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THE PREDICTIVE ABILITY OF FINANCIAL INFORMATION FOR FUTURE EARNINGS: A EUROPEAN PERSPECTIVE*

By

Begoña Giner[1] and Carmelo Reverte[2]

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[1]University of Valencia, Facultat d´Economia, Departament de Comptabilitat, Avda. dels Tarongers, s/n Edifici Departamental Oriental, 46071 Valencia (Spain). E-mail: Begona.Giner@uv.es

[2] Polytechnic University of Cartagena, Facultad de Ciencias de la Empresa, Departamento de Economía Financiera y Contabilidad, Paseo Alfonso XIII, 50 30203 Cartagena (Spain). E-mail: Carmelo.Reverte@upct.es

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ABSTRACT

The objective of this paper is to analyse cross-national differences in the predictive ability of financial information (accounting and market data) for future earnings. We adopt a European perspective in our analysis by focusing on four representative European countries (France, Germany, Spain and the UK) in order to assess whether the institutional and accounting differences among them result in inter-country differences in the predictive value of financial information. In particular, we consider that differences in the extent of conservatism, due to country characteristics, such as the legal system (code-law vs common-law), the way companies finance their operations, and the relationship between accounting and taxation, are likely to influence the measurement of accounting variables and, as a result, affect their predictive ability about future earnings. Furthermore, cross-national differences in the disclosure requirements of the respective stock exchanges, as well as accounting conservatism, are likely to result in differences in the forecasting value of security prices. In this regard, and due to inter-country differences in accounting conservatism, the forecasting ability of stock prices in the event of "good news" about the firm is likely to differ across countries. Our results confirm that there are indeed differences in the predictive ability of both accounting and market data across European countries, which is an indirect test of the economic consequences of different accounting measurement rules, an aspect that has received little attention by researchers to date.

KEY WORDS

Earnings prediction; cross-national differences; residual income valuation model.

1. INTRODUCTION

In this paper we investigate cross-national differences in the predictive ability of financial information (accounting and market data) for future earnings. We adopt a European perspective in our analysis by focusing on four representative European countries in order to assess whether the institutional and accounting differences among them result in inter-country differences in the predictive value of financial information. Specifically, our analysis is based on France, Germany, Spain, and the UK. Germany and the UK may be thought to represent extremes of accounting systems, with France in a relatively developed intermediate stage, and Spain being an example of a less established reporting system.

The motivation for this type of research is threefold. Firstly, earnings forecasting has become a major issue within market-based accounting research, mainly due to the contributions of the residual income valuation model, known as the EBO (standing for Edwards, Bell and Ohlson) model. In this respect, Lee (1999:422), in a survey of the recent developments in market-based accounting research, indicates that "*the field is witnessing a gradual shift in research objectives away from studies that focus exclusively on the contemporaneous relation between accounting information and returns (prices), towards studies that use accounting information in a predictive role*". As Penman (1992) illustrates, the dividend irrelevance proposition motivated researchers to replace the research about predicting dividends for the explanation of observed stock prices, and the Ohlson (1995) framework has been the key in the move away from explaining current prices towards predicting earnings in order to estimate firm´s intrinsic value. Secondly, previous research analysing the predictive ability of financial information has focused primarily on one particular country (either the USA or the UK), thereby giving rise to a clear Anglo-American bias. However, in our view, the study of the predictive value of accounting data is potentially a very effective way to analyse the empirical consequences of different accounting systems, an aspect that has received little attention by researchers to date. As Basu *et al*. (1998:1208) indicate, "*research on the empirical consequences of different accounting measurement rules across countries is scarce*". Unlike previous research, our study examines a fundamental characteristic of accounting information (i.e., its predictive value) across different generally accepted accounting principles (GAAP) regimes without using stock prices (or other market-

based metric) as a benchmark, as long as prices are not used as the dependent variable to test the relevance of the accounting numbers, but as predictors of future earnings. Finally, it is true that at least for listed companies the main purpose of annual accounts is the prediction of future cash flows and earnings, which clearly explains the interest of our study.

Our results confirm the predictive ability of the variables under analysis, earnings and book value, as well as prices, in all countries under study. However, we have been able to find certain differences that we assume are due to the still existing differences in the accounting system, its different degree of conservatism, and the disclosure level that is required in the respective stock exchanges.

The structure of the paper is as follows. Section 2 briefly reviews the literature on the predictive ability of financial information for future earnings. Section 3 justifies the choice of the accounting systems. Section 4 provides details on the sample, the variables, the hypotheses and the empirical models. Section 5 reports the results obtained in our study. Finally, section 6 presents the main conclusions of the paper.

2. LITERATURE REVIEW

Most of the studies in the accounting and finance literature examining the time series properties of accounting earnings have concluded that annual earnings normally follow a martingale type of process (for example, Ball and Watts, 1972; Watts and Leftwich, 1976; Albrecht *et al*., 1977). This implies that the best predictor of next-year earnings is current earnings and that earnings changes are unpredictable. This has been referred to as accounting earnings following a "*random walk*" or "*random walk with drift*" model. However, there is a growing amount of empirical research that suggests the possibility of modelling future earnings by using financial information other than current and past earnings. As Brown states (1993: 289), "*time-series models confined to past earnings can be beaten by expanding the conditioning information set to include past quarterly earnings, stock prices, book rates of return, or other financial statement data*". More recently, and assuming that abnormal earnings follow a stochastic process (known as "*linear information dynamics*", LID), Ohlson

(1995) suggests expected earnings depend on current earnings, book value, net dividends, and other information.

Non-earnings numbers may convey predictive information about future earnings for at least the following reasons (Ou, 1990): a) some non-earnings numbers may help to identify the transitory component of current earnings which does not persist in the long run, and b) non-earnings data may reflect managerial decisions that have implications for future earnings. It is commonly acknowledged that the current earnings figure, prepared under GAAP, reflects some value-relevant information with a lag (which is referred to as "*accounting recognition lag*"), so other non-accounting information can be useful to compensate this insufficiency of the accounting system.

The vast majority of the studies dealing with this topic relate accounting information to firm value via a two-stage process: 1) to determine the relationship between current financial statement data and future earnings (referred to as *"predictive information link"*), and 2) to examine the extent to which the information conveyed by accounting data about future earnings is incorporated into stock prices (called *"valuation link"*). TABLE 1 shows the most important studies in this line of research, indicating author (s), country, accounting variables used, earnings forecast horizon, and the link (s) -predictive and valuation- analysed. It can be observed that these studies have focused primarily on the US context, with the exception of the papers by Setiono and Strong (1998), Aboody *et al*. (1999), Charitou and Panagiotides (1999) and Garrod and Rees (1999), referred to the UK, and the papers by Guerra (1999), Reverte and Strong (2001), and Reverte (2002) focused on Spain. Although there is a general tendency to use accounting ratios as earnings predictors, some papers analyse the predictive ability of individual financial statement data such as account receivables (Stober, 1993), inventories (Bernard and Noel, 1991), R&D investment (Sougiannis, 1994), earnings components (Fairfield *et al*., 1996; Sloan, 1996; Reverte and Strong, 2001), and fixed assets revaluations (Aboody *et al*., 1999).

The general conclusion of the previous studies is that accounting information is a useful tool to evaluate future earnings, not only for one-year-ahead forecasts but also for longer horizons. Moreover, in those papers that examine the "*valuation link*", it is

documented that accounting information is not always immediately reflected in stock prices, thereby allowing for the possibility of developing profitable trading strategies.

TABLE 1. Studies about the predictive ability of accounting information for future earnings

Author (s)	Country	Link(s)	Variables analysed	Forecast horizon
Ou and Penman (1989)	US	Predictive and valuation	Accounting ratios	1 year
Ou (1990)	US	Predictive and valuation	Accounting ratios	1 year
Bernard and Noel (1991)	US	Predictive	Inventories and its components	1-4 quarters
Holthausen and Larcker (1992)	US	Predictive and valuation	Accounting ratios	1 year
Stober (1992)	US	Predictive and valuation	Accounting ratios	1 year
Lev and Thiagarajan (1993)	US	Predictive and valuation	Accounting ratios	1-3 years
Stober (1993)	US	Predictive	Accounts receivable	1-4 quarters
Sougiannis (1994)	US	Predictive	R&D investment	1-7 years
Fairfield *et al.* (1996)	US	Predictive	Income statement line items	1 year
Sloan (1996)	US	Predictive and valuation	Cash flows and accruals	1 year
Abarbanell and Bushee (1997)	US	Predictive and valuation	Accounting ratios	1 and 5 years
Joos and Joos (1998)	US	Predictive	Accounting ratios	1-5 years
Setiono and Strong (1998)	UK	Predictive and valuation	Accounting ratios	1 year
Aboody *et al.* (1999)	UK	Predictive and valuation	Fixed asset revaluations	1-3 years
Charitou and Panagiotides (1999)	UK	Predictive and valuation	Accounting ratios	1 year
Garrod and Rees (1999)	UK	Predictive	Book value, net income, ordinary dividends and stock price	1 year
Guerra (1999)	Spain	Predictive	Net income and dividends	1-3 years
Dowen (2001)	US	Predictive	Accounting and market metrics	1 year
Reverte and Strong (2001)	Spain	Predictive	Income statement line items	1 year
Reverte (2002)	Spain	Predictive	Accounting ratios, stock price, book value and net income	1-3 years

As previously indicated, we also include stock prices as earnings predictors, due to the "*prices leading earnings*" phenomenon. Regarding this aspect, Kothari and Zimmermam (1995:160) sustain that "*the forecasting power of prices with respect to future earnings changes arises because historical cost accounting, with its emphasis on conservatism,*

objectivity, and revenue-recognition conventions, has a limited ability to reflect the market´s expectations of future earnings". Since market expectations are eventually reflected in accounting earnings, price changes tend to anticipate earnings changes. This share price anticipation of earnings has been analysed in a series of papers (Beaver *et al.*, 1980 and 1987; Collins *et al.*, 1987 and 1994; Kothari, 1992; Kothari and Sloan, 1992; Warfield and Wild, 1992; Donnelly and Walker, 1995).

Following Basu (1997)´s notion of conservatism, namely, accounting earnings reflect "bad news"[1] quicker than "good news", some studies have adopted an international approach and compared the conservatism related to news of different accounting systems. Pope and Walker (1999) focus on the USA and the UK; Ball *et al.* (2000) consider a wide number of different countries (Australia, Canada, France, Germany, Japan, the UK and the USA), whereas Giner and Rees (2001) analyse France, Germany, and the UK. There is a general evidence of asymmetric timeliness in the earnings figure in that it is contemporaneously more sensitive to "bad news" than to "good news", which is consistent with the different accounting recognition criteria for losses and profits. In addition, Ball *et al.* (2000) claim that, due to differences in institutional and legal factors, earnings reflect "bad news" in a more timely manner in common-law countries (e.g., the UK, the USA) than in code-law countries (e.g., Germany, France, Japan). However, Giner and Rees (2001) do not find significant differences among countries. Furthermore, they conclude that there are differences in the intercept term for Germany, which supports the existence of a higher traditional conservatism in this country linked to the permanent undervaluation of earnings and assets.

In our view, the *"prices leading earnings"* phenomenon justifies the inclusion of prior periods´ stock prices in addition to accounting information in order to predict future earnings, and the asymmetric behaviour of earnings in capturing "*good and bad news*" suggests a different informative role for stock price´s increases and decreases. However, it has not been until recently that both accounting and market information have been integrated in the same earnings prediction model. Shroff (1999) shows for a sample of US companies that a "*composite*" model that considers the joint predictive ability of current earnings and current

[1] "*News*"is proxied as the change in market price (adjusted by dividends), which is regarded as a measure of economic income.

price is overall superior to a series of univariate models, especially when the variance of earnings relative to that of price is high. In an Spanish context, Reverte (2002) concludes that earnings forecasting models are better specified if prior periods´ stock prices are included in addition to current accounting information. Moreover, the ability of prices to predict future earnings is also likely to depend on the disclosure environment. It is assumed that the richer the information disclosed by companies, the higher the predictive power of prices.

3. INTERNATIONAL DIFFERENCES

The 4th and 7th Directives of the EEC (1978 and 1983, respectively) have been extremely useful in establishing a common accounting framework for all European companies, although it should be pointed out that the emphasis of the harmonisation policy was initially put more on equivalence than on uniformity or even comparability[2]. Having said that, it is necessary to admit that there are still substantive differences among the accounting practices, and even rules, in the EU member countries due, in part, to the still existing institutional differences. It is widely recognised that accounting systems are shaped by the economic and social environment where they have been developed and used. In particular, there are two factors that clearly influence them: the legal system and the relationship between taxation and accounting.

Although classifications are always simplifications of reality, countries are usually classified from a legal point of view into two groups: common-law (the UK in our sample) and code-law (Germany, France and Spain in our sample) countries. As Ball *et al*. (2000) and Leuz *et al*. (2002) sustain, in code-law countries, the major stakeholders of the firm (banks, unions, government, customers, and suppliers) engage in direct inside communication with managers, whereby insider communication solves the information asymmetry between managers and stakeholders. This reduces the need for public disclosure, thereby possibly leading to accounting reports that depart from expressing a true and reliable picture of a firm´s

[2] This is different to the current decision of the EU, which is aimed at using a unique set of accounts (those issued by the IASB). On September, the 11th, 2002, the Regulation on the application of International Accounting Standards was published in the Official Journal of the European Communities. This regulation requires to prepare the consolidated accounts of listed companies using the accepted IAS/IFRS no later than 2005.

operating performance. In such countries, the demand for accounting income arises more from the need to meet certain payout targets (such as dividends to shareholders and bonuses to managers). It is thought that these factors provide an incentive for managers to report smoothed earnings so as to reduce income volatility[3]. In addition, if banks and not the stock market are considered to be the primary source of funds for companies (what is typical of code-law countries), it is commonly recognised that the preservation of capital is the main objective of the annual accounts, and this normally leads to a more conservative earnings figure.

Regarding the second factor, Alford *et al.* (1993) characterise the tax and financial accounting alignment as high or low, considering that in France and Germany as high, while that in the UK is regarded as low. Concerning Spain, there has been an enormous change from a strong alignment before the adoption of the Directives in 1989 towards the current situation. Nowadays, there is a clear distinction between accounting and taxation rules in the regulation, but it is thought that companies try to avoid deferred taxes, so they use tax rules for accounting purposes, when this is not clearly against the General Accounting Plan (GAP, 1990). It is commonly acknowledged that in tax dominated systems reported earnings tend to be diminished in order to reduce the tax payment, and this reduces the value relevance of financial reports (Joos and Lang, 1994). Furthermore, Ali and Hwan (2000:5) argue: *"because the primary objective of tax rules is not to satisfy the information needs of capital market participants, the value relevance of financial reports in countries with high tax-book conformity is compromised"*.

These factors, among others, have shaped two types of well-known accounting systems: the Continental and the Anglo-American. Joos and Lang (1994:142) claim that "*Germany and the U.K. are the originators, and arguably the most extreme examples, of the two primary accounting philosophies world-wide, the Continental and Anglo-Saxon models*". They also assert "*France was traditionally closer to Germany but appears to have shifted towards the Anglo-Saxon model. An analysis of Germany, the U.K. and France thus permits a comparison of the effects of two relatively pure and one intermediate example of common*

alternative approaches to accounting measurement". We have included Spain in this analysis. Like France, the Spanish system has undergone some considerable changes and, like France, would probably now be considered one of the intermediate examples. However, it is a somewhat smaller economy, which has only recently moved its accounting and stock market practices to be broadly in line with those considered best practice in Europe.

A review of some accounting differences between the four countries reveals wide differences even after the implementation of the Directives. According to the accounting issues that appear in TABLE 2, it could be said that the British system tends to follow a less conservative approach than the other countries, therefore British companies will obtain, *ceteris paribus*, higher profits in comparison to the other countries. In addition, British companies could also exhibit a more volatile earnings figure. Clear examples of these practices are the possibility to capitalise the development part of R&D costs, the non acceptance of LIFO for valuing stocks, the use of the percentage of completion method for long term contracts, and the immediate recognition as income of positive foreign exchange differences. On the other extreme, the German regulation tends to be the most conservative, as long as R&D must be expensed, LIFO is allowed without restrictions, the completion method is required for long term contracts, and foreign exchange differences are not recognised. As far as France and Spain are concerned, these countries follow a mixture of criteria. In France, this is partially due to the differences between individual and consolidated accounts, so it appears as if the system is changing from the Continental approach towards the British one, at least for group accounts (Giner and Rees, 2001). Regarding Spain, the accounting system contains both conservative and non-conservative accounting rules. For instance, although the criteria to value assets is strongly linked to the historical cost and the prudence principle, some legal revaluations for tangible assets have been allowed; and while positive exchange differences are deferred, R&D may be capitalised under some circumstances.

TABLE 2. Recognition and valuation criteria

Topic	*Germany*	*France*	*Spain*	*United Kingdom*
Tangible fixed assets	Historic cost	Revaluation allowed (rare in individual accounts)	Legal revaluation allowed	Revaluation allowed
Finance leases	Capitalizing compulsory	Capitalizing allowed only in consolidated accounts	Capitalizing compulsory	Capitalizing compulsory
Intangible fixed assets	Historic cost	Historic cost	Historic cost	Revaluation allowed
Research & Development	Expensing compulsory	Capitalizing R&D allowed	Capitalizing R&D allowed	Capitalizing D allowed
Goodwill	Capitalizing (40 years or more) or deducting from reserves	Capitalizing (no limits) or deducting from reserves (exceptional)	Capitalizing (20 years)	Capitalizing (no limits) or deducting from reserves
Negative goodwill	Reserve	Reserve or systematically to P+L	Deferred income or provision	Reserve
Investments	Historic cost	Historic cost	Historic cost	Revaluation allowed (if short term)
Inventory	LIFO allowed	LIFO allowed only in consolidated accounts	LIFO allowed	LIFO not allowed
Long term contracts	Completed contract required	Completed contract required (with exceptions)	Percentage of completion required (with exceptions)	Percentage of completion required (with exceptions)
Pension liabilities	Recognized	Not recognized	Recognized	Recognized
Grants for assets	Deferred income	Current or deferred income	Deferred income	Deferred income
Positive exchange differences	Not recognized	Deferred profit	Deferred profit	Immediate profit
Deferred tax	Required in consolidated accounts, option in individual accounts	Required in consolidated accounts	Required (total recognition)	Required (partial recognition)
Previous year items	Current income	Current income	Current income	Reserve adjustment
Changes in accounting policies	Current income	Current income	Current income	Reserve adjustment
Joint ventures consolidation.	Proportional and equity method	Proportional method	Proportional and equity method	Proportional and equity method
'Different' subsidiaries consolidation	Global or equity method	Equity method	Equity method	Global method

Sources: Price Waterhouse (1995), Walton *et al.* (1998), and Giner and Rees (2001).

The previous examples illustrate that there are still substantial differences in the accounting rules within the EU countries, but it cannot be inferred that practices will also be equally different. For example, although LIFO is allowed in all countries under analysis, with the exception of the UK, it is not obvious how many companies are really using this criterion. The same could be said about the possibility of revaluing fixed assets. In fact, managers´ decisions about accounting practices will depend on particular firm characteristics, and

positive accounting theory provides interesting arguments to explain the accounting choice made by companies, but this goes beyond the scope of this paper.

Nowadays, there exists a wide range of market-based accounting research that shows the different information content and value relevance of accounting earnings and book value calculated under different sets of generally accepted accounting principles (Alford *et al*., 1993; Amir *et al*., 1993; Bandyopadhyay *et al*., 1994; Joos and Lang, 1994; Barth and Clinch, 1996; Harris and Mueller, 1999; Ali and Hwang, 2000). As it was previously stated, our empirical approach differs from the previous studies in that we examine a fundamental characteristic of accounting information (i.e., its predictive value) across different GAAP regimes without using stock prices (or other market-based metric) as a benchmark, but instead using prices as predictors of future earnings.

In addition to the recognition and valuation differences among the accounting systems, there are also differences in the disclosure environment that are likely to affect the ability of investors and security analysts to forecast future earnings. According to the results provided by Capstaff *et al*. (2001), in all European countries security prices have an incremental information content above analysts´ forecasts. In this respect, Basu *et al*. (1998) show that the more effective the disclosure environment is, the lower the analysts´ forecast errors are. The information environment is usually linked to the timeliness, frequency, and amount of information disclosed by companies, and this is generally related to the requirements established by the stock exchange. Moreover, it can be argued that the more developed the stock market is (in terms of a large number of investors providing equity capital and a large number of companies listed), the more information that will be disclosed to the market, thereby resulting in share prices capturing a richer information set than in less developed stock markets, and this normally happens in countries where the Anglo-American accounting model is in use.

Saudagaran and Biddle (1992) report that Germany has a lower disclosure level than France (2 vs. 4), and France lower than UK (4 vs. 6). Unfortunately, they do not report the results for Spain. Laínez *et al.* (1996) compare the stock exchange disclosure requirements in

several countries and establish the following ranking for our sample countries: the UK, Spain, France and Germany.

4. RESEARCH DESIGN

i) Hypotheses

As stated in the Introduction, our hypotheses are concerned with the impact of cross-national differences on the predictive value of financial information. Furthermore, we focus on the prediction of future earnings as an indicator of firm´s value. This relies on the assumption that accounting earnings are a good proxy for economic income, and give information on the underlying economic process of the firm. However, it could happen that, due to earnings management, accounting earnings are not an indicator of such a process. Income smoothing reduces earnings volatility, and it could probably increase its ability to predict future earnings, without having real information content about economic income and firm´s value[4].

As previously indicated, the stakeholder model, as well as the preference for the preservation of capital, and the alignment between taxation and financial accounting characterise the Continental accounting system, which is more conservative than the Anglo-American one. Our first hypothesis focuses on the impact of conservatism on the predictive value of the accounting system. We assume that, as long as the purpose of the information system, and in particular of the earnings figure, be different from the objective of being useful for predicting changes in economic value, or future earnings and cash flows, it is less likely that it has forecasting ability with respect to future earnings.

Traditional conservatism has been related to the prudence principle that basically sustains a tendency to undervalue both equity and earnings. As long as the company is a going concern, the undervaluation implies a translation of profits to the future, so in a sense it could be thought that the tendency will reverse in the long run. But if this practice is normal and the company is growing we can assume these values are permanently undervalued. We

consider that the permanent undervaluation produced by conservatism undermines the value of accounting earnings for predictive purposes. This argument is consistent with the IASB tendency to use fair value as a valuation criterion and include changes in value in the profit and loss account[5] (thereby increasing earnings volatility). By doing so, it is expected to provide a better measure of the economic income earned by the firm in the period, which will enhance the relevance of the earnings figure, and thereby its ability to help users forecast future cash flows and/or earnings more accurately. Moreover, it can be argued that book value of equity will be a better proxy of the intrinsic value as well. As we discussed on section 3, the German accounting system is reputed to be the most conservative of the GAAP regimes analysed in this paper, whereas the British one is regarded as the least conservative. Hence, we expect the accounting system in the UK to be more useful for predictive purposes than in Germany, France and Spain occupying an intermediate position. The possible impact of income smoothing practices on this hypothesis is not clear to foresee, but it could affect the results. According to previous evidence (Capstaff *et al.*, 2001; Leuz *et al.*, 2002), companies in the UK are using this accounting device less than in other countries. Although the ranking among the other three countries is not so evident, the same previous evidence suggests that Spanish earnings are less smoothed than German ones. Moreover, our data also go in the same direction (see TABLE 4).

The previous factors lead us to the following alternative hypothesis:

H_1: The accounting system is more useful for predicting future earnings in the UK than in Germany. France and Spain are in an intermediate position.

Our second hypothesis is concerned with the impact of cross-national differences in the disclosure requirements of the respective stock exchanges, and its influence on the forecasting value of security prices. It is generally accepted that there is a richer information set available to market participants in the UK than in Germany, probably arising from the need to reduce the higher information asymmetries between managers and stakeholders in the UK than in Germany. As previously indicated, Saudagaran and Biddle (1992) report that Germany has a lower disclosure level than France (2 vs. 4), and France lower than the UK (4 vs. 6). Basu *et al.* (1998) also consider the influence of this ranking in the analysts´ forecast errors, and their results show that, as hypothesised by them, countries with more effective

accounting disclosure environments have greater earnings forecast accuracy. Laínez *et al.* (1996) establish the following ranking for the four countries under analysis: the UK, Spain, France and Germany. In our case, it is expected that the information content of prices with respect to future earnings be higher for the UK than for Germany, France and Spain being in an intermediate position.

Thus, our second alternative hypothesis can be stated as follows:

H_2: Stock prices are more useful for predicting future earnings in the UK than in Germany. France and Spain are in an intermediate position.

ii) Variables and empirical models

The variable we aim to predict is earnings available to common shareholders, considering a forecast horizon of one year. We focus on total earnings, because the criteria to classify earnings as ordinary and extraordinary is neither constant among different countries nor consistent along periods. Moreover, as it has been shown in previous research (Pope and Walker, 1999), there is a bias in the accounting treatment of "good news" and "bad news", the latter being usually reported into extraordinary earnings, while the former are considered as ordinary earnings[6].

The basic explanatory variables used in our study derive from Ohlson (1995). Assuming that abnormal earnings follow a stochastic process (known as "*linear information dynamics*", LID), Ohlson (1995:677, eq.13) suggests expected earnings depend on current earnings, book value, net dividends, and other information. Analytically:

$$E_t [x_{t+1}] = \omega R_f x_t + (1-\omega) (R_f - 1) y_t - \omega(R_f - 1) d_t + v_t$$

where x_t is earnings for period t, ω is the abnormal earnings persistence parameter, y_t is book value at time t, R_f is the risk-free rate plus one, d_t are net dividends paid at date t and v_t is the "*other information*" variable.

From this equation, it can be inferred that, assuming a constant risk-free rate, the more persistent abnormal earnings are, the higher the impact of a unit of current earnings on next-period earnings. Conversely, the more persistent abnormal earnings are, the lower the impact of book value on one-year ahead earnings. We would like to mention, however, that we do no strictly follow this model, as long as we do not include dividends in our analysis and we include prices as additional explanatory variables. It has to be considered that prices already take into account dividends paid, so we find it unnecessary to include them again. Following Shroff (1999) and Reverte (2002), stock price is used as a proxy for the *"other information"* variable. As stated by Shroff (1999:864): "*Security price is used as a surrogate for other information, recognizing the well-documented evidence that price leads earnings, that is, events often affect price before they are recorded as accounting earnings*". Moreover, we include an intercept to capture any other aspect that has not been individually taken into account, and we deflate the variables as explained afterwards.

Before going on to the empirical models, we would like to mention some econometric problems usually associated with levels models, scale and heteroscedasticity. Barth and Clinch (2001) sustain that the most effective specification depends on the source of the scale effect. If there is no scale effect or if the effect derives from scale-varying valuation parameters, the undeflated regression evidences the least bias and root mean squared error. But when they are associated either with omitted scale variables related to external equity growth or initial investments, or with scale-related heteroscedasticity, the share-deflated price specifications are the most effective. Easton and Sommers (2000) argue that it is necessary to remove the scale effect, and suggest using returns models. Moreover, as Brown *et al*. (1999) argue, scale can also create problems in comparing the R^2 in a cross-sample study like ours. They evidence that using per share values in levels models does not adequately control for the effects of scale as shares come in different sizes. Instead, they indicate that deflating by a proxy for scale yields R^2s that better reflect the explanatory power of the underlying variables and not that of scale. In this respect, they suggest to deflate both dependent and independent variables by share price at the beginning of the year[7]. Following these arguments, we have deflated all variables by beginning-of-period share price, which appears to be a relatively adequate method to avoid problems not only with the coefficients but also with the R^2. To

mitigate the heteroscedasticity problem, we always employ the White (1980) heteroscedastic-consistent variance-covariance matrices.

We first estimate a *naive* model that includes current earnings as the sole predictor (model 1), which is in fact the traditional "*random walk*" model assumed in a vast part of the accounting and finance literature. This gives us an idea about the persistence of the earnings figure, which depends on the underlying economy of the firm, but also on the accounting practices (the smoothing). However, as long as abnormal earnings are not completely permanent, we argue that it is necessary to include book value as an additional earnings predictor in the model. This variable helps to consider the transitory component of earnings and allows us to test the predictive value of the accounting system as a whole (model 2). Finally, in order to verify the incremental predictive ability of stock price with respect to summary accounting data (e.g., earnings and book value), we further include it as an additional earnings predictor (model 3).

Thus, the models we are going to estimate for the four countries under analysis are:

$$NI_{i,t+1}/ P_{t-1} = \alpha_0 + \alpha_1 (NI_{i,t}/ P_{t-1}) + e_{1t} \qquad (\textit{Model 1})$$

$$NI_{i,t+1}/ P_{t-1} = \beta_0 + \beta_1 (NI_{i,t}/P_{t-1}) + \beta_2 (BV_{i,t}/ P_{t-1}) + e_{2t} \qquad (\textit{Model 2})$$

$$NI_{i,t+1}/ P_{t-1} = \gamma_0 + \gamma_1 (NI_{i,t}/P_{t-1}) + \gamma_2 (BV_{i,t}/ P_{t-1}) + \gamma_3 (P_t/P_{t-1}) + e_{3t} \qquad (\textit{Model 3})$$

where:

$NI_{i,t}$: Accounting earnings per share available to firm i´s common shareholders for period t.

$BV_{i,t}$: Book value of ordinary equity per share at the end of period t for firm i, defined as all equity reserves and ordinary share capital, but excluding non-ordinary equity such as preference shares.

$P_{i,t}$: Price per ordinary share at the end of period t for firm i.

In model (1), the parameter α_1 measures the persistence of the deflated earnings figure. The predictive ability of the accounting system is measured through the explanatory power of model (2)[2]. The coefficient on P_t in model (3) measures the incremental predictive power of security prices with respect to current earnings and book value. According to our second hypothesis, we expect the coefficient on the price variable in model (3) to be significantly higher for the UK than for the other countries.

iii) Sample

The sample comprises quoted British, French, German, and Spanish industrial and commercial companies included in the Extel Financial Times Company Analysis Service database. As in many other studies, financial companies have been excluded due to the particular characteristics of the accounting system in this industry. The period under study is 1988-1997. TABLE 3 shows the composition of the sample by countries. The initial sample is composed of 8,187 cases for the UK, 2,229 for France, 2,228 for Germany and 630 for Spain. In order to eliminate the influence of outliers, we subsequently eliminate the two extreme percentiles of each variable. The resulting final samples are formed by 7,771, 2,061, 2,076 and 589 cases for the UK, France, Germany and Spain, respectively.

TABLE 3. Distribution of firm/year observations by country

	UK	SPAIN	FRANCE	GERMANY
Initial sample	8187	630	2229	2228
Outliers	(416)	(41)	(168)	(152)
Final sample	7771	589	2061	2076

Notes: The sample covers the period 1988-1997.

[8] As the R^2 statistic is sample-sensitive, this measure is uncomparable across different samples, so we have calculated two alternative measures: i) the one proposed by Gu (2001) and ii) the accuracy of the model in a holdout sample.

5. RESULTS

TABLE 4 provides the descriptive statistics of the deflated variables included in the regressions as well as the coefficients of variation (standard deviation divided by the mean, to adjust for scale differences) for NI and BV, which are used as proxies for volatility[9]. It can be observed that the coefficients of variation of earnings, which indicate earnings volatility, are higher in the UK, followed by Spain, France and Germany (5.00, 4.60, 3.00 and 2.25, respectively), which is consistent with previous studies (Capstaff *et al.*, 2001, and Leuz *et al.*, 2002). Regarding the variability of book value, it is also higher in Spain and in the UK than in the other two countries. As far as the accounting variables, the mean value of deflated earnings (which could be understood as a type of profitability ratio) is equal for the Spanish and British samples, and higher than the one of France and Germany (also equal). Mean market return (P_t/P_{t-1}) appears higher in the UK than in the other countries. Finally, the highest deflated book value is for the French sample, while the lowest is for the Spanish sample.

TABLE 4. Descriptive statistics of the deflated variables (by P_{t-1}) and coefficients of variation of earnings and book value

	UK			**Spain**			**France**			**Germany**		
	Mean	Median	S.D.	Mean	Median	S.D.	Mean	Median	S.D.	Mean	Median	S.D.
NI_t	0.05	0.06	0.25	0.05	0.02	0.23	0.04	0.06	0.12	0.04	0.02	0.09
BV_t	0.40	0.50	0.34	0.25	0.27	0.30	0.54	0.53	0.25	0.38	0.36	0.20
P_t	1.14	1.10	0.50	1.08	1.06	0.60	1.11	1.06	0.46	1.05	1.01	0.36
CV NI_t	5			4.6			3			2.25		
CV BV_t	0.85			1.2			0.47			0.53		

Where : NI_t is earnings per share for period t available to firm i´s common shareholders. BV_t is book value of ordinary equity per share at the end of period t. P_t is ordinary share price at the end of period t. CV is the coefficient of variation (standard deviation of the variable divided by its mean). The sample covers the period 1988-1997.

TABLE 5 shows the correlation coefficients among the deflated variables considered in our study. It can be seen that, as expected, there exists a relatively high correlation between current earnings and book value in the four countries under analysis, causing a potential collinearity problem in our models (2) and (3). This econometric problem results in an increase in the parameter standard errors, thereby biasing the *t*-statistics towards zero and, consequently, masking the economic significance of the variables. However, despite the

collinearity between the previous variables, they remain statistically significant (as it will be shown later), and their signs are, as expected, positive. In addition, that collinearity can also lead to erratic coefficients when new variables are introduced in the models. In this respect, the signs of the coefficients remain unchanged when book value is added as an additional explanatory variable in model (2) compared with model (1). Hence, we do not think that this problem is significantly affecting the tenor of our results.

TABLE 5. Correlation matrix of the deflated variables (by P_{t-1})

	NI_t	BV_t	P_t
Panel A: UK			
NI_{t+1}	0.708	0.351	0.582
NI_t	1.000	0.681	0.396
BV_t	0.681	1.000	0.412
Panel B: Spain			
NI_{t+1}	0.500	0.325	0.444
NI_t	1.000	0.751	0.374
V_t	0.751	1.000	0.347
Panel C: France			
NI_{t+1}	0.453	0.425	0.214
NI_t	1.000	0.714	0.468
BV_t	0.714	1.000	0.487
Panel D: Germany			
NI_{t+1}	0.375	0.551	0.147
NI_t	1.000	0.699	0.415
BV_t	0.699	1.000	0.400

Where : NI_t is earnings per share for period t available to firm i´s common shareholders. NI_{t+1} is earnings per share for period t+1 available to firm i´s common shareholders. BV_t is book value of ordinary equity per share at the end of period t. P_t is ordinary share price at the end of period t.

Before providing the results derived from the estimation of the three models, it is convenient to explain how we have dealt with the likely upward bias in the *t*-statistics of the pooled regressions. This is due to cross-sectional correlation in the error terms, which derives from pooling cross-section and time series data. To take this problem into account, we run annual regressions, treating each year´s parameter estimates as single observations, as suggested by Bernard (1987). The estimate of the parameter is the mean of the annual regressions, and the *t*-statistic is the ratio of the sample mean to the standard deviation of the time series distribution of the estimated coefficients, divided by the square root of the number of annual cross-sections. The comparison between both results allows us to appreciate the robustness of the inferences from the pooled regression. For the sake of parsimony we only

provide the time series average of the estimated annual slope coefficients for each variable and their *t*-test.

TABLE 6 gives the results of the basic model (1) for individual-country regressions[10]. Panel A shows the results derived from pooling all the observations across time, whereas Panel B shows the parameter estimates derived from annual regressions. It can be seen that the results are very similar to the ones reported in Panel A. The results show that the coefficient on earnings takes the highest value for the UK, followed by Spain, France, and Germany, so the persistence of earnings is higher in the UK than in the other countries. Results, not reported, show that the coefficient on earnings for the UK is significantly higher than that of France and Germany (both at a 1% level) and Spain (at a 10% level)[11] . Moreover, the coefficient on earnings for Germany is significantly lower than that of France (at a 5% level) and Spain (at a 1% level). Therefore, it seems that the higher conservatism gives rise to a less persistent earnings figure that appears to be also less valuable for predictive purposes. This is typical of the Continental accounting system, i.e., of countries with a code-law system, where the stock market is not the primary provider of funds and with a high alignment between taxation and accounting.

If one looks at the R^2s it can be seen that the predictive value of earnings keeps the same order, higher in the UK, followed by Spain, France and Germany. As we point out later, we are aware of the problems of comparing R^2s across samples, therefore we do not infer conclusions about the predictive ability of earnings using them.

As already indicated, the predictive value of earnings could be driven by two forces: the purpose of the accounting system and the smoothing practices followed by companies. However, as long as we hypothesise a higher predictive value in a country such as the UK were smoothing appears to be less common (according to previous studies and our data -see

[10] The results are totally consistent with those obtained in a per share regression.

[11] We estimate the statistical significance of differences between the coefficients in regressions using separate samples as X_1-X_2 divided by $\sqrt{\left(\sigma_1^2\right)+\left(\sigma_1^2\right)}$, where X_i is the estimated coefficient and σ_i the standard error for variable i. This approach produces similar results to pool the regressions and use interaction terms to test for differences, except that it is slightly simpler to operationalise and makes no assumption that the variance of the error term is consistent across the country samples (Giner and Rees, 2001).

TABLE 4-), it seems that our results are not driven by smoothing. On the contrary, in the German sample we observe the lowest volatility, while at the same time we sustain there is a high conservatism degree, therefore it can be guessed that these results could show a lower predictive ability if we eliminate the impact of smoothing. So we can conclude that our results in comparative terms are not a consequence of the smoothing practices, but are driven by the nature of the accounting system.

TABLE 6. Individual-country regressions of next-period earnings on current earnings (model (1)).

	NI_t	Adj. R^2	CASES
Panel A: Estimates from pooled regressions			
UK	0.635 (11.01)*	0.501	7771
SPAIN	0.541 (4.77)*	0.251	589
FRANCE	0.411 (6.01)*	0.205	2061
GERMANY	0.377 (5.04)*	0.141	2076
Panel B: Estimates from annual regressions			
UK	0.612 (8.97)*	0.498	
SPAIN	0.540 (4.99)*	0.241	
FRANCE	0.398 (5.24)*	0.201	
GERMANY	0.394 (4.98)*	0.138	

Notes: The sample is taken from industrial and commercial firms that have a full set of available data and accounting years falling within the period 1988-1997. The extreme top and bottom 1% of cases were removed. Figures in parentheses represent *t*-statistics. The standard errors are calculated using the White (1980) heterocesdacity-consistent variance-covariance matrix. The estimated model is:

$$NI_{i,t+1}/ P_{t-1} = \alpha_0 + \alpha_1 (NI_{i,t}/ P_{t-1}) + e_{1t} \quad \text{(model 1)}$$

Where: NI_t is earnings per share for period t available to firm i´s common shareholders.

Panel B contains the mean regressions. The estimate of the parameter is the mean of the annual regressions. The *t*-statistic is the ratio of the sample mean to the standard deviation of the time-series distribution of the estimated coefficients, divided by the square root of the number of annual cross-sections.

* Significant at the 1% level.

TABLE 7 shows the results from the estimation of model (2) that tests our first hypothesis[12]. The results reported on panels A and B are very similar, so the latter confirms the adequacy of the results obtained with the pooled data. It can be seen that, as expected, the coefficients on earnings, all significant at 1%, have slightly increased in the four countries under study after the inclusion of book value, and are in the same order. The coefficients on book value are positive and significant at 1% level in the four countries under analysis, so these results confirm its usefulness for predicting future earnings. However, book value is less informative about future earnings in the UK (where earnings are more persistent) than in Germany. This may be due to the lower (higher) role of book value for predictive purposes when earnings are more (less) persistent, although the results for Spain do not support this argument. In addition, it should be noted that the increase in explanatory power due to the addition of book value is greater in France, followed by Spain, Germany and the UK. A direct comparison of the explanatory power of these deflated regressions suggests that the UK accounting system is more useful for predicting future earnings than the others, being the ranking consistent with the one based on conservatism.

[12] The results are totally consistent with those obtained in a per share regression.

TABLE 7. Individual-country regressions of next-period earnings on current earnings and book value (model (2)).

	NI_t	BV_t	Adj. R^2	CASES
Panel A: Estimates from pooled regressions				
UK	0.675	0.012	0.651	7771
	(11.67)*	(5.68)*		
SPAIN	0.559	0.041	0.441	589
	(5.11)*	(3.99)*		
FRANCE	0.437	0.028	0.435	2061
	(6.54)*	(5.07)*		
GERMANY	0.394	0.033	0.312	2076
	(5.43)*	(4.44)*		
Panel B : Estimates from annual regressions				
UK	0.601	0.012	0.624	
	(8.41)*	(1.44)		
SPAIN	0.511	0.038	0.440	
	(2.55)**	(2.44)**		
FRANCE	0.441	0.018	0.412	
	(5.58)*	(2.57)**		
GERMANY	0.374	0.024	0.299	
	(7.14)*	(4.97)*		

Notes : The sample is taken from industrial and commercial firms that have a full set of available data and accounting years falling within the period 1988-1997. The extreme top and bottom 1% of cases were removed. Figures in parentheses represent *t*-statistics. The standard errors are calculated using the White (1980) heterocesdacity-consistent variance-covariance matrix. The estimated model is:

$$NI_{i,t+1}/ P_{t-1} = \beta_0 + \beta_1 (NI_{i,t}/P_{t-1}) + \beta_2 (BV_{i,t}/ P_{t-1}) + e_{2t} \qquad \text{(model 2)}$$

Where : NI_t is earnings per share for period t available to firm i´s common shareholders. BV_t is book value of ordinary equity per share at the end of period t.

Panel B contains the mean regressions. The estimate of the parameter is the mean of the annual regressions. The *t*-statistic is the ratio of the sample mean to the standard deviation of the time-series distribution of the estimated coefficients, divided by the square root of the number of annual cross-sections.

* Significant at the 1% level.
** Significant at the 5% level.

However, it should be noted that R^2s are incomparable across samples because the R^2 statistic is sample-sensitive. As Gu (2001:1) states, "*for two separate samples with typically differing variances of the dependent and independent variables, a difference in the R^2s will mechanically follow even if the economic relations underlying the two samples are identical. This sample specificity makes it difficult to attribute the different R^2s to a change in the economic relations or to the sampling differences*". Instead of the R^2, he suggests using the

estimated residual standard deviation of the regression (either in a raw or standardized form[13]). The higher the residual standard deviation of the regression, the lower the explanatory power of the independent variables. Therefore, as we are not confident on tests of H_1 based on cross-sample differences in R^2s, we also compute the residual standard deviations for model (2) for each country under analysis to ensure that our results are not actually driven by differences in the sample variances. Their values are 0.108, 0.121, 0.147 and 0.187 for the UK, Spain, France and Germany, respectively. Therefore, the ranking established by the residual standard deviations coincides with the one that emerges from using the R^2 statistic, so we can assert that the R^2 differences found in estimating model (2) across countries do reflect cross-national differences in the joint predictive ability of earnings and book value.

As a further way of analysing differences in the predictive ability of summary accounting data (i.e., earnings and book value), we have evaluated the forecast accuracy of model (2) in a holdout sample. To this end, we compute a forecast accuracy measure obtained from comparing the forecasted earnings derived from model (2) to actual earnings data. To compute those earnings forecasts, we apply the pooled estimated coefficients from each sample during the period 1988-1997 to actual data in 1998 in order to obtain the earnings forecast for 1999. Therefore, the forecast error (FE) is computed as follows:

$$FE\ (NI_{t+1}) = NI_{t+1} - F_M\ (NI_{t+1})$$

where $F_M\ (NI_{t+1})$ is the next-year forecasted earnings derived from model (2).

We compute the U measure proposed by Theil (1961)[14] to compare the accuracy of the models, and the values are 0.52, 0.61, 0.63 and 0.87 for the UK, Spain, France and Germany, respectively. Therefore, the accounting model predicts next-year earnings more accurately in the UK, followed by Spain, France, and, finally, Germany, which is consistent with the results obtained in the estimation period based on the R^2 statistic.

Results regarding the second hypothesis are shown in TABLE 8, and again they are similar in both panels, A and B[15]. As hypothesised, the higher disclosure level in the UK

stock market relative to that in the other countries results in stock prices having a higher information content with respect to future earnings in the UK than in Spain, France and Germany. The coefficient on the price variable (statistically significant in the four countries) in model (3) is higher in the UK than in Germany (0.041 vs 0.012), this difference (in results not reported) being statistically significant (at a 1% level). In addition, as expected, the coefficient on P_t is also higher in the UK (0.041) than in France (0.021) and Spain (0.029), these differences being statistically significant at a 5% level. Finally, it should be pointed out that the increase (in absolute terms) in the explanatory power, or predictive ability in our analysis, about one-year ahead earnings due to the addition of stock price is greater in the UK and Spain (about 6.1% more in both countries) than in France (4.3%) and Germany (2%), which is consistent with the magnitude of the price coefficient in the four countries.

TABLE 8. Individual-country regressions of next-period earnings on current earnings, book value and stock price (model (3)).

	NI_t	BV_t	P_t	Adj. R^2	CASES
Panel A: Estimates from pooled regressions					
UK	0.511	0.017	0.041	0.712	7771
	(9.21)*	(1.68)***	(8.83)*		
SPAIN	0.432	0.041	0.029	0.502	589
	(3.77)*	(2.98)*	(5.78)*		
FRANCE	0.345	0.015	0.021	0.478	2061
	(6.11)*	(3.53)*	(2.20)**		
GERMANY	0.398	0.026	0.012	0.332	2076
	(9.05)*	(3.99)*	(1.91)**		
Panel B: Estimates from annual regressions					
UK	0.517	0.003	0.029	0.708	
	(9.09)*	(0.89)	(9.42)*		
SPAIN	0.314	0.016	0.031	0.524	
	(3.98)*	(1.99)**	(12.05)*		
FRANCE	0.411	0.011	0.021	0.479	
	(6.89)*	(2.89)**	(3.08)**		
GERMANY	0.332	0.021	0.015	0.338	
	(7.86)*	(3.45)*	(4.54)*		

Notes: The sample is taken from industrial and commercial firms that have a full set of available data and accounting years falling within the period 1988-1997. The extreme top and bottom 1% of cases were removed. Figures in parentheses represent *t*-statistics. The standard errors are calculated using the White (1980) heterocesdacity-consistent variance-covariance matrix. The estimated model is :

$$NI_{i,t+1}/ P_{t-1} = \gamma_0 + \gamma_1 (NI_{i,t}/P_{t-1}) + \gamma_2 (BV_{i,t}/ P_{t-1}) + \gamma_3 (P_t/P_{t-1}) + e_{3t} \quad \text{(model 3)}$$

Where : NI_t is earnings per share for period t available to firm i´s common shareholders. BV_t is book value of ordinary equity per share at the end of period t. P_t is ordinary share price at the end of period t.

Panel B contains the mean regressions. The estimate of the parameter is the mean of the annual regressions. The *t*-statistic is the ratio of the sample mean to the standard deviation of the time-series distribution of the estimated coefficients, divided by the square root of the number of annual cross-sections.

* Significant at the 1% level.

** Significant at the 5% level.

*** Significant at the 10% level.

Sensitivity analysis

It is widely accepted that the accounting recognition criteria are more restrictive for recognising "*good news*" than "*bad news*", thereby resulting in an asymmetric recognition of both types of news in the profit and loss account, as originally evidenced by Basu (1997), and later on by several authors (Pope and Walker, 1999; Ball *et al.*, 2000; Giner and Rees, 2001). However, the stock market tends to capture any flow of relevant information when it is known, irrespective of the expected impact on the company´s performance. Therefore, because of the conventions of the accounting system, prices may be informative about events that will be reflected in future earnings, especially if they have a positive impact on the expectations about the firm. As a result, our model (3) could suffer from a misspecification problem in that stock prices are likely to have more predictive power when there has been "*good news*" than "*bad news*". To capture this, we have included a dummy variable multiplying price, that takes the value of 1 in the event of "*good news*" (i.e., $P_t > P_{t-1}$) and 0 otherwise [16]. Analytically:

$$NI_{i,t+1}/P_{t-1} = \beta_0 + \beta_1 (NI_{i,t}/P_{t-1}) + \beta_2 (BV_{i,t}/P_{t-1}) + \beta_3 (P_{i,t}/P_{t-1}) + \beta_4 D_t (P_{i,t}/P_{t-1}) + e_{4t} \quad (\textit{Model 4})$$

where: D_t is 1 if $P_t > P_{t-1}$, and 0 otherwise.

[16] In the "*price lead earnings*" literature, several metrics have been used to measure news, such as cum-dividends returns (Basu, 1997; Ball *et al.*, 2001), ex-dividends returns (Pope and Walker, 1999; Giner and Rees, 2001), or even market-adjusted returns and market abnormal returns (Basu, 1997). However, as long as the results have proven to be insensitive to the use of one definition or another one, we have decided to employ the ex-dividend version.

If prices have more predictive ability with respect to future earnings in the case of "*good news*" about the firm than in the case of "*bad news*", we expect β_4, the coefficient that captures the incremental effect of "*good news*", to be significantly greater than zero in the four countries analysed. Moreover, it could be the case that the coefficient be higher for the more conservative countries, characterised by a greater delay in capturing such "*good news"* in the accounting system. As far as the measure of the effect of "*bad news*" on future earnings (β_3), it could be argued that it will be lower if reserve accounting is used to manage earnings or expenditures are immediately included in the profit and loss account. If companies register future losses even before they are suffered, the impact of real losses on future earnings will be lower than in other companies that do not follow such a "prudent" policy.

The results from estimating model (4) are shown in TABLE 9, and both Panels report consistent results. The coefficient β_3 is higher in the UK (0.032, t = 8.77) than in the other countries (0.024, t=4.66 for Spain; 0.006, t=2.01 for France; and 0.001, t=1.97 for Germany). It can be seen that in all four countries the coefficient β_4 is significantly greater than zero (at confidence levels of 1%, with the exception of the UK at 5%). This indicates that the forecasting ability of security prices with respect to future earnings is always greater in the event of "*good news*" about the firm than in the case of "*bad news*". Moreover, it can be observed that the coefficient β_4 takes the highest value in Germany (0.025, t= 8.99) and the lowest for the UK and Spain (0.010, t=2.14, and 0.011, t=3.66, respectively), France being in an intermediate position (0.021, t=5.74). As previously argued, this may be due to the higher conservatism in Germany with respect to the other three countries in our sample, which results in "*good news*" being incorporated into earnings more slowly than in the other countries. As a result, there is a greater lag between the moment in which the market captures "*good news*" and that in which they are reflected in earnings, thereby resulting in prices with more predictive ability in the event of "*good news*" in Germany than in the other countries of our sample. In this respect, the relevance of "*good news*" to predict future earnings is consistent with previous evidence on the timeliness of earnings in incorporating current and prior news.

TABLE 9. Individual-country regressions of model (4).

	NI_t	BV_t	P_t	D_1P_t	Adj.R^2	CASES
Panel A: Estimates from pooled regressions						
UK	0.501	0.014	0.032	0.010	0.715	7771
	(8.14)*	(1.64)***	(8.77)*	(2.14)**		
SPAIN	0.431	0.047	0.024	0.011	0.517	589
	(3.71)*	(2.77)*	(4.66)*	(3.66)*		
FRANCE	0.336	0.018	0.006	0.021	0.494	2061
	(6.00)*	(4.01)*	(2.01)**	(5.74)*		
GERMANY	0.377	0.029	0.001	0.025	0.341	2076
	(8.99)*	(3.77)*	(1.97)**	(8.99)*		
Panel B: Estimates from annual regressions						
UK	0.509	0.010	0.034	0.011	0.714	
	(8.01)*	(1.33)	(8.88)*	(2.06)**		
SPAIN	0.389	0.034	0.024	0.018	0.530	
	(2.64)**	(2.41)**	(4.33)*	(4.01)*		
FRANCE	0.331	0.017	0.008	0.019	0.493	
	(5.44)*	(2.48)**	(2.11)**	(7.02)*		
GERMANY	0.374	0.021	0.001	0.024	0.344	
	(7.01)*	(5.00)*	(2.01)**	(6.66)*		

Notes : The sample is taken from industrial and commercial firms that have a full set of available data and accounting years falling within the period 1988-1997. The extreme top and bottom 1% of cases were removed. Figures in parentheses represent *t*-statistics. The standard errors are calculated using the White (1980) heterocesdacity-consistent variance-covariance matrix. The estimated model is:

$$NI_{i,t+1}/ P_{t-1} = \beta_0 + \beta_1 (NI_{i,t}/P_{t-1}) + \beta_2 (BV_{i,t}/ P_{t-1}) + \beta_3 (P_{i,t}/ P_{t-1}) + \beta_4 D_t (P_{i,t}/ P_{t-1}) + e_{4t} \quad \text{(model 4)}$$

where NI_t is earnings per share for period t available to firm i´s common shareholders. BV_t is book value of ordinary equity per share at the end of period t. P_t is ordinary share price at the end of period t. D_t is a dummy variable that takes the value 1 if $P_t > P_{t-1}$, and 0 otherwise.

Panel B contains the mean regressions. The estimate of the parameter is the mean of the annual regressions. The *t*-statistic is the ratio of the sample mean to the standard deviation of the time-series distribution of the estimated coefficients, divided by the square root of the number of annual cross-sections.

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

6. CONCLUSIONS

The main objective of this paper has been to analyse the predictive ability of the accounting information produced under four different accounting systems, but with a relative degree of harmonisation due to the EU Directives. Firstly, we would like to mention that our results confirm the predictive ability of the variables under analysis, earnings and book value, as well as stock prices in all countries under study. However, we have been able to find certain differences that we assume are due to the different conservatism degree of the accounting systems, stemming from the different role that earnings play (or has traditionally played) in the different countries, and the disclosure environment in the respective stock exchanges. We have also considered the possible influence of income smoothing on the predictive power of earnings, but we do not think this phenomenon affects the tenor of our results.

We have documented that in the UK, a common-law country, where the stock market is the main provider of funds and with the lower alignment between taxation and accounting in our sample, the earnings figure is more persistent than in the other countries, Germany being the country that has the lowest degree of persistence. This can be due to the fact that accounting earnings are less conservative in the UK than in France, Spain, and Germany. As long as earnings volatility, it is higher in the UK, followed by Spain, Germany, and France, so we assume that our results in comparative terms are not affected by the effect of smoothing. Regarding the two main figures provided by the accounting model, book value and earnings, we obtain that their joint predictive value is higher in the UK, followed by Spain, France and Germany.

Furthermore, our results show that stock prices have a higher information content with respect to future earnings in the UK than in Spain, France and Germany. We hypothesise that this is due to the higher disclosure level in the UK stock market relative to that in the rest of countries. However, the information content of prices can also be affected by the accounting standards and practices. The delay in capturing "*goods news*" varies among accounting

regimes, and the use of reserve accounting means that "*bad news*" is registered by the accounting system in advance, and both aspects will affect the information content of prices. Therefore, when we distinguish between cases with "*good news*" and "*bad news*", we appreciate that the forecasting ability of share prices with respect to future earnings is always greater in the event of "*good news*" about the firm than in the case of "*bad news*", this effect being more important in Germany. This suggests the stronger tendency of the German system to delay the recognition of "*good news*" compared with the other countries. Moreover, the predictive value of "*bad news*" is higher in the UK, which suggests a lower tendency to use reserve accounting.

This different ability to predict future earnings is an indirect test of the economic consequences of the different accounting systems, and it seems that it is more effective in the so called Anglo-American model than in the Continental one.

To conclude, it should be pointed out that the prediction of earnings is not the only objective of the annual accounts. Therefore, the superior forecasting ability of any accounting system over the other ones does not involve a judgement about the general quality of that system. It is possible that the users and their needs differ from one country to another, thereby justifying the use of the accounts for different purposes. In this respect, it is likely that in those countries where companies finance their operations primarily by recourse to banks (and not to the stock market), the main purpose of the accounts is not the prediction of future earnings, but the preservation of capital. However, if one thinks about the stock exchange, the prediction of future earnings appears as the main objective of the accounts, and nowadays the existence of a unified stock exchange appears to be one priority for the European interest.

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ON THE PERSISTENT UNDERSTATEMENT OF SHAREHOLDER'S EQUITY AROUND EUROPE

By

Juan Manuel García Lara
Juan.M.Garcia-Lara@uv.es

Araceli Mora Enguídanos
Araceli.Mora@uv.es

Universidad de Valencia

Facultad de Economía
Departamento de Contabilidad
Avda. de los Naranjos S/N
46022-Valencia
Teléfono: 96.382.83.03
Fax: 96.382.82.87

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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.

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

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.

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:

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

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

[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].

[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