austria, Portugal, Spain and Greece. The main impact of including dummy variables in country-level estimations is that the relevance of financial information of Austrian groups surpasses German ones. All other conclusions hold. When the groups' market value considered was changed to the next year's average, the results obtained were also very similar.

5. CONCLUSIONS

The main purpose of this research was to assess the value relevance of groups' financial information for each country available in the ERICA database, for each sector, size and over time. The approach applied follows the idea that the joint explanatory power of book value and net income gauges the extent to which financial information is relevant to investors.

The results show that the value relevance of financial information is higher in Belgium and Italy whereas the lowest relevance was found in Greece. All other countries presented rather close values. Construction and energy are the sectors where information is more relevant. Both industry and services sectors present lower values. Construction and energy include relatively more large groups and the value relevance of financial information appears to be an increasing function of group size. Last, it was found that the relevance of financial information has been declining since 2013.

It is worth noting that the results should be interpreted with caution. Financial information is surely not the only source of information for investors. Factors that affect investors' decisions go beyond financial information. A decreasing trend in the value relevance of financial information may be linked with increased investor confidence. For instance, country-level results can be derived from countries' specific risk or stock market dynamism. The financial information may be less relevant for groups whose shares have lower liquidity levels. Still, addressing the value relevance of financial information

is an important diagnostic. This study considered four dimensions separately (countries, sectors, sizes and years). Estimates could be made while considering more than one dimension at the same time. This could help to answer questions such as: does the relevance of financial information increase with size in all countries, or has financial information been losing relevance over time in all countries? Hence, a possible follow-up may be a cross-dimensional assessment of the value relevance of financial information.

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ANNEX

TABLE 7 SIZE AND SECTOR DEFINITIONS

Size	Turnover (€ millions)
Small	Turnover < €250
Medium	€250 ≤ Turnover ≤ €1500
Large	Turnover > €1500
Sector	NACE
Construction	41-43
Energy	05-06, 19 and 35-36
Industry	07-18 and 20-33
Services	37-39, 45-63, 68-82 and 86-96

Source: ERICA WG.

TABLE 8 NUMBER OF OBSERVATIONS FOR EACH COUNTRY, SIZE AND SECTOR (2012 – 2016)

Country	Size	Sector				Total
		Construction	Energy	Industry	Services	
Austria	Large	10	15	20	5	50
	Medium	2	0	34	18	54
	Small	3	0	31	7	41
	Total	15	15	85	30	145
Belgium	Large	0	0	39	19	58
	Medium	1	5	57	18	81
	Small	19	7	46	49	121
	Total	20	12	142	86	260
France	Large	15	25	132	129	301
	Medium	4	15	119	140	278
	Small	2	0	112	217	331
	Total	21	40	363	486	910
Germany	Large	0	25	154	83	262
	Medium	6	8	95	123	232
	Small	4	8	88	96	196
	Total	10	41	337	302	690
Greece	Large	3	15	1	4	23
	Medium	18	5	16	40	79
	Small	2	5	33	43	83
	Total	23	25	50	87	185
Italy	Large	15	46	34	21	116
	Medium	6	6	81	14	107
	Small	4	16	101	66	187
	Total	25	68	216	101	410
Portugal	Large	7	10	10	10	37
	Medium	4	5	21	19	49
	Small	5	0	14	70	89
	Total	16	15	45	99	175
Spain	Large	22	28	27	57	134
	Medium	11	0	62	42	115
	Small	19	10	56	51	136
	Total	52	38	145	150	385
TOTAL		182	254	1383	1341	3160

Source: ERICA 2016 database.