How institutional factors and IFRS affect the value relevance of conservative and non-conservative banks

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Abstract

Purpose – The purpose of this paper is to explore the value relevance of accounting information before and after mandatory International Financial Reporting Standards (IFRS) adoption as well as the ensuing relationship between conditional conservatism and value relevance. The authors probe the above relationship by considering a number of institutional parameters, such as the accounting origin of each European country, the degree of differentiation between domestic standards and IFRS, and the level of each country's enforcement.

Design/methodology/approach – The authors run panel data regressions for banks listed in 15 European countries using both the price and the return model. The authors partition the total sample in conservative and non-conservative banks – based on Khan and Watts (2009) – and in other institutional clusters based on prior highly acclaimed studies. Value relevance is then gauged by the corresponding adjusted R^2.

Findings – The results provide evidence that IFRS have reinforced the value relevance for both conservative and non-conservative banks. However, this result alters when controlling for institutional dimensions. Specifically, the value relevance of conservative banks is strengthened when operating in high enforcement, low differences or English-origin environments, while non-conservative banks display better goodness-of-fit in French-origin countries.

Research limitations/implications – A survivorship bias might exist because the authors require three years of data before and three years after IFRS adoption for including a bank in the sample. More importantly, the post-IFRS period coincides with the burst of global financial crisis, which may have severely affected this bias. Furthermore, the C_Score methodology has been developed in a US-oriented context. Therefore, the validity of this measure might be different in countries with other institutional settings, such as week legal enforcement of high level of IFRS divergence.

Practical implications – The authors stress the qualitative significance of conditional conservatism and suggest that accounting standards regulators redefine the qualitative substance of conditional conservatism *vis-à-vis* other accounting quality properties, such as value relevance. Also, both conditional conservatism and value relevance are directly linked to contracting, thus the findings are of value to the entities that are legally involved with banks. These findings are particularly important, especially when the authors take institutional parameters into consideration.

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Originality/value – Studies that investigate the relationship between value relevance and conditional conservatism in the banking sector are scarce. In the wake of IFRS adoption, the authors signify the role of institutional features as potential determinants in accounting quality changes, as well as in the relationship between value relevance and conditional conservatism.

Keywords European banks, IFRS, Value relevance, Conditional conservatism, Institutional setting
Paper type Research paper

1. Introduction

International Financial Reporting Standards (IFRS) have been alleged to harmonise accounting processes as a step towards greater transparency, better accounting quality and comparability that will facilitate the widest possible access to investment capital across the EU. Though the effect of IFRS on the accounting quality of non-financial firms has been largely examined, that on the firms of the banking sector remains partly unexplored despite the importance of the banking sector to the stability and prosperity of the European system. This paper intends to fill this gap by using a sample of listed banks from 15 European countries and investigating the level of value relevance before and after the adoption of IFRS and its association with conditional conservatism (thereafter conservatism).

There are two main reasons why the relationship between conservatism and value relevance calls for further investigation, especially in the banking sector. The first has to do with the mandatory adoption of International Accounting Standard (IAS) 39, which established principles for recognising and measuring financial assets and liabilities. Because of the introduction of a mixed measurement model (requiring both historical and fair values), financial instruments are treated asymmetrically depending on their classification. In this way, the measurement of price changes may adversely affect the value relevance of accounting information. At the same time, IAS 39 introduced the incurred loss model, according to which losses are not recognised if they rely on future events, thus restricting timely loan loss provisioning (i.e. conservatism). Therefore, IAS 39 had a significant impact on banks' financial reporting quality, and especially on their value relevance and conservatism. The current study explores the above relationship, although it does not isolate the effect of one standard (IAS 39), but rather takes into account the total impact of IFRS on banks' reporting quality.

Further, banks face greater agency and governance problems compared to other sectors and the opacity that typically characterises the banking industry can exacerbate these problems (Bushman, 2014). However, pertinent literature suggests that higher financial reporting quality and better corporate governance can mitigate agency problems and increase firm value. For example, Lim *et al.* (2014) suggest that banking conservatism serves as a corporate governance mechanism that complements contracting purposes. Nevertheless, the way the market values banks' earnings quality, e.g. loan loss recognition timeliness, remains largely unexplored (Beatty and Liao, 2014). We attempt to fill this gap by evaluating the relationship between conservatism level and banks' value relevance.

Until 2010 the IASB relied on the framework for the preparation and presentation of financial statements issued by its predecessor, the International Accounting Standards Committee. However, in September 2010 the publication of the IASB Conceptual Framework attempted to clarify the IASB's objectives related to financial statements and their usefulness. In particular, relevance and faithful representation (i.e. reliability) are the two main requirements that financial reporting should meet in order to maximise accounting information usefulness. These characteristics are enhanced by four additional qualitative elements, namely comparability, verifiability, timeliness and understandability. Moreover, EU Regulation 1606/2002, which mandated IFRS

adoption by the EU listed firms, stresses that financial statement information should encompass characteristics such as understandability, relevance, reliability and comparability. Therefore, both the IASB and the EU agenda desire relevance and reliability as the two fundamental characteristics of financial reporting.

Our study aims to contribute to the pertinent literature in two ways. First, we stress the qualitative significance of conservatism. Although increased informativeness of accounting numbers is undoubtedly an important feature of financial reporting quality, there is no similar consensus on conservatism. On the one hand, Ball and Shivakumar (2005) and Watts (2003b), among others, imply that timelier loss recognition is related to higher value relevance because conservatism mitigates measurement errors which potentially cause less reliable accounting information. On the other hand, although the IASB (2010) considers relevance and reliability as the two main pillars of decision usefulness, reference to prudence (i.e. conservatism) was ignored from the Conceptual Framework because of concerns that it could be interpreted in a way that is inconsistent with neutrality (i.e. reliability). As a result, the IASB and extant literature provide contradicting justifications on the impact of conservatism on the quality of accounting information. Provided that both Ball and Shivakumar (2005) and Watts (2003b) refer to the English legal origin, we attempt to contribute to the ongoing debate by examining whether their findings are similar in a bank-oriented European IFRS context as well. Evidence from the relationship between value relevance and conservatism in the EU banking sector could be useful to bank regulators to understand how the two properties affect each other in an IFRS context and whether conservative recognition should be treated positively by the IASB *vis-à-vis* other accounting quality properties such as value relevance.

Second, while there is a strand of country-specific and cross-country studies that examines the effects of mandatory IFRS adoption either on value relevance or conservatism, only few of them analyse the effects of IFRS on the European banks' financial statements. To the best of our knowledge, only two of them are relevant to our study. Agostino *et al.* (2011) find that the value relevance of accounting earnings of European banks increased after the compulsory adoption of IFRS, while Gebhardt and Novotny-Farkas (2011) find that European banks recognise loan losses in a less timely manner post-IFRS mandatory adoption. Our study bridges over the results of these studies by jointly investigating value relevance and conservatism. Nobes (2013) stresses the importance of the pre-IFRS practices and the institutional setting in general, as determinants of the companies' post-IFRS policy choices. We contribute to this field by investigating the relationship between value relevance and conservatism taking into account: the legal origin; the level of legal enforcement; and the divergence between local standards and IFRS[1].

Prior literature (e.g. Ahmed *et al.*, 2013b) has provided mixed results when using the two seminal value relevance models (price and return). Our study adds to the literature by employing both models jointly and finds that value relevance increased significantly after the adoption of IFRS for both conservative and non-conservative banks. Considering the origin-based partitioning, we find that the greatest increase in value relevance comes from the French-origin non-conservative and the English-origin conservative banks, implying that the legal environment construes differences in the relationship between conservatism and value relevance. Scandinavian-origin banks also experience increases in the post-adoption value relevance no matter their conservatism profile, while no significant shift is observed for the German-origin banks. Consistent with extant studies, high-enforcement banks present much higher

levels of value relevance after the adoption of IFRS compared to the rest of the enforcement partitions, while low-enforcement entities experience no or even negative value relevance changes. In terms of IFRS divergence, the medium-differences partition reports the greatest increase in value relevance. Contrary to previous literature, banks that operate in countries with high differences between local and international standards do not present a positive reaction in the value relevance after applying IFRS. We document varying types of association between conservatism and value relevance when taking into account the environment that each bank operates. For example, in the post-adoption era conservative banks provide more value relevant information when situated in countries of English origin, of high legal enforcement or of low differentiation between domestic and international standards. These findings suggest that the conservatism-value relevance relationship can find fertile ground under the appropriate institutional settings.

Overall, the relevance between accounting and market information for the European credit sector seems to have benefited from the introduction of IFRS, though the institutional differences among European countries are far from smoothed and the consequences of IFRS adoption are not homogeneous. We argue that the adoption of IFRS *per se* does not necessarily entail accounting convergence, even in a heavily regulated sector such as the banking sector.

The rest of the paper is structured as follows. Section 2 reviews the extant literature. Section 3 provides the methodology and Section 4 describes the data. Empirical results are presented and discussed in Section 5 followed by some additional analyses in Section 6. The final section provides the conclusions.

2. Research background and hypotheses development

One of the main objectives of IFRS is to provide value relevant information to financial statement users. A value relevant accounting figure provides market participants with information capable of making a difference to their decisions. Banks' value relevance is particularly important to two main groups of stakeholders: investors and regulatory supervisors. In relation to the first group, opacity in industries such as banks may aggravate informational asymmetry problems between insiders and outsiders. Common shareholders and creditors (i.e. depositors), being outsider users of financial statements, require high levels of relevance and reliability. Otherwise, it is very unlikely they trust the bank if financial reporting does not ensure accounting quality. On the other hand, supervising authorities desire an environment that enhances the efficiency and stability of the banking system. Improving value relevance, and accounting quality in general, is a way of achieving both efficiency and stability.

IFRS direct towards a set of transparent reporting rules and procedures seeking to increase comparability and earnings predictability. If the IASB hit this target, we would expect a remarkable increase in the value relevance of accounting numbers. Based on the above, we formulate the hypothesis as follows:

H1. The value relevance of European banks' accounting information is expected to increase after the IFRS adoption.

Not surprisingly, relevant research has focused on the mandatory adoption of IFRS in Europe and its implications on value relevance. Most of these studies focus on non-financial firms and find either weak (Aubert and Grudnitski, 2011; Gjerde *et al.*, 2008) or positive (Barth *et al.*, 2012; Horton and Serafeim, 2010; Iatridis and Rouvolis, 2010) effects of the IFRS application on value relevance. The study of Agostino *et al.* (2011) is

the first study that examines value relevance in the post-IFRS era using data from European banks. The authors document increased (decreased) informativeness of earnings (book value of equity) subsequent to the compulsory adoption of IFRS. In a more recent study, Barth *et al.* (2014) observe that IAS 39 results in incrementally relevant net income in the European financial sector compared to local standards.

Next, we evaluate conservatism as a paremeter that could potentially affect the relevance of accounting numbers. Basu (1997) defines conservatism as the the extent to which firms expedite the recognition of losses vs gains in the accounting income. Both Lim *et al.* (2014) and Leventis *et al.* (2011) support that conservatism in the banking sector provides assistance to corporate governance structures, therefore enhancing the transparency and the relevance of financial reporting. Conservatism may also mitigate political costs for supervising regulators and standard setters (Watts, 2003a). However, the IASB agenda does not include conservatism in the list of the desirable financial reporting features. Prudence is not part of the Conceptual Framework (IASB, 2010) because of concerns that its misuse might lead to earnings manipulation and possibly damage neutrality. Thus, our second hypothesis evaluates the relationship between conservatism and value relevance, but we do not provide any prediction on its outcome:

H2. Conservatism is associated (not associated) with value relevance of accounting information before and after IFRS adoption.

A series of studies examinines conservatism (i.e. the timelier recognition of "bad news" vs "good news" in the income statement) and its importance in the banking sector. Studies in the USA find that publicly traded banks (Nichols *et al.*, 2009) and banks with robust corporate governance structures (Leventis *et al.*, 2013) exhibit higher conservatism compared to private banks and banks with low-quality governance practices, respectively. Gebhardt and Novotny-Farkas (2011) investigate accounting quality prior and post mandatory adoption of IFRS in Europe and find that the asymmetric timeliness of loan loss provisioning was reduced after 2005. According to them, this finding lies to the IFRS restricting of loan loss provisioning by allowing only incurred losses, thus limiting banks' ability to timely recognise losses. The above deterioration in timely recognition of losses in the post-IFRS era is also verified by other non-banking related studies (André *et al.*, 2015; Ahmed *et al.*, 2013a; Chen *et al.*, 2010)[2].

While the separate investigation of value relevance and conservatism has attracted much of the academic interest, their joint effects have been partly ignored. Ball and Shivakumar (2005) in the UK and Choi (2007) in Korea highlight the significant role of timely loss recognition in explaining the association between market values and accounting information. Using multi-country data, Brown *et al.* (2006) claim that in countries with higher accrual intensity, firms reporting more conservative earnings display higher levels of value relevance. On the other hand, Kousenidis *et al.* (2009) find that very high or very low conservatism is connected to lower levels of value relevance, while medium conservatism is associated with higher value relevance in Greece. Overall, the above studies provide evidence of a rather positive relationship between value relevance and conservatism, although neither this relationship is clear-cut nor can we generalise these results to an IFRS European banking context.

If IFRS were applied consistently across countries, we should not observe any differences among banks operating in various institutional settings. Nevertheless, the intensively regulated European banking setting both by the Basel Committee on Banking Supervision and the European Banking Authority does not appear to be enough to ensure homogeneity across the European banking sector. Literature documents that

both value relevance and conservatism are influenced by institutional factors. For instance, Anandarajan *et al.* (2011) find that the differences in accounting measurement practices and the type of legal environment are among the most influencing factors affecting the extent of value relevance of earnings and book values, when using a global sample of banks. According to André *et al.* (2015), conservatism has dropped following mandatory IFRS adoption, but this drop is less pronounced in strong institutional environments compared to weak ones. Moreover, the banking sector is characterised by opacity which is exacerbated in the presence of a weak institutional setting. According to Beatty and Liao (2014), the effectiveness of the Basel Capital Accord depends on each country's regulation and enforcement. We, therefore, expect that differences at the country level will have an influence on the value relevance and its association with conservatism during the period surrounding the mandatory IFRS adoption. Based on the above, we formulate the hypothesis as follows:

H3. The legal origin, the level of legal enforcement and the level of divergence between IFRS and local accounting standards are expected to have an effect on the value relevance of accounting information and its relationship with conservatism before and after IFRS adoption.

The role of the institutional environment in the IFRS adoption and implementation process has been long recognised by prior studies (e.g. Fox *et al.*, 2013). Compared to code-law countries, common law countries enforce financial reporting standards in a more rigorous manner (Armstrong *et al.*, 2010), apply methods that create more conservatism (Lara and Mora, 2004; Watts, 2003b; Ball *et al.*, 2000), exhibit higher value relevance of financial reports (Ali and Hwang, 2000), and furnish higher shareholder protection resulting in timelier recognition of bad news in reported earnings (Bushman and Piotroski, 2006) and higher value relevance of earnings (Hung, 2000). Anandarajan *et al.* (2011) extend the above considerations and affirm that banks belonging to the common law group are more value relevant compared to the code-law group.

Legal enforcement is another parameter that may affect the successful implementation of banking regulations (Gaganis *et al.*, 2013) and of accounting standards. Previous studies (Florou and Pope, 2012; Byard *et al.*, 2011; Armstrong *et al.*, 2010; Li, 2010; Daske *et al.*, 2008) have highlighted the role of legal enforcement in benefiting countries from their transition to IFRS. Furthermore, discrepancy in recognition, measurement and disclosure practices influences the IFRS-related effect on quality (Bae *et al.*, 2008). Byard *et al.* (2011) and Florou and Pope (2012) manifest that benefits from IFRS adoption are magnified in countries displaying large differences between local GAAP and IFRS. Recently, Agostino *et al.* (2011) reveal that the value relevance of earnings increased for European banks, but this increase is less profound for the UK, consistent with the similarities existing between UK GAAP and IFRS.

3. Research design

3.1 Metrics of value relevance

To gauge value relevance we employ two measures. The first one is the adjusted R^2 of the Easton and Harris (1991) model:

$$Ret_{it} = \alpha_0 + \alpha_1 EPS_{it}/P_{it-1} + \alpha_2 \Delta EPS_{it}/P_{it-1} + \varepsilon_{it} \quad (1)$$

where Ret_{it} denotes the annually compounded stock return of firm i at year t as measured three months after fiscal year end, EPS_{it}/P_{it-1} is earnings per share scaled by

beginning of period price, and $\Delta EPS_{it}/P_{it-1}$ is change in earnings per share scaled by beginning of period price.

In order to configure P_{it-1}, we use the price of firm i three months after the end of fiscal year $t-1$. The return model suggests that both the current earnings level and the earnings changes level have explanatory power on returns and each variable contributes independently to the returns-earnings formula. The higher the explanatory power of the model, the greater the ability of earnings to explain the variation in returns. Therefore, the value relevance of earnings is measured by the adjusted R^2 of the model (Francis and Schipper, 1999).

One problem that needs to be addressed is the possible non-linearity between profit and loss entities, because the latter tend to demonstrate lower informativeness than the former (Collins *et al.*, 1999; Hayn, 1995). As Klein and Marquardt (2006) demonstrate, the number of loss firms has significantly increased over the last decades, which potentially has an effect on the model's goodness-of-fit. In order to control for this parameter we modify Equation (1) into the following model:

$$Ret_{it} = \alpha_0 + \alpha_1 EPS_{it}/P_{it-1} + \alpha_2 \Delta EPS_{it}/P_{it-1} + \alpha_3 DE_{it} + \alpha_4 DE^*_{it} EPS_{it}/P_{it-1} + \alpha_5 DE^*_{it} \Delta EPS_{it}/P_{it-1} + \varepsilon_{it} \quad (2)$$

where Ret_{it}, EPS_{it}/P_{it-1} and $\Delta EPS_{it}/P_{it-1}$ are as defined above and DE_{it} is a dummy variable taking the value 1 for firms reporting losses for year t and 0 otherwise[3].

The second measure of value relevance is based on the Ohlson (1995) model, according to which the market value is explained by the book value of equity and net income[4]:

$$MV_{it} = \alpha_0 + \alpha_1 NI_{it} + \alpha_2 BVE_{it} + \varepsilon_{it} \quad (3)$$

where MV_{it} is the market value of firm i three months after the end of fiscal year t, NI_{it} is the net income before extraordinary items of firm i for the year t, and BVE_{it} is the book value of firm's i equity for the year t. In order to circumvent problems associated with scale effects, all variables are scaled by the total assets of the year $t-1$.

Ohlson's (price) model states that the equity value consists of the book value and the present value of the future residual income. In other words, a market item is estimated through accounting items, as suggested by Easton and Harris (1991).

Once again, loss banks are expected to have different pricing multiples (Collins *et al.*, 1999) and, this should be accommodated. Therefore, Equation (3) is transformed as follows:

$$MV_{it} = \alpha_0 + \alpha_1 NI_{it} + \alpha_2 BVE_{it} + \alpha_3 DE_{it} + \alpha_4 DE^*_{it} NI_{it} + \alpha_5 DE^*_{it} BVE_{it} + \varepsilon_{it} \quad (4)$$

where DE_{it} is a dummy variable which is equal to 1 for firms reporting losses for year t and 0 otherwise. The rest of the variables are as described before.

Differences before and after IFRS adoption are calculated for each of the two value relevance metrics. The significance of these differences is captured by the Cramer (1987) test, which is estimated using a bootstrapping procedure of 1,000 repetitions with replacement from the original data for each subsample[5]. The Cramer test is appropriate when comparing value relevance across different samples as documented by prior studies (e.g. Arce and Mora, 2002; Ball *et al.*, 2000; Joos and Lang, 1994). Finally, all models include country and year effects following the Hausman (1978) specification test[6].

3.2 Sample partitioning

The full sample of firms is partitioned based on a number of parameters in order to examine their effect on value relevance. These parameters attempt to detect patterns of value relevance across a number of corporate and institutional features and simultaneously control for heterogeneity[7]. More specifically, our analysis covers the whole 14-year period (1998-2011) and the two equally divided periods (pre- and post-IFRS) taking into account the level of each firm's conservatism, the accounting system under which each entity operates, the national level of legal enforcement, and the level of differentiation between IFRS and national standards.

3.2.1 Level of conservatism. We include conservatism in our analysis in order to delineate its degree of dependence with value relevance. Sample partition according to the level of conservatism allows us to investigate whether higher conservatism is associated with lower value relevance and vice versa. Following Khan and Watts (2009), we estimate conservatism as follows:

$$EPS_{it}/P_{it-1} = \beta_1 + \beta_2 DR_i + \left(\mu_1 + \mu_2 Size_i + \mu_3 M/B_i + \mu_4 Lev_i\right) Ret_{it} + \left(\lambda_1 + \lambda_2 Size_i + \lambda_3 M/B_i + \lambda_4 Lev_i\right) DR_i^* Ret_i + \left(\delta_1 Size_i + \delta_2 M/B_i + \delta_3 Lev_i + \delta_4 DR_i^* Size_i + \delta_5 DR_i^* M/B_i + \delta_6 DR_i^* Lev_i\right) + e_i \quad (5)$$

where EPS_{it}/P_{it-1} is earnings per share before extraordinary items deflated by the price taken three months after the end of fiscal year $t-1$, Ret_{it} is market return measured three months after fiscal year end, DR_{it} is a dummy variable that equals 1 if the market return of firm i for year t is negative and 0 otherwise, $Size_i$ is the natural logarithm of the market value of equity, M/B_i is the market to book ratio, and Lev_i is debt to market value of equity.

The model not only estimates conservatism as a linear function of the incremental timeliness of bad news, but also accommodates firm-specific characteristics that vary through time. According to Khan and Watts (2009), the incremental timeliness of bad news is illustrated with C_Score:

$$\text{C\_Score} = \beta_4 = \lambda_1 + \lambda_2 Size_i + \lambda_3 M/B_i + \lambda_4 Lev_i \quad (6)$$

Regressions on model (5) provide the same λ_i coefficients for each year. However, the C_Score manages to capture the level of each firm's conservatism according to its particular characteristics. We estimate C_Scores for each bank and for each year and dichotomise our sample according to the calculated values into two subsamples of conservative and non-conservative banks. We then test for differences in adjusted R^2 for the two groups based on Cramer's (1987) z-statistic.

3.2.2 Institutional characteristics. Next, we split the whole sample into three subsamples based on a gamut of institutional characteristics. These are based on the legal origin of the country, its ability to enforce IFRS and the level of divergence between local standards and IFRS. The first partition is based on La Porta *et al.* (1998) and includes the following categories (see Table I): French (civil law), German (civil law), Scandinavian (civil law) and English (common law) origin. Despite belonging to the same general legal family, the three first systems have distinct institutional characteristics. For instance, the Scandinavian and German origins provide higher

Country	Legal origin (1)	Judicial system	Rule of law	Corruption	Expropriation	Contract repudiation	Enforcement (2)	IFRS diff (3)	No. sample banks (4)
Austria	German	9.5	10	8.57	9.69	9.6	47.36	12	5 (66)
Belgium	French	9.5	10	8.82	9.63	9.48	47.43	13	3 (42)
Denmark	Scandinavian	10	10	10	9.67	9.31	48.98	11	39 (513)
Finland	Scandinavian	10	10	10	9.67	9.15	48.82	15	2 (28)
France	French	8	8.98	9.05	9.65	9.19	44.87	12	25 (303)
Germany	German	9	9.23	8.93	9.9	9.77	46.83	11	10 (112)
Greece	French	7	6.18	7.27	7.12	6.62	34.19	17	11 (145)
Ireland	English	8.75	7.8	8.52	9.67	8.96	43.7	1	3 (32)
Italy	French	6.75	8.33	6.13	9.35	9.17	39.73	12	31 (351)
The Netherlands	French	10	10	10	9.98	9.35	49.33	0	2 (22)
Norway	Scandinavian	10	10	10	9.88	9.71	49.59	7	15 (202)
Portugal	French	5.5	8.68	7.38	8.9	8.57	39.03	13	5 (67)
Spain	French	6.25	7.8	7.38	9.52	8.4	39.35	16	14 (171)
Sweden	Scandinavian	10	10	10	9.4	9.58	48.98	10	4 (56)
UK	English	10	8.57	9.1	9.71	9.63	47.01	1	9 (113)

Notes: (1) The origin of the legal system as reported in La Porta *et al.* (1998), Djankov *et al.* (2008), Leuz (2010) etc. (2) The enforcement variables in La Porta *et al.* (1998) study are the efficiency of the judicial system, the rule of law, the level of corruption, the risk of expropriation and the risk of contract repudiation. The column enforcement summarises the total score of these five variables. (3) The level of divergence between local standards and IFRS as reported in Bae *et al.* (2008). They created an index ranging from 0 (minimal accounting differences) up to 21 (major accounting differences). (4) The number of banks originating from each country with the corresponding firm-year observations in parentheses, resulting in a total of 178 banks with 2,223 bank-year observations

Table I.
Institutional characteristics of European countries (as reported in previous research) and sample composition

quality of law enforcement and higher protection to creditors and investors compared to the French origin.

Another categorisation lies on the level of enforcement based on La Porta *et al.* (1998) who make use of the following enforcement variables: the efficiency of the judicial system; the rule of law; the level of corruption; the risk of expropriation; and the risk of contract repudiation. Table I (column enforcement) displays the total score of these five variables that is used in order to split the sample into three sub-categories of low (Greece, Portugal, Spain, Italy, Ireland), medium (France, Germany, UK, Austria, Belgium) and high (Finland, Sweden, Denmark, the Netherlands, Norway) enforcement quality countries.

To form the level of divergence between local standards and IFRS, we follow Bae *et al.* (2008) and use their index ranging from 0 (minimal accounting differences) up to 21 (major accounting differences). The three formed categories comprise the low (the Netherlands, Ireland, UK, Norway, Sweden), medium (Germany, Denmark, Italy, France, Austria) and high (Portugal, Belgium, Finland, Spain, Greece) level of differentiation between the national standards and IFRS.

For consistency reasons, we test whether and which institutional features affect the value relevance level before and after the IFRS mandatory implementation for both conservative and non-conservative banks.

4. Data selection and descriptive statistics

4.1 Sample selection

Our initial sample included all financial companies listed in any of the EU-15 stock markets. The ignorance of Luxembourg from La Porta *et al.* (1998) and Bae *et al.* (2008) studies was the reason for excluding this country[8] from our sample. However, we included Norway due to its active membership in the European Economic Area[9]. To form the sample we required all sample firms to have a primary two-digit SIC code of 60. This resulted in an initial sample of 464 banks (both active and inactive). The examination period spans from 1998 to 2011, seven years before (1998-2004) and seven years after the mandatory IFRS adoption (2005-2011). All data were culled from Thomson ONE Banker.

We excluded banks with no full data for at least three years before and three years after the mandatory IFRS adoption date, thus leaving out 267 entities. Seven banks were removed because their year end was different from the 31 December. In total, 12 banks were either early[10] or late adopters. The final unbalanced sample (178 banks with 2,223 firm-year observations) comprises only these banks that mandatorily adopted IFRS in 2005. To detect banks' actual IFRS adoption year, we used Worldscope's "Accounting Standards Followed". To minimise errors[11] we screened all banks' annual reports between 2004 and 2006 in order to eliminate potential classification errors.

The last column in Table I provides the sample distribution by country. In total, 39 banks originate from Denmark and 31 from Italy, while Finland contains the lowest number of banks (2). To minimise the effects of outliers on our results, we winsorized all variables at the 2.5 percent level.

4.2 Descriptive statistics

Table II provides descriptive statistics for the whole sample (Panel A), for each sub-period (Panel B) and for each conservatism portfolio (Panel C). The mean of returns (Ret) is negative and equal to −0.013, while the market to book value ratio

Panel A[a]	Total sample		
Variables	Mean	Median	SD
EPS/P	0.068***	0.077	0.129
ΔEPS/P	−0.005*	0.004	0.115
Ret	−0.013***	0.013	0.179
Size	13.906***	13.610	1.926
M/B	1.418***	1.246	0.864
Lev	7.015***	4.298	8.853
MV	0.112***	0.088	0.087
BV	0.082***	0.070	0.045
NI	0.008***	0.007	0.009
C_Score	−0.857***	0.029	4.176

Panel B[b]	Pre-IFRS period			Post-IFRS period			
Variables	Mean	Median	SD	Mean	Median	SD	Before – after IFRS *t*-test
EPS/P	0.090	0.083	0.062	0.045	0.073	0.171	8.27***
ΔEPS/P	0.008	0.006	0.047	−0.018	0.001	0.157	5.33***
Ret	0.028	0.032	0.121	−0.058	−0.023	0.217	11.74***
Size	13.724	13.395	1.908	14.103	13.829	1.927	−4.72***
M/B	1.574	1.359	0.906	1.248	1.115	0.782	9.12***
Lev	4.951	3.353	5.012	9.262	5.541	11.258	−11.89***
MV	0.122	0.101	0.080	0.101	0.071	0.094	5.70***
BV	0.085	0.072	0.045	0.080	0.069	0.045	2.58***
NI	0.009	0.008	0.006	0.006	0.006	0.010	9.66***
C_Score	0.163	0.035	1.358	−1.948	−0.005	5.641	12.28***

Panel C[b]	Non-conservative banks			Conservative banks			
Variables	Mean	Median	SD	Mean	Median	SD	NCON – CON *t*-test
EPS/P	0.068	0.080	0.150	0.068	0.073	0.103	0.12
ΔEPS/P	−0.010	0.004	0.139	0.001	0.005	0.081	−2.28**
Ret	−0.024	0.011	0.188	−0.002	0.016	0.168	−2.90***
Size	14.368	14.100	1.961	13.402	13.317	1.754	12.32***
M/B	1.324	1.130	0.922	1.521	1.390	0.783	−5.44***
Lev	8.413	5.338	10.096	5.488	3.384	6.945	7.96***
MV	0.100	0.078	0.081	0.124	0.100	0.092	−6.40***
BV	0.081	0.069	0.044	0.084	0.071	0.047	−1.32*
NI	0.007	0.007	0.008	0.008	0.007	0.009	−1.93**
C_Score	−1.427	0.006	5.066	−0.229	0.040	2.763	−6.81***

Notes: EPS/P is earnings before extraordinary items per share scaled by beginning of period price taken three months after fiscal year end; ΔEPS/P is annual change in earnings before extraordinary items per share scaled by beginning of period price taken three months after fiscal year end; Ret is annually compounded stock return beginning nine months before and ending three months after fiscal year end; Size is the natural logarithm of the fiscal year end market capitalisation; M/B is the fiscal year end market to book ratio; Lev is the ratio of fiscal year end total debt scaled by market value of equity; MV is market capitalisation three months after fiscal year end scaled by total assets; BV is fiscal year end book value of equity scaled by total assets; NI is fiscal year end income before extraordinary items scaled by total assets; and C_Score is the incremental timeliness of bad news as measured by the model of Khan and Watts (2009). Panel A refers to the whole sample. Panel B (Panel C) illustrates descriptive between the pre- and post-IFRS period (between conservative and non-conservative banks). [a]*,**,***One sample *t*-test differences from zero at the 0.10, 0.05, 0.01 levels, respectively. [b]*,**,***Two sample *t*-test differences at the 0.10, 0.05, 0.01 levels, respectively

Table II.
Descriptive statistics

(M/B) is 1.418. C_Score is −0.857 denoting a lack of conservatism. Most of the reported variables have been worsened in the post-IFRS period *vis-à-vis* the pre-IFRS period. In specific, market value to total assets (MV), book value to total assets (BV), earnings to price (EPS/P), change in earnings to price (ΔEPS/P) and returns are lower, while the

leverage ratio (Lev) is higher. This deterioration can be attributed either to the IFRS adoption or to the 2008 financial crisis that adversely affected the financial sector. Early evidence on IFRS mandatory implementation shows that during the period 2005-2007 accounting figures have been enhanced compared to the pre-IFRS period, implying that the global financial crisis might be responsible for the weak performance of banks in the post-IFRS period. Standard deviations are generally increased in the post-IFRS period indicating higher volatility. Higher volatility of earnings and change in earnings can be associated with lower income smoothing and management discretion, in accordance with the IASB's perspective. On the other hand, increased price volatility and price changes can be attributed either to a greater level of information impounded into stock prices, or to a larger market information asymmetry. Swings in the sign of C_Score from period to period suggest lower levels of conservatism in the post-IFRS era[12].

In line with previous studies, high-conservatism banks exhibit higher market to book ratio in relation to the low-conservatism subsample. Contrary to prior evidence (Khan and Watts, 2009), the leverage ratio is higher for the low-conservatism group of banks. One possible explanation is that banking sector has a disproportionately higher leverage ratio compared to other sectors due to their excessive borrowing and lending. Moreover, because of the raw calculation of the leverage ratio, it is not easy to differentiate between banks that hold high-quality portfolios from those that do not. Therefore, agency conflicts with lenders and shareholders can arise for both high- and low-conservatism banks depending on their portfolio quality. We also observe that low-conservatism banks' figures display higher volatility, except for those that are scaled by total assets. This is consistent with the previous literature suggesting that conservatism is associated with lower returns volatility and information asymmetry.

Table III presents the Pearson correlation matrix for the main variables used in the two value relevance models and the Khan and Watts (2009) model. None of the correlations are excessively high. Not surprisingly, NI and EPS/P have a strong

	EPS/P	ΔEPS/P	Ret	Size	M/B	Lev	MV	BV
ΔEPS/P	0.440							
Ret	0.390	0.268						
Size	−0.116	0.036	0.033					
M/B	−0.336	0.026	0.100	0.347				
Lev	0.062	−0.082	−0.162	0.021	−0.400			
MV	−0.061	0.080	0.219	−0.024	0.533	−0.655		
BV	0.268	0.076	0.105	−0.347	−0.231	−0.432	0.581	
NI	0.518	0.323	0.276	−0.040	0.097	−0.449	0.595	0.625

Notes: The table presents Pearson pairwise correlations for the variables used in the two value relevance models and the variables used to calculate C_Scores. Each figure represents the average of annual cross-sectional correlations spanning between 1998 and 2011. EPS/P is earnings before extraordinary items per share scaled by beginning of period price taken three months after fiscal year end; ΔEPS/P is annual change in earnings before extraordinary items per share scaled by beginning of period price taken three months after fiscal year end; Ret is annually compounded stock return beginning nine months before and ending three months after fiscal year end; Size is the natural logarithm of the fiscal year end market capitalisation; M/B is the fiscal year end market to book ratio; Lev is the ratio of fiscal year end total debt scaled by market value of equity; MV is market capitalisation three months after fiscal year end scaled by total assets; BV is fiscal year end book value of equity scaled by total assets, and NI is fiscal year end income before extraordinary items scaled by total assets

Table III.
Pearson correlation matrix

positive correlation (0.518). Similarly MV and M/B have a positive correlation (0.533), suggesting that higher bank capitalisation is accompanied by higher growth. The strongest correlations exist among the variables used in the Price model (MV, BV and NI). Although these correlations are not extremely high, we check for multicollinearity by computing the variance inflation factor (VIF). In our main regressions the highest VIF is 3.78, which is well below the threshold of 10[13].

5. Empirical results

5.1 Preliminary results surrounding the IFRS period

Table IV presents value relevance metrics as measured by the adjusted R^2 for the return and the price model (Equations (2) and (4)). Each column depicts a different pair of subsample comparisons. In this way, we test for differences in value relevance before and after IFRS adoption for the whole sample (Column 1) and for each conservatism portfolio (Columns 2-3); and between conservative and non-conservative banks for the whole period (Column 4) and for each sub-period (Columns 5-6).

The empirical findings from both models suggest that the value relevance of accounting information increased significantly in the post-IFRS era. Similar increase in value relevance is observed when considering conservative and non-conservative banks separately. One potential explanation is that the introduction of fair value measurement had a positive effect on banks' accounting figures. However, whether fair valuation is indeed responsible for the increase in value relevance is beyond the scope of this study. Moreover, the results from the price model show that there is a statistically significant difference ($p < 0.01$) in value relevance between conservative and non-conservative banks in the pre-IFRS era (Column 5), however, this lag is not so evident in the post-IFRS period (Column 6). Overall, value relevance has increased post-IFRS regardless of the conservatism level.

Pre-/post-IFRS	Pre-/post-IFRS NCON	Pre-/post-IFRS CON	NCON/CON	NCON/CON pre-IFRS	NCON/CON post-IFRS
Return model					
0.096	0.118	0.159	0.275	0.118	0.282
0.267	0.282	0.242	0.217	0.159	0.242
*0.171***	*0.164***	*0.083*	*−0.058*	*0.041*	*−0.040*
Price model					
0.752	0.797	0.707	0.723	0.797	0.856
0.837	0.856	0.831	0.717	0.707	0.831
*0.085****	*0.059***	*0.124****	*−0.006*	*−0.090****	*−0.025*

Notes: Value relevance metrics (adjusted R^2) are depicted for both the Return (Equation (2)) and the Price (Equation (4)) model. Each column refers to two compared subsamples as follows. Column 1: comparison between the pre and the post-IFRS adoption period. Column 2 (and 3): comparison between the pre and the post-IFRS adoption period for conservative (and non-conservative) banks, respectively. Column 4: comparison between conservative and non-conservative banks for the whole period. Column 5 (and 6): comparison between conservative and non-conservative banks for the pre- (and the post-IFRS) period, respectively. To test for differences in adjusted R^2, we use the Cramer (1987) test. Each model is estimated 1,000 times based on a bootstrap analysis. The adjusted R^2 variances estimated from this procedure are used in the Cramer formula. **,***Difference is significant at the 0.05 and 0.01 levels, respectively

Table IV. Comparisons between pre-IFRS and post-IFRS period, and between low and high-conservatism banks

5.2 Legal origin

Table V provides results for the value relevance based on French, German, Scandinavian and English legal regimes. As expected, value relevance increased since 2005 and onwards, though the four accounting systems do not display a homogeneous pattern. The French, Scandinavian and English-origin banks seem to have benefited from the mandatory implementation of IFRS[14]. On the contrary, German banks seem

	Pre-/post-IFRS	Pre-/post-IFRS NCON	Pre-/post-IFRS CON	NCON/CON	NCON/CON pre-IFRS	NCON/CON post-IFRS
Panel A: French origin						
Return model	0.110	0.137	0.136	0.303	0.137	0.392
	0.272	0.392	0.205	0.203	0.136	0.205
	*0.162***	*0.255****	*0.069*	*−0.100**	*−0.001*	*−0.187***
Price model	0.740	0.763	0.698	0.710	0.763	0.807
	0.742	0.807	0.705	0.600	0.698	0.705
	0.002	*0.044*	*0.007*	*−0.110****	*−0.065*	*−0.102***
Panel B: German origin						
Return model	0.312	0.384	0.298	0.282	0.384	0.366
	0.279	0.366	0.409	0.347	0.298	0.409
	−0.033	*−0.018*	*0.111*	*0.065*	*−0.086*	*0.043*
Price model	0.866	0.884	0.882	0.682	0.884	0.846
	0.900	0.846	0.913	0.845	0.882	0.913
	0.034	*−0.038*	*0.031*	*0.163**	*−0.002*	*0.067*
Panel C: Scandinavian origin						
Return model	0.196	0.202	0.359	0.358	0.202	0.325
	0.358	0.325	0.399	0.304	0.359	0.399
	*0.162***	*0.123*	*0.040*	*−0.054*	*0.157**	*0.074*
Price model	0.760	0.779	0.735	0.721	0.779	0.890
	0.891	0.890	0.885	0.772	0.735	0.885
	*0.131****	*0.111****	*0.150****	*0.051***	*−0.044*	*−0.005*
Panel D: English origin						
Return model	0.126	0.238	0.218	0.219	0.238	0.162
	0.308	0.162	0.370	0.181	0.218	0.370
	0.182	*−0.076*	*0.152**	*−0.038*	*−0.020*	*0.208*
Price model	0.686	0.878	0.441	0.747	0.878	0.808
	0.831	0.808	0.754	0.713	0.441	0.754
	*0.145***	*−0.070*	*0.313***	*−0.034*	*−0.437***	*−0.054*

Notes: Value relevance metrics (adjusted R^2) are depicted for both the Return (Equation (2)) and the Price (Equation (4)) model. Each column refers to two compared subsamples as follows. Column 1: comparison between the pre and the post-IFRS adoption period. Column 2 (and 3): comparison between the pre and the post-IFRS adoption period for conservative (and non-conservative) banks, respectively. Column 4: comparison between conservative and non-conservative banks for the whole period. Column 5 (and 6): comparison between conservative and non-conservative banks for the pre- (and the post-IFRS) period, respectively; French-origin banks (Panel A) are from Belgium, France, Greece, Italy, the Netherlands, Portugal and Spain; German-origin banks (Panel B) are from Austria and Germany; Scandinavian-origin banks (Panel C) are from Denmark, Finland, Norway and Sweden; English-origin banks (Panel D) are from Ireland and the UK. To test for differences in R^2, we use the Cramer (1987) test. Each model is estimated 1,000 times based on a bootstrap analysis. The adjusted R^2 variances estimated from this procedure are used in the Cramer formula. *,**,***Difference is significant at the 0.10, 0.05 and 0.01 levels, respectively

Table V.
Value relevance comparisons based on legal origin

unaffected by this transition at all levels. A possible explanation lies on Christensen *et al.* (2015), who find that mandatory IFRS adopters in Germany do not demonstrate higher value relevance following IFRS adoption, in stark contrast to voluntary adopters from the same country who document significant improvement in the value relevance of earnings in the post-IFRS period. Indeed, Germany and Austria are among the few countries that encouraged early IFRS adoption (Hung and Subramanyam, 2007) and, as a result, a large number of companies, including banks, had already voluntarily adopted the new standards before 2005 (Gebhardt and Novotny-Farkas, 2011). Our study examines only mandatory adopters; therefore, much of the beneficial impact of IFRS inherent in voluntary adopters might have been mitigated, thus weakening the impact of IFRS adoption on the value relevance of the German-origin countries.

Turning our attention to conservative vs non-conservative banks, we find sporadic statistical significance in value relevance depending on the accounting system. For instance, French-origin non-conservative banks have significantly increased their value relevance (at the 1 percent level according to the returns model). As it turns out, the level of conservatism before IFRS had no impact on the value relevance (trivial differences in Column 5). Nonetheless, in the post-IFRS period value relevance is significantly higher for low-conservatism firms (Column 6). This result alters for the Scandinavian origin, where conservative and non-conservative banks' value relevance levels converge after IFRS adoption, and for the English origin, where higher conservatism banks appear to be more value relevant according to the return model (though not statistically significant). This result is in line with Ball and Shivakumar (2005) who report a positive association between the level at which UK firms timely recognise losses and the value relevance of accounting information. In sum, we can assert that the validation of the relationship between conservatism and value relevance is dependent on the legal environment.

5.3 Legal enforcement

Table VI highlights the role of legal enforcement by forming three portfolios (high, medium and low enforcement) with five countries in each portfolio based on their relevant score in Table I. Consistent with the extant literature, high-enforcement countries exhibit a statistically significant and positive change in value relevance, whereas medium- and low-enforcement countries experience small and insignificant increases (or decreases in the case of low-enforcement price model). Both conservative and non-conservative banks that operate in high-enforcement environments enjoy a significant increase in their value relevance. The significant difference between them during the pre-IFRS period is severely mitigated later on, suggesting that combining IFRS with high enforcement positively affects banks' value relevance no matter their conservatism status.

On the other hand, low-enforcement countries seem to negate the positive impact that IFRS might have had on the relationship between market prices and accounting information. Although the returns model reveals a positive change, this is not statistically significant. The same results also hold for the medium-enforcement portfolio. The only statistical significance (at the 10 percent level) is observed when comparing the two conservatism groups in the whole period and to a greater extent in the post-IFRS period.

5.4 Divergence between IFRS and local standards

Table VII presents the results from the level of differentiation between IFRS and national accounting standards (low-, medium- and high-IFRS differences) based on Bae *et al.* (2008) index. In contrast to prior studies, the medium-differences group appears to benefit mostly from the transition to IFRS, where the returns (price) model experiences

	Pre-/post-IFRS	Pre-/post-IFRS NCON	Pre-/post-IFRS CON	NCON/CON	NCON/CON pre-IFRS	NCON/CON post-IFRS
Panel A: low enforcement						
Return model	0.128	0.206	0.107	0.248	0.206	0.296
	0.207	0.296	0.193	0.210	0.107	0.193
	0.079	*0.090*	*0.086*	*−0.038*	*−0.099*	*−0.103*
Price model	0.684	0.721	0.659	0.628	0.721	0.714
	0.675	0.714	0.655	0.615	0.659	0.655
	−0.009	*−0.007*	*−0.004*	*−0.013*	*−0.062*	*−0.059*
Panel B: medium enforcement						
Return model	0.199	0.332	0.230	0.292	0.332	0.353
	0.295	0.353	0.138	0.150	0.230	0.138
	0.096	*0.021*	*−0.092*	*−0.142**	*−0.102*	*−0.215**
Price model	0.769	0.784	0.754	0.614	0.784	0.834
	0.805	0.834	0.800	0.651	0.754	0.800
	0.036	*0.050*	*0.046*	*0.037*	*−0.030*	*−0.034*
Panel C: high enforcement						
Return model	0.197	0.203	0.356	0.356	0.203	0.326
	0.357	0.326	0.399	0.301	0.356	0.399
	*0.160***	*0.123*	*0.043*	*−0.055*	*0.153**	*0.073*
Price model	0.769	0.789	0.761	0.731	0.789	0.899
	0.900	0.898	0.894	0.782	0.761	0.894
	*0.131****	*0.109****	*0.133****	*0.051***	*−0.028*	*−0.005*

Notes: Value relevance metrics (adjusted R^2) are depicted for both the Return (Equation (2)) and the Price (Equation (4)) model. Each column refers to two compared subsamples as follows. Column 1: comparison between the pre and the post-IFRS adoption period. Column 2 (and 3): comparison between the pre- and the post-IFRS adoption period for conservative (and non-conservative) banks, respectively. Column 4: comparison between conservative and non-conservative banks for the whole period. Column 5 (and 6): comparison between conservative and non-conservative banks for the pre- (and the post-IFRS) period, respectively; Low-enforcement banks (Panel A) are from Greece, Ireland, Italy, Portugal and Spain; Medium-enforcement banks (Panel B) are from Austria, Belgium, France, Germany and the UK; High-enforcement banks (Panel C) are from Denmark, Finland, the Netherlands, Norway and Sweden. To test for differences in R^2, we use the Cramer (1987) test. Each model is estimated 1,000 times based on a bootstrap analysis. The adjusted R^2 variances estimated from this procedure are used in the Cramer formula. *,**,***Difference is significant at the 0.10, 0.05 and 0.01 levels, respectively

Table VI.
Value relevance comparisons based on level of legal enforcement

an upward change of 17.7 percent (11.4 percent), statistically significant at the 1 percent level. The low-differences banks also experience a positive change, however, non-significant. Conversely, high-differences banks do not show a similar positive trend, but instead they undergo a significant drop in their value relevance (at the 1 percent level for the price model). A possible explanation may lie in IAS 39 and its increased requirements imposed on European banks; compared to other European banks, banks located in high-differences countries are notably less familiar with the concept of fair values and other issues introduced by IAS 39, which could potentially have a negative impact on the relevance of their accounting numbers.

When splitting each subsample based on the conservatism level, we see similar value relevance shifts as previously with the exception of the low-differences non-conservative firms, which exhibit low and insignificant adjusted R^2 differences. Another interesting pattern is depicted in Column 3 (pre-/post-IFRS CON). It appears that the lower the differences between IFRS and local standards, the more value relevant conservative

	Pre/Post-IFRS	Pre/Post-IFRS NCON	Pre/Post-IFRS CON	NCON/CON	NCON/CON Pre-IFRS	NCON/CON Post-IFRS
Panel A: high IFRS differences						
Return model	0.244	0.199	0.264	0.429	0.199	0.238
	0.302	0.238	0.200	0.228	0.264	0.200
	0.058	*0.039*	*−0.064*	*−0.201***	*0.065*	*−0.038*
Price model	0.747	0.828	0.671	0.766	0.828	0.688
	0.631	0.688	0.558	0.604	0.671	0.558
	*−0.116****	*−0.140****	*−0.113**	*−0.162****	*−0.157****	*−0.130**
Panel B: medium IFRS differences						
Return model	0.139	0.179	0.182	0.264	0.179	0.257
	0.316	0.257	0.388	0.280	0.182	0.388
	*0.177****	*0.078*	*0.206***	*0.016*	*0.003*	*0.131**
Price model	0.763	0.777	0.749	0.718	0.777	0.887
	0.877	0.887	0.877	0.703	0.749	0.877
	*0.114****	*0.110****	*0.128****	*−0.015*	*−0.028*	*−0.010*
Panel C: low IFRS differences						
Return model	0.167	0.167	0.079	0.171	0.167	0.154
	0.233	0.154	0.407	0.240	0.079	0.407
	0.066	*−0.013*	*0.328***	*0.069*	*−0.088*	*0.253**
Price model	0.792	0.892	0.678	0.682	0.892	0.791
	0.839	0.791	0.867	0.815	0.678	0.867
	0.047	*−0.101*	*0.189****	*0.133***	*−0.214****	*0.076***

Notes: Value relevance metrics (adjusted R^2) are depicted for both the Return (Equation (2)) and the Price (Equation (4)) model. Each column refers to two compared subsamples as follows. Column 1: comparison between the pre and the post-IFRS adoption period. Column 2 (and 3): comparison between the pre- and the post-IFRS adoption period for conservative (and non-conservative) banks, respectively. Column 4: comparison between conservative and non-conservative banks for the whole period. Column 5 (and 6): comparison between conservative and non-conservative banks for the pre- (and the post-IFRS) period, respectively; High IFRS differences banks (Panel A) are from Belgium, Finland, Greece, Portugal and Spain; Medium IFRS differences banks (Panel B) are from Austria, Denmark, France, Germany and Italy; Low IFRS differences banks (Panel C) are from Ireland, the Netherlands, Norway, Sweden and the UK. To test for differences in R^2, we use the Cramer (1987) test. Each model is estimated 1,000 times based on a bootstrap analysis. The adjusted R^2 variances estimated from this procedure are used in the Cramer formula. *,**,***Difference is significant at the 0.10, 0.05 and 0.01 levels, respectively

Table VII. Value relevance comparisons based on level of divergence between local accounting standards and IFRS

banks are. This finding corroborates previous studies conducted in low IFRS divergence countries (e.g. the USA) which suggest that there is a positive correlation between timely loss recognition and value relevance. Finally, we observe that in the post-adoption period non-conservative (conservative) firms present higher levels of value relevance in high-differences (low differences) countries. This finding implies that in regimes where local standards do not differ substantially from IFRS, investors consider highly conservative bank earnings to be more value relevant following IFRS implementation. Indeed, studies in the USA and the UK (whose GAAP are in close vicinity with IFRS) document a positive relationship between value relevance and conservatism (Ball and Shivakumar, 2005; Watts, 2003b). Apparently, mandatory IFRS adoption improved this relationship. On the other hand, demand for conservatism is less in regimes that do not share similarities with IFRS, possibly because pre-IFRS politicisation of accounting standard setting favours less conservatism (Ball *et al.*, 2000), and this demand is attenuated after

adopting IFRS. Complementary to our results, prior literature suggests that conservatism is not necessarily the best option for all firms operating in any of the institutional regimes (Mora and Walker, 2015).

6. Additional analyses

6.1 Variable coefficients

To provide more insight on which variables affect differences in value relevance, Table VIII presents the coefficients of the variables used in both the returns and the price models. To save space, we do not tabulate the results of the loss dummy variable (DE) and its interactions with the rest of independent variables. Likewise, we only tabulate coefficients for the whole sample and for the two extreme partitions of each institutional setting category. Using the Hausman (1978) test, we control for fixed effects in our panel regression analysis. We then cluster all observations by firm to control for errors that are correlated within each bank over time. In this way, we get standard errors that are robust to heteroskedasticity and intra-firm correlation.

For the total sample, all four variables have increased in the post-IFRS period, contributing (apart from the change in earnings) to the increase in value relevance reported in Table IV. This pattern remains unaltered, in general, even when splitting the sample into two conservatism subsamples. In the French origin the explanatory power of EPS/P and NI, representing the earnings variables, increases (decreases) for the non-conservative (conservative) group after IFRS adoption. For the English origin we observe the opposite trend. Taking into account these findings along with those from Section 5.2., we argue that the significant upward shift of value relevance for non-conservative French-origin firms and for conservative English-origin firms is mainly due to the earnings variable. Apparently, conservatism can affect earnings' behaviour in each value relevance model depending on the legal environment.

Moreover, all variables are statistically significant for the high-enforcement group with the exception of changes in earnings, which appears significant only before IFRS implementation for the low-enforcement banks. The rest of variables increase much more for the high-enforcement banks than for the low-enforcement partition. Thus, the reported increases in value relevance (Section 5.3) are influenced by all of these variables. Moving to the last category, we observe minimal differences before and after IFRS for the high-differences portfolio, which partly explains the reduced value relevance documented in Section 5.4. In sum, the earnings variables' power diminishes after IFRS adoption for this group. For the low-differences group the earnings variables show positive change and the book value becomes positive and statistically significant.

6.2 Other robustness tests

All share prices and returns in our analyses have been measured as of three months after the end of the fiscal year (i.e. the 31 March of each year). As a robustness test, we measure the same variables at different points in time, namely, four (Core *et al.*, 2003) and six months (Karampinis and Hevas, 2011; Harris *et al.*, 1994; Joos and Lang, 1994) after fiscal year end. Our results remain qualitatively similar as the main trends in value relevance are unaltered throughout our analysis.

Furthermore, Equation (4) uses variables that are deflated by total assets. However, the relevant literature has documented other scaling factors as well, such as the number of shares (e.g. Hail, 2013). We, therefore, repeat our analysis for the price model using the number of outstanding shares as a scaling factor. Our main findings remain unaltered.

	Independent variables	Pre-IFRS (1)	Post-IFRS (2)	NCON pre-IFRS (3)	NCON post-IFRS (4)	CON pre-IFRS (5)	CON post-IFRS (6)
Panel A: total sample							
Return model	EPS/P	0.99***	1.90***	0.45***	2.03***	1.66***	1.65***
	ΔEPS/P	0.25**	0.52	0.41***	0.42***	0.12	0.67***
Price model	BV	0.42***	1.07***	0.17	0.57***	0.79***	1.72***
	NI	6.25***	9.36***	5.40***	10.65***	6.54***	7.73***
Panel B: French origin							
Return model	EPS/P	1.90***	1.66***	1.78***	2.01***	2.06***	0.56***
	ΔEPS/P	0.19	0.56***	−0.24	0.35**	0.56*	1.01***
Price model	BV	0.70***	0.67***	0.46**	0.42***	0.52*	1.12***
	NI	7.27***	10.84***	7.75***	12.38***	8.76***	8.20***
Panel C: English origin							
Return model	EPS/P	2.92***	−0.36	−0.39*	0.86***	0.59**	−0.95
	ΔEPS/P	−2.52**	8.30***	4.67***	7.63***	−1.84**	9.17***
Price model	BV	0.58	0.36	2.04***	0.45***	0.23	1.21***
	NI	6.42**	8.10***	1.29	8.80***	9.96***	5.57***
Panel D: low enforcement							
Return model	EPS/P	2.40***	2.27***	2.65***	1.74***	1.78***	1.10**
	ΔEPS/P	0.22	0.94***	−0.22	0.60*	0.73	1.40***
Price model	BV	0.66***	0.97***	0.54**	0.49***	0.69***	1.62***
	NI	8.06***	10.37***	7.27***	12.70***	8.72***	7.49***
Panel E: high enforcement							
Return model	EPS/P	0.40***	2.43***	0.14	2.45***	1.85***	2.21***
	ΔEPS/P	0.52***	0.33	0.58***	0.38	-0.26*	0.26
Price model	BV	−0.20*	1.68***	−0.30**	0.62***	0.69**	1.87***
	NI	6.37***	8.08***	5.60***	10.30***	6.63***	8.13***
Panel F: high differences							
Return model	EPS/P	2.68***	2.53***	2.15***	1.32***	2.28***	1.31**
	ΔEPS/P	0.16	0.37*	−0.55**	0.31**	1.80***	1.31**
Price model	BV	0.11	0.47	-0.09	0.06	0.11	1.05**
	NI	12.28***	12.76***	12.64***	13.61***	12.94***	8.61***
Panel G: low differences							
Return model	EPS/P	0.23***	2.12***	0.14*	0.76***	1.99*	1.86***
	ΔEPS/P	0.47***	0.35	0.48***	0.82**	−0.30	0.36
Price model	BV	0.05	0.46***	0.10	0.30***	0.42*	0.75***
	NI	4.33***	7.93***	1.34**	9.06***	6.87***	6.48***

Notes: EPS/P is earnings before extraordinary items per share scaled by beginning of period price taken three months after fiscal year end; ΔEPS/P is annual change in earnings before extraordinary items per share scaled by beginning of period price taken three months after fiscal year end; BV is fiscal year end book value of equity scaled by total assets; NI is fiscal year end income before extraordinary items scaled by total assets; Panel A refers to the whole sample; Panel B (panel C) reports coefficients for banks from the French (English) origin countries. Panel D (Panel E) reports coefficients for banks from the low (high) enforcement countries. Panel F (Panel G) reports coefficients for banks from the high (low) IFRS differences countries. Coefficients for each model are calculated separately for the two IFRS periods. Reported findings are presented for the whole sample (Columns 1 and 2), for the non-conservative banks (Columns 3 and 4) and for the conservative banks (Columns 5 and 6). *,**,***Differences from zero at the 0.10, 0.05 and 0.01 levels, respectively

Table VIII. Returns and price models coefficients

As an alternative and more updated measure of enforcement, we use the average score of the Kaufmann *et al.* (2013) governance indicators for our examined period (i.e. 1998-2011), rather than the non-time-varying enforcement indicators provided by La Porta *et al.* (1998). The categorisation slightly changes (i.e. Ireland and France exchange positions in the medium- and low-enforcement groups, respectively) and the results remain similar to those reported in Section 5.3.

Unlike Khan and Watts (2009), our sample comprises only banks. By definition, banks are characterised by a high degree of leverage, which might have an adverse effect on the calculation of C_Scores. Thus, we use ((total assets book value)/book value) as an alternative leverage measure and repeat our analyses. However, we do not observe any material differences compared to the findings reported above.

Moreover, we run another test for the troubling results reported in Section 5.4. considering the reduced value relevance of the high-differences banks after the implementation of IFRS. More specifically, instead of splitting the sample into three categories, we divide it in two partitions: low differences (the Netherlands, Ireland, UK, Norway, Sweden, Germany and Denmark) and high differences (Greece, Spain, Finland, Belgium, Portugal, Austria, France and Italy). The results for the low-differences sample remain unaltered, but those for the high-differences group were at odds with those reported in Section 5.4. Now, the returns model reports a statistically significant upward change of 17.1 percent (statistically significant at the 10 percent level), while the price model (previously displaying a statistically significant negative shift) does not produce any statistical significance between the two periods. Hence, banks from countries with a high level of divergence from IFRS seem to have increased their accounting value relevance, a result which is in line with the extant literature.

7. Concluding remarks

This study examines the effect of mandatory IFRS adoption on the value relevance of accounting information and its association to conservatism within the European banking sector taking into account several institutional parameters.

The greatest IFRS benefits emanate from the French-origin non-conservative and the English-origin conservative banks, implying that each legal environment favours a different association between conservatism and value relevance. In line with previous evidence, high-enforcement banks enjoy much higher levels of value relevance after the adoption, while low-enforcement banks experience no or negative value relevance shifts. In terms of divergence between local standards and IFRS, the medium-differences partition experiences the highest (and significant) increase in value relevance. Contrary to previous literature and to our expectations, high-differences banks do not present a positive reaction in value relevance after applying IFRS. Although this could be attributed to the complexity of IFRS dealing with financial instruments, dividing the sample in two instead of three differentiation groups provides a different picture. In fact, high-differentiation companies are found to report more value relevant accounting information in the post-adoption phase according to the returns model.

Another noteworthy finding is the relationship between conservatism and value relevance that is not straightforward. Instead, it depends on the environment that each bank operates. For example, conservative banks provide more value relevant information in the post-adoption era when situated in countries of English origin, of high legal enforcement or of low differentiation between local and international standards. Findings for non-conservative banks are mixed. We observe that their value

relevance is higher under French or Scandinavian-origin backgrounds or in high-enforcement environments, and lower in the presence of large differences between the old and the new set of standards.

An important finding is that conservatism and value relevance co-exist in countries with strong legal enforcement and whose accounting philosophy is closer to that of IFRS. This finding has implications at a regulatory level since the 2010 Conceptual Framework (IASB, 2010) does not include conservatism on the list of desirable characteristics of financial reporting. We argue that standard setters should reinstate conservatism on the list of characteristics of financial reporting and banks should be encouraged to incorporate conservative practices as a way of improving value relevance and, consequently, accounting quality. However, there are two main concerns. First, increased conservatism, through increased discretion over loan loss provisioning, can result in positive or negative effects depending on the way bank managers will exploit this discretion. One possible solution to this problem is that the Conceptual Framework changes to allow specific forms of conservatism. Second, the regulatory, legal/taxation and governance differences apparent among European countries are such that IFRS operate differently depending on the institutional context. We show this by demonstrating differences in the relationship between conservatism and value relevance across a series of specifications. Therefore, the IASB should be aware that, although the demand for value relevance is widely unequivocal, the importance of conservatism could depend on country-specific characteristics. Additional measures should be taken by the IASB for increasing the harmonisation level with low enforcement, code-law and high IFRS differences countries. This process will demand caution in a sense of respecting each country's differences. IFRS should be able to reflect certain flexibility in the level of exercised conservatism depending on the institutional setting where they operate.

Our study presents some limitations. A survivorship bias might exist because we require three years of data before and three years after mandatory IFRS adoption for including a bank in our sample. More importantly, the post-IFRS period coincides with the outbreak of the global financial crisis, which may have severely affected this bias. Furthermore, the C_Score methodology was originally developed in a US-oriented context. Therefore, the validity of this measure might be challenged in countries with different institutional settings, such as weaker legal enforcement or higher level of IFRS divergence. We partly control for this possibility by checking an alternative way of measuring C_Score in our robustness tests, however, we cannot completely rule out this possibility.

Collectively, it appears that the relevance between accounting and market information for the European credit sector has benefited from the introduction of IFRS. Nonetheless, the widespread differences among institutional characteristics in Europe are responsible for the different levels of IFRS compliance. Finally, our results suggest that the adoption of IFRS *per se* does not necessary entail uniformity.

Notes

1. There are other institutional factors that could be employed in the study, such as the level of investor protection. For reasons of parsimony, we limit our analysis to these three parameters and believe that they are sufficient for the purposes of our study.
2. When examining UK listed banks, O'Hanlon (2013) provides evidence of increased loan loss provisioning timeliness following the mandatory adoption of IAS 39 in 2005. Although this finding is in contrast with the majority of pertinent studies, it implies that other (institutional) factors may affect conservatism. We address this concern later in this section.

3. The dummy variable DE has been widely used in recent value relevance literature as manifested by Balachandran and Mohanram (2011), Karampinis and Hevas (2011), Barth *et al.* (2012) and many other studies.
4. A price model that considers both earnings and book value is more powerful than a model which is based on either of the two variables (Collins *et al.*, 1999).
5. Based on this bootstrapping procedure we acquire the relevant variances in order to calculate the Cramer formula.
6. Although we control for country and year effects, there might be other uncontrolled macro-dynamic factors affecting our results.
7. For instance, Balachandran and Mohanram (2011) report that similar thresholds of conservatism are commonly associated with similar accounting practices and, consequently, firms with similar accounting behaviour.
8. In order to avoid any selection bias we examined whether the exclusion of data from Luxembourg affects our results. The results were similar when testing for the total sample.
9. European Economic Area (EEA) member-states are bound to the EU Directives, including those relating to IFRS adoption. No other EEA members are included in our sample because of lack of data.
10. Prior literature has shown that voluntary IFRS adoption might be linked with particular firm behaviour and characteristics.
11. Hung and Subramanyam (2007) have reported inconsistencies on the Compustat database, while more recently, Daske *et al.* (2013) have detected errors in Worldscope classification.
12. Despite the interesting change in the conservatism level between the pre- and the post-IFRS period, checking for changes in timely loss recognition is beyond the scope of this study. Instead, we focus on changes in value relevance between conservative and non-conservative banks.
13. A VIF value higher than 10 is an indication of multicollinearity.
14. For Scandinavian firms this finding is corroborated by both models.

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