ON THE PERSISTENT UNDERSTATEMENT OF

SHAREHOLDER'S EQUITY AROUND EUROPE

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ON THE PERSISTENT UNDERSTATEMENT OF SHAREHOLDER'S EQUITY AROUND EUROPE

ABSTRACT

We examine the existence of balance sheet conservative practices by listed companies in seven European countries, analysing the differences among them. Our results show that in every country under study there are conservative practices that lead to a persistent understatement of operating assets with respect to market value. This understatement could be mainly attributable to the usage of historic cost accounting as well as to the non-recognition of certain intangible assets. We also find that in code-law based countries balance sheet conservative practices are much more pronounced. Additionally, we analyse whether our results are influenced by a different sample composition, and if spurious scale effects can drive them.

KEYWORDS

Conservatism, Capital Markets, Harmonisation, Comparability, Scale Effects, Europe.

ON THE PERSISTENT UNDERSTATEMENT OF
SHAREHOLDER'S EQUITY AROUND EUROPE

1. INTRODUCTION

This paper examines the existence of balance sheet conservative practices by listed companies in Europe. We focus on the Feltham and Ohlson [1995] definition of conservatism, which implies a persistent understatement of shareholders' equity relative to market value. This understatement could be mainly attributable to the usage of historic cost accounting and to the non-recognition of certain intangible assets. We refer to this definition of conservatism as "balance sheet conservatism", to distinguish it clearly from the Basu [1997] definition of conservatism, which we call "earnings conservatism", and that consists in an asymmetric recognition of good and bad news in earnings.

While earnings conservatism provokes temporary differences between accounting numbers and market values, the differences provoked by balance sheet will persist, and they will make accounting numbers persistently different than market values.

We expect balance sheet conservative practices to exist in all countries under study (UK, Germany, France, the Netherlands, Italy, Spain and Belgium), and that they will be more pronounced in continental (code-law based) countries, where accounting regulation has been developed to protect lenders' interests. In these countries, where banks are the main providers of funds, the main users of financial information demand reduced values of shareholders' equity in order to evaluate the borrowing capacity of the firm with the certainty that if the firm incurs in losses they will recover their investment through the liquidation of assets.

To check the differential level of balance sheet conservatism we use a simplification of the empirical approach proposed by Bernard [1995] of Ohlson [1995] and Feltham and Ohlson [1995] models. We also study the possible scale problems of these models and propose and implement several solutions.

Our results are consistent with our hypotheses, that is, 1) there exists a statistically significant balance sheet conservatism bias in every country under study, and 2) the conservatism bias is more pronounced in continental countries. Our results are not affected by

Spanish Journal of Finance and Accounting, nº 115
Special Issue for the 26th Annual Congress of the European Accounting Association, April 2003, Seville, Spain

46

scale problems or by a different sample composition in each country. To test this latter extent we undertake a sensitivity analysis for firm size and firm growth.

Our results have implications for accounting standard setting, especially in a moment in which the European Union is trying to set up a new single securities market in Europe, and thus the financial information of the companies of the countries that will join this new institution must be completely comparable. Conservatism can be one of the most important sources of diversity in financial information across European countries. The analysis of the situation prior to the implementation of the new IASB (International Accounting Standards Board) financial reporting standards, with which all listed European firms will be obliged to prepare their consolidated accounts at the latest from 2005 onwards, is of crucial importance to any subsequent assessment of whether the usage of a common set of standards has been of any help to reduce the differences between the countries and to analyse whether they can contribute to the establishment of an efficient single securities market in Europe.

2. BALANCE SHEET CONSERVATISM: CONCEPT AND PREVIOUS EVIDENCE

The definition of balance sheet conservatism that we use in our study is the one first stated by Feltham and Ohlson [1995], who define conservatism as the existence of a persistent understatement of the book value figure with respect to the market's valuation of the firm. This implies that the market to book ratio will be always greater than one. Feltham and Ohlson [1995], Beaver and Ryan [2000] and Zhang [2000] analyse the effects of this notion of accounting conservatism.

Feltham and Ohlson [1995] argue that the difference between market capitalisation of the firm and shareholders' equity is provoked by operating activities of the firm, since financial activities involve assets and liabilities for which there are relatively perfect markets, and thus, accounting has adopted valuation methods that do not allow differences with market values.

ON THE PERSISTENT UNDERSTATEMENT OF
SHAREHOLDER'S EQUITY AROUND EUROPE

Following Miller and Modigliani [1961], Feltham and Ohlson [1995] split the value of the firm in financial and operating activities, allowing in this case for the existence of balance sheet conservative practices:

$$V_t = fa_t + (oa_t + g_t)$$

Where:

V_t: Market capitalisation

fa_t: Book value of financial activities, which always equals their market value

oa_t: Book value of operating assets

g_t: Unrecorded goodwill

In this expression, the unrecorded goodwill (g_t) is reflecting the difference between market value and book value of shareholders' equity. However, this is not enough to affirm that there exists balance sheet conservatism. For balance sheet conservatism to exist, goodwill must always exist. It must be always persistently positive. That is:

$$E_t (g_{t+\tau}) > 0 \text{ , when } \tau \to \infty$$

Thus, we can see that balance sheet conservatism is not an issue relating to the timeliness of accounting numbers. On the contrary, it implies that accounting numbers will never tend to economic values.

Beaver and Ryan [2000] undertake a similar analysis. They distinguish between bias and lags in book value. By bias they mean that book value is persistently lower than market value, so that the market to book ratio is persistently greater than one. This definition is similar to the one by Feltham and Ohlson [1995], and that we refer to as balance sheet conservatism. By lags they refer to the fact that certain economic events are recognized in book value over time, and not at the moment at which they took place, and consequently there is a temporary difference between accounting and economic value. Although they argue that the existence of lags is not related to conservatism, it would be more correct to say that it is not related to balance sheet conservative practices, since lags seem to be very close to Basu

ON THE PERSISTENT UNDERSTATEMENT OF
SHAREHOLDER'S EQUITY AROUND EUROPE

[1997] definition of earnings conservatism, that is an issue of the timing of earnings (and in the end, also of book value) with respect to the associated cash-flows.

Another paper that studies balance sheet conservatism from a theoretical perspective is Zhang [2000]. He argues that there exists balance sheet conservatism if:

$$\lim_{t \to \infty} E[oa_{t+t}]/E[V_{t+t}] < 1$$

Where oa is operating assets and V is the market value of operating assets.

As Feltham and Ohlson [1995], he describes conservatism in terms of operating assets, given that we can assume that "perfect" or "unbiased" accounting holds for financial assets and liabilities. However, and although the existence of balance sheet conservatism is attributable to operating assets, the relation continues to hold if we use the total book value of the firm and the market value of the firm (market capitalisation).

Few studies have tested until now the existence of this type of accounting conservatism. Givoly and Hayn [2000] analyse the market to book ratio in the United States[1], finding that there is a conservatism bias, that is, that the market to book ratio is always greater than one, and that the level of BS conservatism has increased persistently during the last 3 decades. Joos and Lang [1994] analyse the book to market ratio in Germany, France and the UK, for the period 1982-1990, and their results show that it is persistently smaller than one. They also find (using a Wilcoxon test) that Germany shows a statistically significant larger balance sheet conservatism bias than France and the UK. Finally Joos [1997] uses a simplification of Bernard [1995] empirical development of the theoretical models by Ohlson [1995] and Feltham and Ohlson [1995], obtaining similar results to those in Joos and Lang [1994].

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[1] They also analyse the accumulation over time of negative non-operating accruals, as well as several measures for earnings conservatism (Basu, 1997 conservatism type).

3. HYPOTHESES DEVELOPMENT AND RESEARCH DESIGN

In this section we describe our hypotheses and the methodology that we propose and implement to test them.

Hypothesis 1: All countries in our sample show BS conservatism bias

The convention of "balance sheet conservatism" affects all accounting regulatory systems. This will lead to a persistent understatement of shareholders' equity which will make the market to book ratio always greater than one.

Hypothesis 2: Code-law based countries will show larger BS conservatism bias than common-law based countries

Given that in continental countries accounting regulation has been developed to protect lenders' interests, since the main providers of capital are financial institutions, code-law based countries will show larger BS conservatism bias than common-law based countries, where the ownership of the company is spread over a wide number of shareholders and where accounting systems have been developed to protect their interests.

Sample selection

To test our hypotheses we work with all available observations in the Extel Company Analysis database, up to May 2000, for seven European countries: the United Kingdom, Germany, France, the Netherlands, Italy, Spain and Belgium. We use consolidated financial statements if they exist, and individual statements when the company does not present consolidated annual accounts.

We have excluded financial firms from the analysis. Moreover, we have deleted from the sample all observations with missing values for any of the variables used. We have only worked with firms with accounting period length between 335 and 395 days. We also exclude

the two extreme percentiles of each variable. This deletion of outliers is always done by countries, and not for the whole sample.

Our final sample consists of about 19155 firm year observations, for the period 1987-2000.

Research design

To test our first hypothesis, where we expect to find a balance sheet conservatism bias in every country under study, we are going to use a similar approach to the one used by Givoly and Hayn [2000]. In their study they analyse the evolution of the market to book ratio.

Due to the understatement of assets and overstatement of liabilities the market to book ratio must always be greater than one. In this study the analysis of the evolution of the market to book ratio in the United States, shows that there has been an increase in the degree of balance sheet conservatism from the 60s until nowadays. Givoly and Hayn [2000] argue that the appropriate way to measure the level of this type of conservatism is aggregating the market value of all firms in the sample (per year) and the book value at year end (per year), after which the value of the market to book ratio of the country for each year is then obtained.

With respect to our second hypothesis, and as it has been done in previous studies, we are going to measure the different level of balance sheet conservatism across countries using the theoretical models proposed by Ohlson [1995] and Feltham and Ohlson [1995]:

$$P_t = \alpha + \beta\,NI + \gamma\,BV + u$$

Where P_t is share price at the beginning of the period, NI is net income per share, BV is shareholders' equity per share and u is the disturbance term.

This model is what we call a *"normal regression"*, that is, market information as a function of accounting information. With this specification the differences between the

accounting practices can be attributed to both differences in accounting rules and differences in external factors of influence.

Nevertheless, to test our second hypothesis, namely, the larger BS conservatism bias of code-law based countries, we need to assess the statistical significance of the differences between the countries. To do so, we incorporate into the model the differential effect of each country through dummy variables. The comparative model that we build from the Feltham and Ohlson [1995] model is the following:

$$P_t = \alpha + \sum_j \alpha_j CD_j + \beta NI + \sum_j \beta_j NI CD_j + \gamma BV + \sum_j \gamma_j BV CD_j + u$$

Where P_t, NI and BV are defined as in the "simple" model, and CD_j is a dummy variable that takes value one if the country is country j and 0 otherwise. The reference country is the United Kingdom. We choose the UK as reference country because it is the most different amongst those countries in our sample.

To analyse the understatement of shareholders' equity with respect to the valuation made by the market, that is, balance sheet conservatism, we focus on the book value multiple, that is, on the coefficient of the explanatory variable. Although using an association study, we are not interested in analysing the coefficient of determination.

With this comparative model we expect that γ_j, that is, the parameter that shows the differential book value multiple of each country with respect to the UK, will be significantly positive, showing thus that there is a larger understatement of book value in continental countries than in the UK. In prior studies it was also hypothesised that the same reaction could be expected regarding β_j. However, and due to the very same usage of the accrual principle, it is not possible to understate persistently the value of accounting earnings, and so, we do not expect β_j to be significantly positive.

From the comparative model that we have described above we use four different specifications, depending on the sample that we are using:

ON THE PERSISTENT UNDERSTATEMENT OF
SHAREHOLDER'S EQUITY AROUND EUROPE

A: The whole sample.

B: Specification A, deleting outliers from the residuals.

C: Deleting companies with negative book value.

D: Specification C, deleting outliers from the residuals.

Specifications B, C, and D could be criticised if our analyses were focused on studying the association between the independent variable and the explanatory variables through the coefficients of determination, since their value will go up artificially. However, in our paper we focus on the analysis of the coefficients of the parameters of the models, and thus we think that through these refinements of the sample we can reach values of the parameters closer to their real values.

Analysis of scale problems

We also try to analyse whether the models that we use to study balance sheet conservatism can be affected by scale problems. By scale problems we refer to the fact that those companies with large market capitalisation figures will probably have large values of accounting numbers like shareholders' equity or earnings. This leads to problems of heteroskedasticity and what is worse, that the results may not be reflecting the economic relationships under study. This is a problem that cannot be solved using per share variables, because in this case the problem would be that those companies with a large share price will have large figures of shareholders' equity per share or earnings per share.

To analyse whether our results could be influenced by scale problems we incorporate, following Barth and Kallapur [1996], Easton and Sommers [2000] and Barth and Clinch [2000], several proxies for scale as an additional explanatory variable in the model.

We expect that if the model is not affected by scale problems then the coefficients of book value and earnings will not change with respect to those obtained with the initial model.

Barth and Kallapur [1996] and Barth and Clinch [2000] argue that scale is an omitted relevant variable. So, we use three proxies for scale, and we incorporate them in the model as

explanatory variables. The proxies that we use are: 1) market capitalisation, 2) number of shares, and 3) sales.

Thus, we use the following three specifications in a first attempt to check the existence of scale problems:

$$P_t = \alpha + \sum_j \alpha_j CD_j + \beta\, NI + \sum_j \beta_j NI\, CD_j + \gamma\, BV + \sum_j \gamma_j BV\, CD_j + \phi SCALE + u$$

Scale specification 1: Scale = Market capitalisation
Scale specification 2: Scale = Number of shares
Scale specification 3: Scale = Sales

Next, and following Easton and Sommers [2000] we use the very same proxies for scale, but we incorporate them in the model as their inverse and we remove from the model the intercept. The model would be then as follows:

$$P_t = \beta\, NI + \sum_j \beta_j NI\, CD_j + \gamma\, BV + \sum_j \gamma_j BV\, CD_j + \phi \frac{1}{SCALE} + u$$

We use again three different specifications:

Specification for scale 4: Scale = Market capitalisation
Specification for scale 5: Scale = Number of shares
Specification for scale 6: Scale = Sales

We expect that if the model is not influenced by scale problems then coefficients β, β_j, γ, and γ_j will not change substantially from the initial values, and the conclusions will continue to be the same as when using the normal regression.

ON THE PERSISTENT UNDERSTATEMENT OF
SHAREHOLDER'S EQUITY AROUND EUROPE

Sensitivity analysis

In this section we propose several analyses to check whether our results could be influenced by a different sample composition in each country.

In our study we assume that there are no between country factors in our sample. That is, our results are not influenced by, for example, macroeconomic factors. However, they could be seriously affected by a different sample composition in each country, that is, by the so called within country factors.

To test the possibility that our results could be influenced by within country factors, we undertake a sensitivity analysis taking into account two factors: firm size and firm growth. To do so we split the sample into several subsamples according to the factors mentioned, and replicate all the specified analyses. If the results remain approximately the same, then we will be able to affirm that our results are not influenced by a different sample composition in each country. As proxies for firm size and firm growth we use market capitalisation and percentage growth in assets. Regarding size, we expect small firms to be more conservative than large firms. With respect to growth, we use it in an attempt to identify new economy firms, firms that are more likely to have intangible assets.

4. RESULTS

We comment here only the results of specification D, where we expect the coefficients to be closer to their theoretical values. Results for specifications A, B and C are fairly similar –thus showing the robustness of the model– and are also available from the authors upon request.

Descriptive statistics are in TABLE 1.

Spanish Journal of Finance and Accounting, nº 115
Special Issue for the 26th Annual Congress of the European Accounting Association, April 2003, Seville, Spain

55

Hypothesis 1: Balance sheet conservatism

As we can see in TABLE 2 (except for 1 year in the Netherlands, 3 in Spain and 4 in Italy), in all countries/years (out of 93 total cases) the market to book ratio is always greater than one[2]. As expected, we can see that all countries show balance sheet conservatism bias. Besides, it could be also interesting to point out that the eight unexpected values of the market to book ratio are all in the early years of the analysis.[3]

Hypothesis 2: Larger BS conservatism bias of code-law based countries

Again confirming our expectations, (see TABLE 3), when we use the *"comparative"* specification of the Feltham and Ohlson [1995] model, we find that Germany, France and Belgium show a statistically significant (1% level) larger balance sheet conservatism bias than the reference country, that is, the United Kingdom. Namely, parameter γ_j is significantly positive, which means that the book value multiple for the UK is significantly smaller. In the case of the Netherlands, the larger balance-sheet conservatism bias proves significant at a 9% level. In the case of Spain and Italy, they also show a more pronounced BS conservatism bias than the UK, but it is not statistically significant.

When we analyse all continental countries as a group (Germany, France, Italy, Spain and Belgium), the continental group shows a significantly larger balance sheet conservatism bias than the UK[4]. (See also TABLE 3). We do not include the Netherlands with the continental group and nor do we include it with the UK since, although it has been traditionally considered as a common-law based country, with our results it is always closer to continental countries. In any case, we should consider the particularities of the Dutch accounting system,

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[2] This is consistent with the results in Joos and Lang [1994].

[3] Although we do not focus on the evolution of BS conservatism through time, it is interesting to point out that there is an increasing trend in the market to book ratio. This trend could be explained by the inability of the traditional accounting system to reflect the wealth of "new economy" firms. Some authors also argue that, at least to some extent, this increase in the ratio can be attributable to market mispricing (bubbles in financial markets).

[4] We replicate the comparative analysis for the time periods 1987-1993 and 1994-2000, since in the early years of the analysis, if we focus on the aggregate market to book ratio, the UK could seem more balance sheet conservative. However, the results regarding country differences after taking into account this temporal consideration are consistent with those obtained for the whole sample, that is, the UK is again significantly more balance sheet conservative than continental countries as a group.

which is based on a microeconomics approach and differs also from the typical common-law based regime.

Scale problems

With respect to the scale problems, the results of the six specifications that we propose to control for scale (see TABLES 4 and 5) do not change with respect to those obtained with the initial model. With these results we can argue that in this case there are not scale problems, or at least, if there are, they are not so pronounced as to make our conclusions change.

Sensitivity analysis

With respect to size (see TABLE 6), results for large and medium firms are similar to those obtained for the whole sample. However, in the case of small firms, the only country that shows a larger balance sheet conservatism bias than the UK is Germany. When we focus on continental countries as a group, in all subsamples they prove significantly more balance sheet conservative than the UK. It is also interesting to point out the different behaviour of the UK and continental countries. In the UK balance sheet conservatism tends to be less pronounced as firm size increases, while in continental countries the exact opposite occurs.

Regarding growth, results are in general consistent with those obtained for the whole sample. We split the sample into four groups (TABLES 7 and 8), attending to growth in assets, and in the four subsamples continental countries show a larger balance sheet conservatism bias than the UK.

5. SUMMARY AND CONCLUSIONS

We investigate the existence of balance sheet conservative practices by listed companies in seven European countries. Our results show that in all accounting regimes under study there exists a persistent understatement of the book value figure with respect to the market's valuation of the firm. We conjecture that this understatement of accounting numbers

with respect to market value could be attributable to historical cost accounting and to the non-recognition of certain intangible assets.

The paper also studies the different level of balance sheet conservatism in each country. We find that continental countries are significantly more balance sheet conservative than common-law based countries (in this case the UK). This result is not at all surprising considering accounting systems in continental countries have been developed to protect the interests of the main providers of finance, in this case, mainly banks, which demand reduced values of shareholders' equity in order to assess the borrowing capacity of the firm from a pessimistic perspective (at worst, they will recover the investment through the liquidation of the firm).

After introducing several adjustments to the models to cope with the possible scale problems, we can affirm that our results and conclusions are not affected by this misspecification of the models. Besides, within country factors, that is, a different sample composition in each county, do not seem to be affecting our results.

The differences between countries in balance sheet conservative practices are, from our point of view, a result of the different accounting standards used in each country. Thus, it is very likely that if we are to adopt a common set of accounting standards in Europe (the IASB financial reporting standards) the differences between the countries regarding balance sheet conservatism will tend to disappear if a wide number of alternatives are not allowed

TABLE 1. Descriptive statistics

	BV	NI	Sh. Price	BV	NI	Sh. Price	BV	NI	Sh. Price
	United Kingdom			Germany			France		
Mean	1,65	0,20	3,24	86,58	6,29	176,76	55,24	4,99	87,68
Maximum	13,54	1,71	23,26	466,90	72,17	1022,58	410,44	57,25	719,90
Minimum	-0,29	-0,85	0,03	-0,03	-59,77	7,23	0,68	-21,03	2,09
St. Dev.	1,82	0,29	3,33	69,13	12,73	146,29	62,20	8,57	104,03
Observ.			10024			2743			2976
	Spain			Netherlands			Italy		
Mean	13,73	1,35	21,87	27,33	3,58	43,52	2,55	0,19	3,22
Maximum	61,59	8,86	108,18	353,24	65,32	794,12	17,96	1,58	26,49
Minimum	-0,11	-5,60	0,29	0,45	-12,00	1,67	0,04	-0,92	0,12
St. Dev.	10,91	1,84	20,85	38,34	5,95	64,78	2,34	0,29	3,38
Observ.			733			1165			937
	Belgium								
Mean	144,77	14,91	197,01						
Maximum	2389,13	469,08	2974,72						
Minimum	-0,79	-35,07	6,72						
St. Dev.	250,76	38,3	294,18						
Observ.			577						

BV: Book value of shareholders' equity per share in euros
NI: Net income per share in euros
Sh. Price: Share price in euros

José Manuel Garcia-Lara and Araceli Mora

ON THE PERSISTENT UNDERSTATEMENT OF SHAREHOLDER'S EQUITY AROUND EUROPE

TABLE 2

	Belgium	France	Germany	Italy	Netherlands	Spain	UK
			Evolution of the market to book ratio (Hypothesis 1)				
1987	1,26	1,18	1,38	0,68	1,09	0,67	1,86
1988	1,53	1,64	1,47	1,12	1,05	0,86	1,86
1989	1,84	1,69	1,85	1,24	1,08	1,10	2,19
1990	1,50	1,40	1,61	0,79	0,97	0,95	1,85
1991	1,42	1,46	1,64	0,72	1,05	1,08	1,93
1992	1,40	1,51	1,48	0,70	1,09	1,02	2,19
1993	1,66	1,80	1,90	1,00	1,46	1,55	2,45
1994	1,60	1,53	1,92	1,12	1,48	1,29	2,33
1995	1,68	1,52	1,96	1,31	1,68	1,40	2,32
1996	1,87	1,77	2,18	1,55	2,18	1,53	2,70
1997	2,04	2,03	2,53	2,01	2,61	1,87	2,35
1998	2,86	2,38	2,87	2,56	4,53	2,48	2,78
1999	5,91	4,12	3,19	2,53	3,55	3,25	2,79
2000	NA	NA	NA	NA	3,33	NA	2,18

Market to book ratio calculated as: market capitalisation of all firms in our sample divided by the sum of shareholders' equity of all firms in our sample.

Spanish Journal of Finance and Accounting, nº 115
Special Issue for the 26th Annual Congress of the European Accounting Association, April 2003, Seville, Spain

60

ON THE PERSISTENT UNDERSTATEMENT OF SHAREHOLDER'S EQUITY AROUND EUROPE

TABLE 3

Balance sheet conservatism (Hypothesis 2)					
	NI		BV		Adj. R^2
	Coefficient	*t-stat*	**Coefficient**	*t-stat*	
UK (Ref)	**6,1159**	*41,5320*	**0,4980**	*24,3583*	0,7961
France	**-0,9842**	*-2,8062*	**0,2337**	*5,3548*	
Germany	**-3,3184**	*-10,6816*	**0,5461**	*9,9026*	
Belgium	**-2,8677**	*-3,8265*	**0,3646**	*4,0276*	
Netherlands	**-2,4296**	*-6,7123*	**0,1039**	*1,6996*	
Italy	**-1,5218**	*-3,6217*	**0,0391**	*0,7286*	
Spain	**0,9456**	*1,4984*	**0,0451**	*0,5505*	
Pool	**-2,8300**	*-9,7379*	**0,5131**	*13,2736*	0,7929

Model: $P_t = a + \sum_j a_j CD_j + b\,NI + \sum_j b_j NI\,CD_j + g\,BV + \sum_j g_j BV\,CD_j + u$

P_t : Share price
CD_j : Country dummy variable (ref. UK)
NI: Net income per share
BV: Shareholders' equity per share

t-statistics are White (1980) heteroskedasticity consistent

Pooled: Germany, France, Italy, Spain and Belgium.

The NI and BV coefficients for the UK (reference country) are respectively β and γ, while for the other countries they are $β_j$ and $γ_j$, that is, the incremental coefficient with respect to the UK.

Spanish Journal of Finance and Accounting, nº 115
Special Issue for the 26th Annual Congress of the European Accounting Association, April 2003, Seville, Spain

61

TABLE 4

Scale analysis. Market capitalisation					
	NI		BV		Adj. R^2
	Coefficient	*t-stat*	**Coefficient**	*t-stat*	
UK (Ref)	**5,9289**	*24,7606*	**0,4907**	*23,1269*	0,7961
France	**-0,7998**	*-2,0144*	**0,2412**	*5,4771*	
Germany	**-3,1334**	*-8,6259*	**0,5546**	*10,0154*	
Belgium	**-2,6812**	*-3,4707*	**0,3720**	*4,1013*	
Netherlands	**-2,2603**	*-5,6606*	**0,1117**	*1,8173*	
Italy	**-1,4295**	*-3,3143*	**0,0570**	*1,0093*	
Spain	**1,1193**	*1,7080*	**0,0554**	*0,6716*	
Mkcap*	**0,0001**	*0,9729*	**Mkcap****	**0,0001**	*1,1398*
Pool	**-2,6021**	*-7,4235*	**0,5222**	13,3762	0,7930

Scale analysis. Number of shares					
	NI		BV		Adj. R^2
	Coefficient	*t-stat*	**Coefficient**	*t-stat*	
UK (Ref)	**6,1005**	*40,8299*	**0,4979**	*24,4019*	0,7961
France	**-0,9687**	*-2,7560*	**0,2339**	*5,3609*	
Germany	**-3,3029**	*-10,6368*	**0,5463**	*9,9009*	
Belgium	**-2,8522**	*-3,8038*	**0,3648**	*4,0297*	
Netherlands	**-2,4143**	*-6,6672*	**0,1041**	*1,7030*	
Italy	**-1,5006**	*-3,5549*	**0,0446**	*0,8107*	
Spain	**0,9609**	*1,5218*	**0,0455**	*0,5556*	
NumSh*	**0,0001**	*0,5234*	**NumSh****	**-0,0026**	*-6,3551*
Pool	**-3,4087**	*-10,8351*	**0,5054**	12,2103	0,7929

Scale analysis. Sales					
	NI		BV		Adj. R^2
	Coefficient	*t-stat*	**Coefficient**	*t-stat*	
UK (Ref)	**4,7270**	*10,2910*	**0,3870**	*8,5821*	0,7963
France	**0,3736**	*0,6698*	**0,3413**	*5,8152*	
Germany	**-1,9462**	*-3,6871*	**0,6505**	*9,6837*	
Belgium	**-1,4840**	*-1,7206*	**0,4762**	*4,8133*	
Netherlands	**-1,3264**	*-2,5717*	**0,1947**	*2,5912*	
Italy	**-0,3084**	*-0,2933*	**0,1016**	*1,0409*	
Spain	**2,1989**	*2,9151*	**0,1778**	*1,8801*	
Sales*	**0,0000**	*3,3895*	**Sales****	**0,0000**	*4,0077*
Pool	**-1,2095**	*-2,2932*	**0,6418**	11,2105	0,7932

Model:

$$P_t = \alpha + \sum_j \alpha_j CD_j + \beta\, NI + \sum_j \beta_j NI\, CD_j + \gamma\, BV + \sum_j \gamma_j BV\, CD_j + \phi SCALE + u$$

Where:

P: Share price   -   NI: Net income per share

BV: Shareholders' equity per share

CD: Country dummy. Reference country: UK

Pooled: Germany, France, Italy, Spain and Belgium.

t-statistics are White (1980) heteroskedasticity consistent

* Scale coefficient for specification with countries in individual form

** Scale coefficient for specification with continental countries as a group

The NI and BV coefficients for the UK (reference country) are respectively β and γ, while for the other countries they are β_j and γ_j, that is, the incremental coefficient with respect to the UK.

TABLE 5

Scale analysis. 1/market capitalisation. No intercept					
	NI		BV		Adj. R^2
	Coefficient	t-stat	Coefficient	t-stat	
UK (Ref)	7,3885	9,9114	0,5397	2,6458	0,7734
France	-2,1972	-2,7894	0,3555	1,7654	
Germany	-5,0648	-6,3863	1,0476	5,1163	
Belgium	-3,8843	-3,8156	0,3721	1,7289	
Netherlands	-3,2451	-4,1165	0,2008	1,0089	
Italy	-2,5300	-3,3997	0,1335	0,8132	
Spain	-0,4388	-0,4763	0,2156	1,0785	
Inv Mkcap*	14,2963	1,1929	Inv Mkcap**	14,7040	1,2230
Pool	-4,0545	-5,1067	0,6435	3,1482	0,7706

Scale analysis. 1/number of shares. No intercept					
	NI		BV		Adj. R^2
	Coefficient	t-stat	Coefficient	t-stat	
UK (Ref)	6,6146	38,8636	0,7264	16,6988	0,7746
France	-1,3879	-3,7876	0,1483	3,2820	
Germany	-4,2532	-12,3763	0,8226	18,4448	
Belgium	-3,2017	-4,3360	0,1697	2,0473	
Netherlands	-2,4251	-5,7085	-0,0500	-0,7679	
Italy	-1,9195	-4,3413	-0,0119	-0,2213	
Spain	0,2408	0,3655	0,0349	0,4490	
Inv ShN*	1,2829	1,4276	Inv ShN**	1,3502	1,4762
Pool	-3,2583	-9,3732	0,4252	9,1377	0,7719

Scale analysis. 1/sales. No intercept					
	NI		BV		Adj. R^2
	Coefficient	t-stat	Coefficient	t-stat	
UK (Ref)	6,7089	33,6832	0,7431	28,8866	0,7896
France	-1,5692	-3,9412	0,1580	3,5983	
Germany	-4,0204	-10,6288	0,7950	16,7103	
Belgium	-3,2486	-4,4498	0,1696	2,2087	
Netherlands	-2,3669	-5,2052	-0,0072	-0,1073	
Italy	-1,8782	-3,7016	-0,0029	-0,0545	
Spain	1,0953	1,4653	-0,0966	-1,2576	
InvSales*	94,9397	0,9444	InvSales**	93,2948	0,9339
Pool	-3,1718	-8,4323	0,4022	8,9073	0,7870

Model:

$$P_t = \beta\,NI + \sum_j \beta_j NI\,CD_j + \gamma\,BV + \sum_j \gamma_j BV\,CD_j + \phi\,(1/SCALE) + u$$

Where:
P: Share price - NI: Net income per share
BV: Shareholders' equity per share
CD: Country dummy. Reference country: UK

Pooled: Germany, France, Italy, Spain and Belgium.

t-statistics are White (1980) heteroskedasticity consistent

* Scale coefficient for specification with countries in individual form
** Scale coefficient for specification with continental countries as a group

The NI and BV coefficients for the UK (reference country) are respectively β and γ, while for the other countries they are β_j and γ_j, that is, the incremental coefficient with respect to the UK.

TABLE 6 – Sensitivity analysis. Size

	NI		BV		Adj. R^2
Small firms					
	Coefficient	t-stat	Coefficient	t-stat	
UK (Ref.)	**2,6258**	*12,9566*	**0,6053**	*21,5129*	0,7330
France	**-0,1170**	*-0,1742*	**-0,0893**	*-1,8367*	
Germany	**-1,6594**	*-4,2773*	**0,4100**	*4,3193*	
Belgium	**2,1306**	*2,1665*	**-0,1168**	*-1,8810*	
Netherlands	**-0,0984**	*-0,1968*	**0,2408**	*2,6184*	
Italy	**-0,4012**	*-0,8885*	**-0,0126**	*-0,2058*	
Spain	**1,1609**	*1,6399*	**-0,0252**	*-0,3327*	
Pool	**-0,5433**	*-1,3587*	**0,2464**	*4,0239*	0,7243
Medium firms					
UK (Ref.)	**4,5842**	*19,9809*	**0,4719**	*14,7103*	0,8310
France	**-1,9404**	*-3,8727*	**0,3268**	*4,9465*	
Germany	**-1,5800**	*-3,5494*	**0,2637**	*3,5688*	
Belgium	**-2,3844**	*-2,4018*	**0,5399**	*8,2567*	
Netherlands	**-0,3278**	*-0,4472*	**-0,0288**	*-0,2589*	
Italy	**-0,6328**	*-0,9908*	**0,1980**	*1,9318*	
Spain	**2,7722**	*2,5403*	**0,0152**	*0,1162*	
Pool	**-2,0381**	*-4,8608*	**0,5263**	*9,7824*	0,8288
Large firms					
UK (Ref.)	**6,1666**	*24,5261*	**0,3807**	*10,9584*	0,8423
France	**0,1553**	*0,2116*	**0,4543**	*4,8995*	
Germany	**-2,6320**	*-3,6142*	**0,8823**	*9,3410*	
Belgium	**-2,2532**	*-2,0316*	**0,4535**	*3,6957*	
Netherlands	**-1,6121**	*-2,1384*	**-0,0049**	*-0,0544*	
Italy	**0,0532**	*0,0684*	**-0,0344**	*-0,4029*	
Spain	**4,5892**	*2,9223*	**-0,0658**	*-0,3410*	
Pool	**-2,2266**	*-3,9450*	**0,8956**	*12,6218*	0,8399

Model: $P_t = \boldsymbol{a} + \sum_j \boldsymbol{a}_j CD_j + \boldsymbol{b}\, NI + \sum_j \boldsymbol{b}_j NI\, CD_j + \boldsymbol{g}\, BV + \sum_j \boldsymbol{g}_j BV\, CD_j + u$

Where:

P_t : Share price
CD_j : Country dummy variable (ref. UK)
NI: Net income per share
BV: Shareholders' equity per share

t-statistics are White (1980) heteroskedasticity consistent

Pooled: Germany, France, Italy, Spain and Belgium.

Small: Less than 27 million €of market capitalisation
Medium: Between 27 and 156 million €of market capitalisation
Large: More than 156 million €of market capitalisation

The NI and BV coefficients for the UK (reference country) are respectively β and γ, while for the other countries they are $β_j$ and $γ_j$, that is, the incremental coefficient with respect to the UK.

TABLE 7. Sensitivity analysis. Growth (Growth in assets)

	NI		BV		Adj. R^2
Decrease					
	Coefficient	*t-stat*	**Coefficient**	*t-stat*	
UK (Ref)	**3,1410**	*10,5063*	**0,7709**	*13,3920*	0,7849
France	**-0,6619**	*-0,6257*	**0,0148**	*0,1285*	
Germany	**-1,6730**	*-3,1362*	**0,3414**	*2,3202*	
Belgium	**-3,8497**	*-4,2320*	**0,1571**	*1,5399*	
Netherlands	**-1,6996**	*-3,6529*	**0,1508**	*0,9719*	
Italy	**0,5384**	*0,6458*	**-0,3396**	*-3,9295*	
Spain	**-1,5507**	*-1,8921*	**0,1722**	*1,2655*	
Pool	**-2,1285**	*-4,3087*	**0,2175**	*2,9677*	0,7783
Stability					
UK (Ref)	**6,3787**	*19,5105*	**0,5256**	*13,7348*	0,7798
France	**-1,0168**	*-1,5075*	**0,1744**	*2,2289*	
Germany	**-3,7616**	*-5,9504*	**0,4764**	*5,1344*	
Belgium	**-0,9543**	*-0,5476*	**0,1117**	*0,6561*	
Netherlands	**-1,8128**	*-2,5894*	**0,1570**	*1,2910*	
Italy	**-2,3553**	*-3,2147*	**0,1572**	*1,9279*	
Spain	**-1,6459**	*-1,5870*	**0,0720**	*0,6381*	
Pool	**-2,8011**	*-4,6195*	**0,4222**	*4,9769*	0,7752

Model: $P_t = a + \sum_j a_j CD_j + b\,NI + \sum_j b_j NI\,CD_j + g\,BV + \sum_j g_j BV\,CD_j + u$

Where:

P$_t$: Share price
CD$_j$: Country dummy variable (ref. UK)
NI: Net income per share
BV: Shareholders' equity per share

t-statistics are White (1980) heteroskedasticity consistent

Pooled: Germany, France, Italy, Spain and Belgium.

Decrease: More than 5% decrease in assets
Stability: Between 5% decrease and 5% increase in assets

The NI and BV coefficients for the UK (reference country) are respectively β and γ, while for the other countries they are β$_j$ and γ$_j$, that is, the incremental coefficient with respect to the UK.

TABLE 8. Sensitivity analysis. Growth (Growth in assets)

Growth					
	NI		BV		Adj. R^2
	Coefficient	*t-stat*	**Coefficient**	*t-stat*	
UK (Ref)	**8,0729**	*28,4188*	**0,2976**	*8,2148*	0,8437
France	**-3,0231**	*-4,5674*	**0,5195**	*6,4461*	
Germany	**-4,8951**	*-8,2918*	**0,7572**	*7,7177*	
Belgium	**-5,0205**	*-4,2221*	**0,5398**	*3,0004*	
Netherlands	**-3,3230**	*-4,7062*	**0,2030**	*2,0875*	
Italy	**-2,9893**	*-3,5589*	**0,1004**	*1,0303*	
Spain	**0,4789**	*0,4453*	**0,1082**	*0,8193*	
Pool	**-4,9265**	*-7,4336*	**0,8072**	*9,8616*	0,8416
Supergrowth					
	NI		BV		Adj. R^2
	Coefficient	*t-stat*	**Coefficient**	*t-stat*	
UK (Ref)	**7,5279**	*14,7247*	**0,5691**	*8,0735*	0,7582
France	**-0,4519**	*-0,3902*	**-0,0698**	*-0,5026*	
Germany	**-5,2961**	*-4,4070*	**0,7488**	*4,4222*	
Belgium	**-6,5108**	*-3,8410*	**0,6406**	*3,0400*	
Netherlands	**-3,9431**	*-2,6775*	**-0,1553**	*-0,5770*	
Italy	**-2,3949**	*-1,9336*	**0,0067**	*0,0366*	
Spain	**0,1735**	*0,1234*	**0,1650**	*0,8252*	
Pool	**-1,7841**	*-2,7624*	**0,4168**	*4,8534*	0,7622

Model: $P_t = \boldsymbol{a} + \sum_j \boldsymbol{a}_j CD_j + \boldsymbol{b} NI + \sum_j \boldsymbol{b}_j NI\, CD_j + \boldsymbol{g} BV + \sum_j \boldsymbol{g}_j BV\, CD_j + u$

Where:

P$_t$: Share price
CD$_j$: Country dummy variable (ref. UK)
NI: Net income per share
BV: Shareholders' equity per share

t-statistics are White (1980) heteroskedasticity consistent

Pooled: Germany, France, Italy, Spain and Belgium.

Growth: Increase of between 5% and 30% in assets

Supergrowth: Increase of more than 30% in assets

The NI and BV coefficients for the UK (reference country) are respectively β and γ, while for the other countries they are β$_j$ and γ$_j$, that is, the incremental coefficient with respect to the UK.

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