The effect of corporate governance and investor protection environments on the value relevance of new accounting standards: the case of IFRS 9 and IAS 39

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Abstract

The first-time adoption of IAS/IFRS accompanied by the issuance of new international accounting standards has provided mixed results regarding their ability to improve accounting quality. A possible reason is that not only the quality of the standard-setting process, but also other factors might affect accounting quality and one of its dimensions, namely, value relevance. By analysing data from a sample of 316 financial entities listed in 43 countries from all over the world and adopting IFRS 9 in place of IAS 39 as of 1st January 2018, this paper tests whether the quality of firm-level corporate governance and country-level investor protection environments affects the value relevance of equity values calculated according to the requirements of IFRS 9 and IAS 39. The results suggest that, despite both accounting standards providing investors with value relevant information, in the presence of high-quality corporate governance or a high-quality investor protection environment, IFRS 9 is more value relevant than IAS 39, whereas the opposite is true in the presence of low-quality corporate governance or a low-quality investor protection environment. The research results provide the first empirical evidence of the value relevance of the new accounting standard on financial instruments and contribute to the debate on the existence of other factors that, together with the quality of the IASB standards, affect the quality of financial reporting.

Keywords IAS 39 · IFRS 9 · Value relevance · Corporate governance · Investor protection

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1 Introduction

The objective of this paper is to investigate whether the quality of both corporate governance and the investor protection environment affect the value relevance of international financial reporting standard (IFRS) 9 and international accounting standards (IAS) 39. The first-time adoption (FTA) of the former at the beginning of 2018 in place of the latter provides the opportunity to test the ability of firm-level and country-level factors to improve value relevance, thanks to the availability of accounting amounts calculated according to the requirements of both accounting standards on financial instruments.

The motivations of the paper are the conflicting results achieved by scholars studying the FTA or subsequent revisions of IAS/IFRS and their effects on accounting quality. Despite the fact that they are considered to be a set of high-quality accounting principles that improve financial reporting comparability among companies on a worldwide basis (Jacob and Madu 2009), evidence has not provided homogeneous findings about their ability to improve financial reporting quality. These conflicting results might be due to the presence of factors such as the quality of firm-level corporate governance and country-level investor protection environment in which the firms operate, which, in addition to the quality of accounting standards, affect value relevance.

This paper expects that both IAS 39 and IFRS 9 rules should produce value relevant accounting amounts, especially due to the quality of widely accepted international accounting standards (Carmona and Trombetta 2008), but with different investors' preferences in the presence of firm-level and country-level factors that go beyond the quality of financial reporting. More specifically, it assumes that accounting amounts estimated according to the IFRS 9 requirements should be more value relevant than those estimated according to the IAS 39 in firms that rely on high-quality corporate governance or are listed in countries with a high-quality investor protection environment. According to the first hypothesis, this is because high-quality corporate governance and a high-quality investor protection environment cause the positive effect on value relevance of the new IFRS 9 rules to prevail over the negative effect produced by the increase of discretion behind the expected credit loss estimates (Gebhardt 2016) or by the complexity of IFRS 9 (Gumb et al. 2018). Yet, in the opposite case, accounting amounts estimated according to the IAS 39 requirements should be more value relevant than those of IFRS 9 in firms that rely less on high-quality corporate governance or are listed in countries with low-quality investor protection environments. Indeed, according to the second hypothesis, when either corporate governance or the investor protection environment cannot act as moderating factors, the negative effect on value relevance produced by the discretion of the new impairment model or by the complexity of IFRS 9 might prevail over the positive effect on value relevance produced by the innate characteristics of IFRS 9.

The research hypotheses were tested by analysing a sample of 316 financial entities listed on the stock markets of 43 countries worldwide. Findings validated them by showing that the value relevance of equity changes in relation to the quality of corporate governance and the quality of the investor protection environment.

These findings contribute at least twofold to the literature. First, moving from the general common agreement that the adoption of new accounting standards is necessarily shaped by firm-level (e.g., Mechelli and Cimini 2019; Siekkinen 2017) and country-level features (e.g., Hung 2001; Soderstrom and Sun 2007), few papers, if any, have compared the value relevance of IFRS 9 and IAS 39 while also controlling for firm-level and country-level factors. Thus, the value relevance of accounting amounts has to be evaluated while taking into consideration firm-level characteristics and country-level factors as well, including when it is assessed at the beginning of a transition year. Second, to the best of our knowledge, this is the first research that provides global evidence about the value relevance of accounting amounts estimated according to IFRS 9 and IAS 39 requirements.

The paper continues as follows: Sect. 2 reviews the relevant literature and presents the hypothesis formulation. Section 3 deals with the research design, and Sect. 4 is dedicated to the sample selection and descriptive statistics. Section 5 summarizes the empirical findings, while Sect. 6 concludes the paper, acknowledging its limitations and indicating possible future developments.

2 Previous research and hypothesis development

Value relevance is a dimension of accounting quality (Barth et al. 2008). Its studies identify, at an empirical level, statistically significant associations between accounting amounts and a measure of the value of the company, often synthesized by stock market prices. Miller and Modigliani's study (1966) could be considered one of the first surveys to investigate the existence of statistically significant associations between book value and equity market values, conducted more than 50 years ago. Being a very mature field of study, in November 2019, research products listed in the SCOPUS database that investigate the value relevance topic amount to about 1200. Among these papers, there are those that have compared and contrasted the value relevance of IAS/IFRS at the time of their introduction. These papers achieved contradictory findings regarding the ability of the new standards to increase the value relevance of accounting amounts compared to the previous ones. Scholars that make a comparative analysis of the value relevance before and after the FTA of a new set of accounting standards achieved mixed findings, participating in the debate in literature about the effectiveness of IAS/IFRS to affect financial reporting quality and, as a dimension of accounting quality, value relevance of accounting figures.

Among the supporters, Pae et al. (2008) claim that the introduction of IAS/IFRS in Europe has increased firm value because of the intrinsic characteristics of accounting standards, thanks to the greater ability of the new principles compared to the local GAAPs, to mitigate incentives for controlling shareholders to expropriate the minority ones. Similarly, focusing on the Chinese market, Liu et al. (2011) find a general improvement in accounting quality and, in particular, an increase in the value relevance of reported earnings. With a focus on firms listed in 15 European countries, Barth et al. (2014) find that the aggregate adjustments for net income and equity book value are significantly and positively associated with share prices and provide incremental information to investors regarding accounting amounts

calculated according to the requirements of national GAAPs. Focusing on the restatements of the single standards, those of IAS 39 are incrementally value relevant only in financial entities.

Opponents demonstrate that the new accounting standards are not necessarily better than the old ones, especially when the new accounting principles increase accounting discretion. In the case of IAS/IFRS, Souza et al. (2015) state that such standards have the feature of allowing accounting choices in most of their standards that negatively impact on comparability due to the flexibility in the process for recognizing, measuring, and disclosing assets and liabilities. Also, Al Farooque (2016) and Elbannan (2011) find a negative effect on firm valuation produced by the IAS/IFRS adoption in Australia and of IAS-based accounting standards in Egypt. By analysing a sample made of all Italian private companies which adopted IFRS from 2005 to 2008, results of Cameran et al. (2014) provide evidence that reporting quality decreased due to IFRS flexibility. As for the reasons that lead investors to exercise discretion, Siekkinen (2017, p. 436) claims that managers can abuse discretion allowed under IFRS to increase their wealth at the expense of shareholders (Bowen et al. 2008). In particular, they can exercise discretion in goodwill impairment decisions (Beatty and Weber 2006; Lhaopadchan 2010), estimation of stock option values (Bartov et al. 2007; Abody et al. 2006) and income and losses timely recognition (Myers et al. 2007) to meet self-interests such as earnings and bonus thresholds.

The controversial effects on the quality of financial reporting not only regard the FTA of IAS/IFRS but also the subsequent issuance of new standards as well as their revisions. This is the case for IFRS 13 "fair value measurement", IFRS 16 "leases", and IFRS 9 "financial instruments".

Regarding fair value measurement, it has been widely discussed, and even challenged, since the 2008 financial crisis (Ghio et al. 2018). When IFRS 13 was adopted, Siekkinen (2016, p. 436) provided theoretical arguments to support the thesis that, although the IASB argues that the management discretion in fair value accounting is used to increase the relevance of financial information, there is a downside to fair value accounting. That is, self-interested opportunistic managers can abuse discretion allowed under IFRS to increase their wealth at the expense of shareholders, especially in level 3 fair value estimates. The opposite is true, according to Trajkovska et al. (2016), who concludes that fair value measurement guarantees timely and transparent information for investors.

As to IFRS 16, despite Kusano (2018) systematizing the literature about the positive effects of constructively capitalizing operating leases on credit ratings, Morales-Díaz and Zamora-Ramírez (2018) argue that many voices were raised against the lease accounting model change, especially among financial statement preparers (Barone et al. 2014; Molina and Mora 2015).

Regarding financial instruments, this paper expects that accounting amounts estimated according to the requirements of the new IFRS 9 and the old IAS 39 are value relevant. This is due to the innate characteristics of international accounting standards, and the possibility of using fair value in the measurement of certain assets and liabilities, as well as the familiarity of investors with the standards on financial instruments. Regarding the international accounting standards, IAS/IFRS are a set of high-quality, globally accepted accounting principles that have the potential

to improve financial reporting comparability significantly among companies on a worldwide basis (Jacob and Madu 2009). Daske et al. (2008) document the ability of IAS/IFRS adoption to reduce firms' cost of capital and, in turn, to increase equity valuation. Among their accounting policies, fair value measurement provides useful information to investors also thanks to the beneficial effect of IFRS 13 disclosure requirements (Siekkinen 2017). Last but not least, the positive effect of familiarity on value relevance (Alali and Foote 2012; Liu and Liu 2007; Mala and Chand 2015; Sami and Zhou 2004) allows us to consider both IAS 39 and IFRS 9 as value relevant. For IAS 39, familiarity of investors with its rules should enhance the value relevance of accounting amounts calculated in compliance with this standard (Sforza and Cimini 2015). As to IFRS 9, the 5-year delay of application compared to its issuance should have increased the investor confidence toward accounting amounts estimated according to the requirements of this standard. This is demonstrated by Gan et al. (2016) with a case study on Malaysia, a country whose standard setter has imposed the IFRS but under different names.

To make a value relevance comparison, this paper starts from the consideration that, particularly in financial entities (Hewa et al. 2018) the impairment model is the biggest change introduced by IFRS 9 (Hoogervorst 2016), whose attributes influence the investors' preferences in favour of IFRS 9 or IAS 39.

Three features of the expected loss model should make IFRS 9 better than IAS 39. First, it mitigates the effects of delayed recognition of losses associated with the incurred loss model (Barth and Landsman 2010). As a matter of fact, the IAS 39 incurred loss model has been severely criticized by both academics and practitioners (Lionzo 2017) because of the delayed recognition of losses that deprive the markets of timely information regarding the value of bank assets (Barth and Landsman 2010, p. 415). Second, it provides more useful information with respect to the incurred loss model in that it reflects the economic value of the loan (Gebhardt and Novotny-Farkas 2011). Third, the introduction of the new expected loss model has facilitated the surveillance activities of financial entities by national and European authorities in that this model has reduced the differences between loss allowance calculated according to the requirements of accounting standards and those calculated complying with the prudential rules. In this regard, by analysing a sample of Korean banks, Kim and Yoon (2019, p. 161) claim that the use of the incurred loss model creates a concern that IFRS-based income may not be as informative as it could be, that is, not optimally value-relevant. This is because the incurred loss model used to estimate loan losses under IFRS is incompatible with the expected loss model used to assess capital adequacy ratios for banks under Basel Committee standards, and would likely result in recognition of fewer loan-losses.

In addition to the characteristics of the impairment rules, those on classification and measurement might also lead investors to prefer IFRS 9 to IAS 39. The IFRS 9′s double process for the classification of financial assets (i.e., based on the business model assessment and on the cash flow characteristics) requires less subjectivity than the "management intent" used to classify financial instruments under the IAS 39 rules. In literature, there are scholars who consider business model and management intent as the same idea (Leisenring et al. 2012). However, moving from the assumption that discretion reduces reliability and, in turn, attenuates value

relevance (Barth et al. 2001), the new rules of IFRS 9 on classification and measurement should produce value relevant accounting amounts. This is because the new standard prevents managers from exploiting the subjectivity to classify the instruments in the portfolio with which the accounting policy is associated (i.e., fair value, amortised cost or cost) that better fit with their earnings, book value and/or, in the case of financial entities, regulatory capital targets (Elnahass et al. 2018). So, while management intent was criticised as being quite a vague rule, where no evidence of intent is disclosed in the footnotes, the business model introduced by IFRS 9 presents more formal criteria for classification (Knežević et al. 2015).

Despite these positive features, compared to IAS 39, the FTA of IFRS 9 has introduced complexity (Gumb et al. 2018) and, in the estimation of loss allowances, discretion (Gebhardt 2016). Both complexity and discretion negatively affect value relevance.

According to the literature, in case of complexity, value relevance decreases because it produces uncertainty and information overload, increasing investors' difficulties identifying the information that is most relevant to them within such financial statements (Gumb et al. 2018). Comparing IAS 39 with IFRS 9, the new impairment model could seem to be more difficult to apply (and so less value relevant) compared to the incurred loss model, especially due to the absence of specific guidelines about expected loss estimates. This complexity is exacerbated in a principle-based set of accounting standards like IAS/IFRS and could produce involuntary mistakes in the expected loss estimates.

Regarding discretion, the value relevance reduction is for the negative relationship between value relevance and earnings management (Callao et al. 2016). Comparing IAS 39 with IFRS 9, the risk of earnings management behaviour is higher in the new impairment model than in the old one. On the one hand, in the IAS 39 incurred loss model, impairment losses could only be recognised when there was evidence that they existed (Giner and Mora 2019). On the other hand, in the expected loss model, the different horizons with which expected losses might be calculated can reduce investors' confidence toward loss allowances' estimates. Apart from non-performing loans classified in the third stage, management has the incentive to limit classifications or transitions of financial assets in the second stage from the first to avoid the estimation of losses over the life of the loan, by hiding the change of the credit risk associated with a specific financial asset, it is reasonable to expect that they will prefer the classification in the first stage, where losses are calculated over a horizon of 12 months. Indeed, the decision of the IASB to avoid a full life-time expected credit loss model like the one adopted by the FASB has increased the risk of opportunistic behaviour of managers that might hide significant deterioration in credit risk to avoid life-time expected losses.

This paper theorizes that the preference of investors for IFRS 9 or IAS 39 changes according to how concerned they are about the risk of voluntary mistakes (e.g., earnings management, capital management behaviour) or involuntary mistakes in the loss allowance estimates. In addition, it assumes that factors that go beyond the standard setting process might drive such preferences. These factors are the quality of firm-level corporate governance or of a country-level investor protection environment that might act as moderating factors in the reduction of value relevance due to

complexity and discretion introduced by the impairment model contained in IFRS 9. Accounting literature requires considering these factors in value relevance studies (e.g., Al Farooque 2016; Elbannan 2011; Peña and Franco 2017; Soderstrom and Sun 2007).

Regarding the reasons why firm-level corporate governance affects value relevance, academic scholars (Shan 2015; Siekkinen 2017; Mechelli and Cimini 2019) have demonstrated that it positively affects value relevance judgements for at least two reasons. First, the quality of firm-level corporate governance mitigates the agency problem and reduces agency costs in this way creating value for shareholders (Rezaee 2009; Shleifer and Vishny 1997) that want to maximize their return on investment. as opposed to managers who may also have other objectives (Siekkinen 2017). Second, the quality of corporate governance moderates the incentives for opportunism which does not influence the financial reporting process, thanks to the increased monitoring activity of boards. Evidence suggests that in firms with stronger board independence, managers are significantly less likely to commit fraud (Beasley 1996). In addition, investors have less reliability concerns with regard to accounting amounts because high-quality corporate governance reduces the risk of financial information misrepresentation that could determine earnings management in financial entities (e.g., Duh et al. 2009; Garcia Osma 2008; Sarkar et al. 2008; Shen and Chih 2007) as well as, we might add, capital management behaviour. According to Siekkinen (2017, p. 440), "the mitigation of incentives for opportunistic behaviour leads to a higher trust in financial statements. Furthermore, a higher trust in financial statements leads to a higher reflection of book values to market values, which consequently leads to a higher value relevance of book values". Therefore, firms with strong corporate governance exhibit a higher value relevance of accounting information (Habib and Azim 2008).

Regarding the quality of the investor protection environment, literature has provided evidence of the role of regulatory and institutional differences across countries in affecting IFRS practices (Quagli et al. 2020). More specifically, investors consider accounting amounts value relevant to the extent that the quality of enforcement reduces earnings management behaviour (Callao et al. 2016). Indeed, high-quality legal systems limit the managers' ability to misuse accounting discretion (Leuz et al. 2003; Siekkinen 2016). This is, for instance, due to high sanctions, typical of countries with high-quality legal systems, for managers that misrepresent financial information. Also for this reason, Leuz et al. (2003) claim that managers' incentives for opportunistic behaviour decreases with the level of investor protection.

According to the literature, both corporate governance and the investor protection environment do not have a positive effect on value relevance merely for the reasons explained above. By acting as moderating factors (Callao et al. 2016), they should counter the negative effect on value relevance produced by complexity and discretion. If so, for firms that rely on high-quality corporate governance or that are listed in countries with high-quality investor protection, the positive effect of such moderating factors should be able to counter the risk of involuntary mistakes or opportunistic behaviour due to the complexity of the standard and to the discretion behind the expected loss estimates. This should make accounting amounts calculated according to IFRS 9 requirements more value relevant than those of IAS 39. In other words,

high-quality corporate governance and a high-quality investor protection environment enable the positive effect of the new IFRS 9 rules on value relevance to prevail over the negative effect produced by the discretion behind the expected credit loss estimates (Gebhardt 2016) or by the complexity of IFRS 9 (Gumb et al. 2018).

The opposite holds true where such external factors are not able to halt them, and investors should consider more value relevant accounting amounts estimated according to the requirements of the old accounting standard on financial instruments. The low probability of opportunistic behaviour or of involuntary mistakes behind the incurred loss estimates should explain why IAS 39 might be more value relevant than IFRS 9 when there are no factors present able to impede the negative effect on investors' confidence produced by IFRS 9 complexity and discretion.

All these considerations lead us to formulate the following hypotheses:

H$_1$ IFRS 9 is more value relevant than IAS 39 in firms that rely on high-quality firm-level corporate governance or that are listed in countries with a high-quality country-level investor protection environment.

H$_2$ IAS 39 is more value relevant than IFRS 9 in firms that do not rely on high-quality firm-level corporate governance or that are listed in countries with a low-quality country-level investor protection environment.

3 Research design

To compare the value relevance of accounting amounts assessed according to the requirements of IAS 39 and IFRS 9, this research uses a modified version of the price model (Ohlson 1995) with variables deflated by the number of outstanding share to overcome biases due to the scale effect (Barth and Clinch 2009; Song et al. 2010) and with absolute value of studentized residuals under 1.5 (e.g., Hassel et al. 2005; Kwon 2018; Siekkinen 2017) to avoid biases due to the presence of outliers.

The specifications used are the following ones:

$$P_i = \alpha_0 + \alpha_1 NI_i + \alpha_2 BV_{IAS39i} + \text{fixed effects} + \varepsilon \tag{1}$$

$$P_i = \beta_0 + \beta_1 NI_i + \beta_2 BV_{IFRS9i} + \text{fixed effects} + \varepsilon \tag{2}$$

where: P_i are the closing prices at the end of March 2018. The time lag with respect to 1st January 2018 is to fully reflect information contained in earnings and book values (Gregory et al. 2005); BV_{IAS39i} is the book value per share calculated on 1st January 2018 according to the IAS 39 requirements. BV_{IFRS9i} is the book value per share calculated on 1st January 2018 according to the IFRS 9 requirements. NI_i is net income per share calculated at the end of fiscal-year 2017, which is the same as the one reported on 1st January 2018. Subscript i refers to the single firms included in the sample. Fixed effects are dummy variables that control for country effects. ε is the error term. The models regress a market variable (i.e., price-per-share) on accounting amounts (i.e., earnings and book value of equity per-share).

The regression parameters of such models have been estimated by using ordinary least squares (OLS) at the beginning of the transition year (2018) for entities that have not elected to restate comparative periods, but that have recorded the transitional effects in the opened retained earnings. The focus on accounting amounts estimated at the beginning of the transition year allows the assessment and comparison of the value relevance of equity book value calculated according to the requirements of different accounting standards on financial instruments. Indeed, while earnings at the beginning of fiscal-year 2018 are the same as those at the end of the prior period, different measures of book value are reported in the transition reports in which equity value calculated according to the requirement of IAS 39 is reconciled to that calculated according to the new IFRS 9 rules.

In accordance with the literature, this paper has used statistically significant regression coefficients (Song et al. 2010) as measures of value relevance of accounting amounts. Due to possible heteroskedasticity, this paper has adjusted the t-statistics of the regression coefficients, employing robust standard deviations (White 1980).

Running Eqs. (1) and (2) for the full sample of entities without any control for the quality of corporate governance or the investor protection environment, the expectation is to find statistically significant regression coefficients in both the equations, suggesting that accounting amounts calculated following the international accounting standards' rules are value relevant.

To test the hypotheses that corporate governance and investor protection affect the value relevance of accounting amounts, this paper has collected variables that are good proxies of the quality of such firm-level and country-level factors.

As to the quality of internal corporate governance, despite the use in the literature of many metrics, independent directors as a percentage of the total number of directors might be considered a feature of corporate governance, and is used by academic researchers in different papers (Boone et al. 2007; Coles et al. 2008; Linck et al. 2008; Pathan and Skully 2010; Siekkinen 2017; Mechelli and Cimini 2019). The focus on the independence of board members is because the board of directors is considered to be pivotal, as it is the organizational body at the apex of companies (Melis 2011, p. 509). This research downloaded the percentage of independent directors (BI_i) from the Thomson Reuters Eikon database. In cases where such a variable is not tabulated, data on the number of independent directors and total board members needed to calculate the percentage of independent directors were hand-collected from the documents available on the websites of financial entities included in the sample analysed. This was due to reduce the amount of missing data and to avoid a significant reduction in the sample size that could bias value relevance estimates. To identify firms with high- and low-quality corporate governance mechanisms, this paper splits the percentage of independent directors at the median, identifying firms that rely on high-quality corporate governance mechanisms ($dBI_i = 1$) and firms that rely on low-quality mechanisms ($dBI_i = 0$). The former are firms with a percentage of independent directors over the median and the latter under the median value.

To study the effect that the quality of corporate governance has on value relevance of book value at the beginning of the transition year, Eqs. (1) and (2) were estimated in the clusters of firms with high and low board independence. In the first

cluster, according to the first hypothesis of this paper, IFRS 9 should be more value relevant than IAS 39. If so, when both Eqs. (1) and (2) are estimated in the cluster of firms with high-quality corporate governance, the regression coefficient β_2 should be higher and statistically different from the regression coefficient α_2. This would provide insight that despite both IAS 39 and IFRS 9 being value relevant, IFRS 9 is better than IAS 39 in the presence of firm-level mechanisms that act as moderating factors of the drop of value relevance due to the risk of opportunistic behaviour and/or involuntary mistakes in the expected loss estimates (first hypothesis). The absence of such moderating factors which reduce the risk of intentional or unintentional mistakes due to the discretion and the complexity of IFRS 9 and of its impairment rules should lead to the opposite conclusion. Indeed, when both Eqs. (1) and (2) are estimated in the cluster of firms with low-quality corporate governance, the regression coefficient β_2 should be lower and statistically different from the regression coefficient α_2. In this cluster, for the reasons explained above, results should suggest that IAS 39 is better than IFRS 9 (second hypothesis).

Regarding the quality of the investor protection environment, academic scholars (e.g., Siekkinen 2016) have used the investor protection variable calculated by the World Economic Forum (WEF). Similarly, this research collected the 2017/2018 strength of investor protection (IP_c) calculated by the WEF. Splitting this variable at the median, it distinguishes countries with a high- ($dIP_c = 1$) and low-quality ($dIP_c = 0$) investor protection environment. The former are countries with an investor protection environment value above the median and the latter below the median value. Estimating the regression parameters for the cluster of firms with a high- and low-quality investor protection environment, the expectation is to find the regression coefficient β_2 higher than α_2 in the cluster of entities listed in countries with a high-quality investor protection environment. On the contrary, in countries with a low-quality investor protection environment, the regression coefficient β_2 is expected to be lower than α_2. Similarly to firm-level corporate governance, this would support the argument that, despite both IAS 39 and IFRS 9 being expected to be value relevant, IFRS 9 should be better than IAS 39 only in the presence of country-level mechanisms that act as moderating factors on the drop of value relevance due to the risk of opportunistic behaviour and/or involuntary mistakes in the expected loss estimates (first hypothesis). Indeed, in countries with low-quality investor protection environments, the absence of moderating factors leads investors to prefer accounting amounts estimated according to the requirements of the old accounting standard because of the lower risk of intentional or unintentional mistakes, due to the discretion and the complexity of the new accounting standard (second hypothesis).

In the last part of this paper, the following sensitivity analyses and additional tests verify the robustness of the findings in the main analysis.

In the first test, the auditor tenure is used in place of the percentage of independent board members to test the ability of firm-level corporate governance to affect the value relevance of equity value estimated according to the requirements of different accounting standards. Taking into consideration the large variety of measures of corporate governance quality, this test is useful to verify if the results achieved by considering the percentage of independent directors as a measure of corporate governance quality are validated by using auditor tenure instead of board independence.

Long auditor tenure is considered by the literature a feature of good or bad governance (Cimini et al. 2020) depending on the ability of knowledge spill-over effects to prevail over the deterioration of auditor independence when the auditor tenure increases. Put more simply, if the deterioration of independence prevails over the knowledge spill-over effects, short tenure is a feature of good governance. Consequently, while IFRS 9 should be more value relevant than IAS 39 in the cluster of firms with short auditor tenure, IAS 39 should be more value relevant than IFRS 9 in the cluster of firms with long auditor tenure. On the contrary, if knowledge spill-over effects prevail over the deterioration of independence when tenure increases, long tenure is a feature of good governance. In this case, IFRS 9 should be more value relevant than IAS 39 in the cluster of firms with long auditor tenure and IAS 39 should be more value relevant than IFRS 9 in the cluster of firms with short auditor tenure.

The second test focuses on the difference between the two metrics of book value, verifying whether the quality of corporate governance and of investor protection affect the value relevance of the transition effects due to the introduction of the impairment model. The interest in this test is due to the importance of the impairment model in the replacement process of IAS 39 by IFRS 9. To do so, this paper runs the following regression model over the clusters of firms with high and low board independence and over the cluster of firms listed in countries with high- and low-quality investor protection environments:

$$P_i = \alpha_0 + \beta_1 NI_i + \beta_2 BV_{IAS39i} + \beta_3 \left(\Delta BV_i - IMP_i\right) + \beta_4 IMP_i + \text{fixed effects} + \varepsilon \tag{3}$$

where ΔBV_i is the difference between book value of equity calculated according to the requirements of IAS 39 and IFRS 9; IMP_i is the portion of ΔBV_i related to the impairment model.

Our expectation is to find a different value relevance of IMP_i controlling for differences in firm-level and country-level characteristics.

In the last three tests, the paper re-runs regression models, the third test focusing on firms listed in European countries, the fourth test being without dummies that control for fixed effects, and the fifth test using price-per-share at the reporting date. Similarities in the regulatory landscape (Quagli et al. 2020) justify the interest in the subsample of EU countries and might be useful to test whether methodological choices regarding the sample selection strategy have biased results. The other two tests verify whether the presence of a dummy that controls for fixed effects, and the methodological choice of considering a time lag for price-per-share as of 31st December bias results achieved in the main analysis.

3.1 Sample selection and descriptive statistics

Financial entities are firms with a significant proportion of financial assets and liabilities in their annual reports and are probably those where the risk of involuntary and voluntary mistakes due to the complexity and discretion of IFRS 9 is high, due to the impact that the new impairment rules have in relation to their main activities

(Hewa et al. 2018). For this reason, this paper has selected them for the empirical analysis.

To test the hypotheses, it hand-collected data referring to the consolidated accounts of a sample of financial institutions that are listed in different countries all over the world. By using the Orbis bank focus database and the Thomson Reuters Eikon database, it identified an initial sample of 498 financial entities listed in 63 countries from all over the world which produce consolidated accounts complying with the requirements of IAS/IFRS. Among them, 56 entities were excluded because they did not adopt IFRS 9 at the beginning of fiscal year 2018 (e.g., while the Central Bank of Egypt requires firms to comply with IFRS 9 as of 1st January 2019, financial entities in Pakistan applied the standard as of 1st July 2018), or have adopted an accounting standard issued by the national standard setter similar to IFRS 9 (e.g., during 2018, financial entities in Malaysia, Singapore and Turkey adopted the Malaysian, Singapore and Turkish Financial Reporting Standards 9). Because of the presence of financial entities that did not close their fiscal year on 31st December 2017, to avoid biases in the research results (Tsalavoutas et al. 2012), 12 entities that did not report the transition effects to IFRS 9 on 1st January 2018 were not included in the sample. Also, 109 entities were not considered due to the impossibility of finding information concerning board independence in the documents available on the company websites. Finally, to avoid biases to regression parameters, 5 entities were excluded in order to run regressions with absolute values of studentized residuals under 1.5. After all these exclusions, the final sample numbered 316 financial entities. These entities did not elect to restate comparative periods and recorded the transitional effects in the opened retained earnings.

Table 1 summarises the sample selection strategy (Panel a) and presents the distribution of entities by country (Panel b). The table shows that this study focuses on financial institutions listed on the stock markets of 43 different countries from all over the world.

The financial information (stock prices and number of outstanding shares) and most of the accounting amounts (book value calculated according to the requirement of IAS 39 and the reported earnings) were downloaded from the Orbis Bank Focus database and from the Eikon database. Book value calculated according to the requirements of IFRS 9 was hand-collected from the interim reports of 31st March or 30th June 2018 or from a document dedicated to the transition to IFRS 9 available on the company websites.

Table 2 provides some descriptive statistics of data (Panel a), the average of firm-level and country-level variables (Panel b) and the magnitude of the correlation coefficients between the main accounting, governance and investor protection variables (Panel c).

Regarding Panel a), the divergence between the mean of the variables and their median values justifies the methodological choice to use a share-deflated model that reduces the risk of bias due to the scale effect. Descriptive statistics also show that shareholders' equity calculated according to the IFRS 9 rules is lower than that calculated according to the IAS 39 rules. When available, the analysis of the transition reports to IFRS 9 suggests that this is due to the high level of loss allowances accounted according to the requirements of the new impairment models.

Table 1 Sample selection strategy and geographical distribution of the entities analysed

Panel a) Sample selection strategy	No. of financial entities
Financial entities from Orbis Bank Focus & Eikon databases	498
& entities adopting IFRS 9 1st January 2018	442
& entities with 31st December fiscal year end	430
& Entities with no missing data	321
& Entities whose studentized residuals are in the range ± 1.5	316

Panel b) Geographical distribution of the entities analysed

Countries	Obs	Countries	Obs	Countries	Obs
Arab Emirates, The United	17	Germany	15	Peru	1
Austria	6	Greece	5	Poland	13
Belgium	3	Hong Kong	1	Portugal	3
Bulgaria	3	Hungary	2	Qatar	9
Brazil	1	Ireland	3	Romania	4
Chile	4	Italy	26	Russian Federation	4
China	12	Jordan	11	Saudi Arabia	11
Colombia	4	Korea, Republic of	5	South Africa	3
Croatia	3	Lithuania	1	Spain	8
Cyprus	3	Malta	5	Sweden	6
Czech Republic	2	Morocco	6	Switzerland	4
Denmark	12	Netherlands, The	6	Taiwan	11
Estonia	1	Nigeria	14	United Kingdom	40
Finland	2	Norway	6		
France	12	Oman	8		

In panel a), the table describes the sample selection strategy. Moving from an initial sample of 498 financial entities adopting the IASB standards listed in 63 countries, after eliminations, the final sample numbers 316 entities. Eliminations regard entities not adopting IFRS 9 at the beginning of 2018 or that adopt standards that are similar to IAS/IFRS (56 entities), entities not reporting at 31st December (12 entities), those with missing data (109 entities) and 5 entities that make the absolute value of studentized residuals of the price models over 1.5. In panel b), the table describes the geographical distribution of the financial entities analysed, splitting them into the 43 countries analysed

Unfortunately, we cannot report descriptive statistics of single items (i.e., classification and measurement, impairment, hedge accounting) for the full sample. Most of the entities that are not listed in the EU do not provide this information. In addition, those that report the magnitude of the single transition effects have made different choices as to how to disclose them in the transition reports. For instance, some banks have presented the single items gross of tax effect and others net of the same effect. Other banks have cumulated the item of classification and measurement with that of impairment. Descriptive statistics reported in a specific robustness test regarding entities that have provided such information (Table 6) lead us to conclude that transition effects due to impairment are significant in magnitude. As a matter of

Table 2 Descriptive statistics and correlation coefficients

Panel a) Statistics

	Percentiles							Mean
	5%	10%	25%	50%	75%	90%	95%	
P_i (€)	0.04	0.23	0.65	3.68	12.95	36.04	60.17	13.01
BV_{IAS39i} (€)	0.04	0.32	1.09	4.36	13.29	31.78	56.29	14.25
BV_{IFRS9i} (€)	0.04	0.30	0.98	4.06	12.60	29.57	54.36	13.52
ΔBV_i (€)	−2.09	−1.13	−0.32	−0.04	0.00	0.04	4.12	−0.73
NI_i (€)	−0.05	0.00	0.04	0.30	1.22	3.24	5.09	0.69
BI_i (%)	0.00	0.00	0.00	0.00	45.50	67.00	74.00	23.36
AT_i (years)	1.00	1.00	3.00	5.00	8.00	13.00	16.00	6.43
IP_c (1–10)	3.50	4.50	5.80	6.50	7.25	7.80	7.80	6.32

Panel b) Average firm-level board independence and country-level investor protection

Countries	BI	IP	Countries	BI	IP	Countries	BI	IP
Arab Emirates	5.4	7.5	Germany	0.0	6.0	Peru	0.0	6.0
Austria	0.0	6.5	Greece	40.4	6.3	Poland	0.0	6.3
Belgium	22.3	5.8	Hong Kong	0.0	8.0	Portugal	15.7	5.7
Bulgaria	0.0	7.3	Hungary	22.5	5.5	Qatar	19.0	2.7
Brazil	0.0	6.5	Ireland	26.3	7.3	Romania	23.2	6.0
Chile	17.3	6.5	Italy	50.7	6.3	Russian Fed	17.7	6.0
China	28.9	4.5	Jordan	3.9	3.5	Saudi Arabia	20.1	5.8
Colombia	40.3	7.3	Korea	71.4	7.3	South Africa	64.0	5.3
Croatia	0.0	6.7	Lithuania	0.0	6.2	Spain	46.1	6.5
Cyprus	23.0	6.7	Malta	31.4	6.5	Sweden	39.5	7.2
Czech Republic	0.0	6.0	Morocco	1.7	5.3	Switzerland	42.2	5.0
Denmark	18.6	7.2	Netherlands	0.0	5.7	Taiwan	24.5	7.0
Estonia	0.0	6.0	Nigeria	1.4	6.5	United Kingdom	38.6	7.8
Finland	0.0	5.7	Norway	11.2	7.5			
France	20.5	6.5	Oman	53.2	4.7			

Panel c) Linear correlation coefficients

	P_i	BV_{IAS39i}	BV_{IFRS9i}	NI_i	BI_i (%)	IP_c (1–10)
P_i	+1.00					
BV_{IAS39i}	+0.64***	+1.00				
BV_{IFRS9i}	+0.67***	+0.99	+1.00			
NI_i	+0.27***	+0.39***	+0.34***	+1.00		
BI_i (%)	-0.08	+0.03	+0.02	-0.10	+1.00	
IP_c (1–10)	-0.15	-0.01	-0.01	-0.01	+0.10	+1.00

Panel a) tabulates the main percentiles and the mean of variables used to run price models

Panel b) shows at a country-level the mean values of the % of independent directors, collected from the documents available on the companies' websites and the strength of investor protection calculated by the WEF

Panel c) tabulates the linear correlation coefficients and the levels of significance that test the hypothesis

Table 2 (continued)

that they are equal to zero. (***) denotes that the hypothesis is rejected at 1% level of significance

Variable definitions: P_i is the closing price per-share three months after the end of the fiscal year 2017; BV_{IAS39i} is book value per-share calculated by firm i on 1st January 2018 according to the IAS 39 requirements; BV_{IFRS9i} is book value per-share calculated by firm i on 1st January 2018 according to the IFRS 9 requirements; NI_i is net income per-share; BI_i is the percent of independent directors to total board members; AT_i is auditor tenure; IP_c is the 2017/2018 strength of investor protection calculated by the WEF. Subscript i refers to the single firms included in the sample

fact, when available, the analysis of the documents on the websites of the financial entities analysed confirms that while the new rules on classification and measurement have produced transition effects that are not so significant in magnitude, the weight of the transition effect due to the new hedging requirements is almost null, because the large majority of financial entities decided to continue applying IAS 39 hedge accounting rules.

Always with regard to Panel a), it tabulates descriptive statistics of firm-level variables assumed as measures of the quality of corporate governance (i.e., board independence and audit tenure) and of the variable that measures the quality of the investor protection environment. Regarding the percentage of independent directors (BI_i), up to the 50th percentile the number of independent directors is zero. As to audit tenure (AT_i), it ranges from 1 to 72, with a mean value of 6.43 and a median value of 5. The variable that measures the quality of investor protection ranges from 1 to 10. It has a mean value of 6.32 and a median value of 6.50.

The average values of firm-level board independence and of the country-level investor protection environment are reported in Panel b). The presence of countries with a score equal to the median (i.e., 6.50) makes the number of countries with high-quality investor protection (114) considerably lower than those with a low-quality investor protection environment (202).

In Panel c), the values of the linear correlation coefficients are reported. Some of them are statistically significant at 1%. Despite the relative low value of such coefficients, in the tables dedicated to the presentation of research results we tabulate the mean value of the variance inflation factor (V.I.F.) in order to show that multicollinearity does not bias research results.

4 Research results

Table 3 shows results obtained for the full sample (i.e., 316 observations). They suggest that both equity values calculated according to the requirements of IAS 39 and IFRS 9 are value relevant. The regression coefficients of BV_{IAS39i} and BV_{IFRS9i} are value relevant at 1%. This is consistent with accounting literature that claims that IAS/IFRS are high-quality accounting standards. The result might be due to the quality of financial reporting of the entity analysed whose annual reports are not only audited by an external audit firm but are monitored by national and/or international authorities.

Table 3 Findings (the value relevance of equity value, full sample)

	Equation (1)		Equation (2)	
	Coefficients	t-statistics	Coefficients	t-statistics
NI_i	1.82	5.87[***]	1.73	8.42[***]
BV_{IAS39i}	0.59	5.03[***]	–	–
BV_{IFRS9i}	–	–	0.64	7.75[***]
Intercept	2.60	2.63[***]	2.28	3.33[***]
N° FYO	316		316	
Mean V.I.F	7.86		7.85	
R^2	78.63%		80.61%	
Adj. R^2	75.17%		77.47%	
Vuong Z-statistic	– 89.20 (p-value: 0.3724)			
Test:	$BV_{IAS39i} = BV_{IFRS9i}$: 15.73[***]			

The table shows the regression parameters (i.e., regression coefficients, t-statistics, mean V.I.F., R^2 and adjusted R^2) of price models estimated by considering the full sample of 316 observations listed in 43 countries all over the world. The value of the Vuong (1989) Z-statistic is reported in order to compare the magnitude of R^2 as well as a test statistic useful to compare the magnitude of BV_{IAS39i} and BV_{IFRS9i} regression coefficients

The table provides evidence that the old standard is less value relevant than the new one because the regression coefficient of the former (i.e., +0.59) is lower than that of the latter (+0.64). A test statistic rejects the hypothesis at 1% level of significance that such coefficients are not statistically different from each other. Also, the regression coefficient of the variable NI_i is positive and statistically significant at 1%.

Table 4 provides evidence about the ability of firm-level corporate governance (Panel a) and of country-level investor protection (Panel b) to affect value relevance of book value calculated according to the requirements of different accounting standards on financial instruments. On running regression over the different clusters of firms and countries with different qualities of corporate governance and investor protection, results confirm the value relevance of all the different measures of book value. However, the preference of investors for such measures changes according to the quality of corporate governance and of the investor protection environment.

Splitting the sample according to the quality of firm-level corporate governance, Panel a) of Table 4 shows that IFRS 9 is more value relevant than IAS 39 in financial entities that rely on high-quality corporate governance and less value relevant than IAS 39 when corporate governance mechanisms are low-quality. In the cluster of firms that rely on low-quality corporate governance, the regression coefficient BV_{IAS39i} (+0.50) is higher than regression coefficient BV_{IFRS9i} (+0.48). On the contrary, in the cluster of firms that rely on high-quality corporate governance, the regression coefficient BV_{IAS39i} (+0.37) is lower than regression coefficient BV_{IFRS9i} (+0.44). At 5% level of significance, a test statistic rejects the hypothesis that the regression coefficients of BV_{IFRS9i} and BV_{IAS39i} are not statistically different from each other. This provides empirical support to the thesis that only in the

Table 4 Findings (the effect of corporate governance and of investor protection on value relevance)

Panel a)	Cluster 1 Low-quality corporate governance				Cluster 2 High-quality corporate governance			
	Equation (1)		Equation (2)		Equation (1)		Equation (2)	
	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
NI_i	6.21	1.86[*]	6.53	2.27[**]	1.18	2.39[**]	1.21	3.34[***]
BV_{IAS39i}	0.50	2.06[**]	–	–	0.37	2.12[**]	–	–
BV_{IFRS9i}	–	–	0.48	2.36[**]	–	–	0.44	3.03[***]
Intercept	5.01	0.73	4.66	0.76	0.07	5.19[***]	0.07	7.85[***]
N° FYO	164		164		152		152	
Mean V.I.F	5.45		5.37		5.53		5.54	
R^2	85.86%		86.23%		77.94%		79.91%	
Adj. R^2	81.41%		81.90%		72.25%		74.72%	
Vuong Z-statistic	− 1.1729 (p-value: 0.2408)				− 0.7333 (p-value: 0.4634)			
Test	$BV_{IAS39i} = BV_{IFRS9i}$: 4.59[**]				$BV_{IAS39i} = BV_{IFRS9i}$: 7.50[***]			
Panel b)	Cluster 1) Low-quality investor protection				Cluster 2) High-quality investor protection			
	Equation (1)		Equation (2)		Equation (1)		Equation (2)	
	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
NI_i	1.08	5.28[***]	0.76	3.89[***]	2.32	+ 1.87[*]	3.37	+ 1.96[**]
BV_{IAS39i}	0.09	4.22[***]	–	–	0.60	+ 3.89[***]	–	–
BV_{IFRS9i}	–	–	0.03	2.65[***]	–	–	0.63	+ 3.89[***]
Intercept	9.84	0.49	10.38	0.50	2.41	+ 2.52[**]	0.50	+ 0.92
N° FYO	202		202		114		114	
Mean V.I.F	7.58		7.51		6.28		4.78	
R^2	50.45%		47.47%		93.96%		89.93%	
Adj. R^2	41.47%		37.94%		93.08%		88.46%	
Vuong Z-statistic	+ 0.9966 (p-value: 0.3190)				− 1.1603 (p-value: 0.2459)			
Test	$BV_{IAS39i} = BV_{IFRS9i}$: 6.37[**]				$BV_{IAS39i} = BV_{IFRS9i}$: 6.30[**]			

Panel a) shows the regression parameters of Eqs. (1) and (2) estimated using the OLS over the clusters of firms that rely on low-quality corporate governance (cluster 1) and high-quality corporate governance (cluster 2). In panel b) Eqs. (1) and (2) are estimated over the clusters of firms listed in countries with low-quality investor protection environments (cluster 1) and high-quality investor protection environments (cluster 2). The meaning of the variables is the same as previous tables. (***) denotes 1% level of significance; (**) denotes 5% level of significance; (*) denotes 10% level of significance

presence of high-quality firm-level corporate governance does the positive effect on value relevance of the new IFRS 9 rules prevail over the negative effect produced by the increase of discretion behind the expected credit loss estimates (Gebhardt 2016) or by the complexity of IFRS 9 (Gumb et al. 2018).

Similar findings are achieved by splitting the sample according to the quality of the investor protection environment. Panel b) of Table 4 shows that IFRS 9 is more value relevant than IAS 39 in financial entities that are listed in countries with a high-quality investor protection environment and less value relevant than IAS 39 when the quality of the investor protection environment is low. In the cluster of firms that are listed in low-quality investor protection environments, the regression coefficient BV_{IAS39i} (+0.09) is higher than regression coefficient BV_{IFRS9i} (+0.03). On the contrary, in the cluster of firms that are listed in countries with high-quality investor protection environments, the regression coefficient BV_{IFRS9i} (+0.63) is higher than regression coefficient BV_{IAS39i} (+0.60). The risk of high sanctions typical of high-quality legal systems reduces the probability of accounting amounts being affected by involuntary mistakes, earnings management and capital management behaviour due to the complexity of IFRS 9 and the discretion behind the expected credit loss estimates. Therefore, in such contexts, this leads investors to price more book value calculated according to IFRS 9 requirements than that calculated according to IAS 39 requirements. In contrast, investors prefer IAS 39 in countries with a low-quality investor protection environment.

If Table 4 provides evidence that validate the research hypotheses of this paper, the following tables show that findings are robust in that some sensitivity analyses validate them.

In the first test, this paper used auditor tenure as proxy of corporate governance quality in place of the percentage of board independence. Results tabulated in Table 5 provide insight that short auditor tenure is a feature of bad corporate governance mechanisms (e.g., with IAS 39 better than IFRS 9) and long auditor tenure is a characteristic of good governance (e.g., with IFRS 9 better than IAS 39). As a matter of fact, in the cluster of entities with short auditor tenure, IAS 39 is more value relevant than IFRS 9, as the regression coefficient of the former (+0.66) is higher than that of the latter (+0.63). On the contrary, for entities with long auditor tenure, IAS 39 is less value relevant than IFRS 9, as the regression coefficient of the former (+0.56) is lower than that of the latter (+0.64). These findings are consistent with Cimini et al. (2020), who argue that when auditor tenure increases, the learning effect might prevail over the deterioration of independence in the presence of firm-level or country-level mechanisms that are able to obstruct opportunistic behaviour. The presence in the sample analysed of a significant number of entities listed in countries with high-quality enforcement mechanisms (e.g., the UK and most EU countries) might explain the fact that long auditor tenure is a feature of good governance.

Therefore, by using auditor tenure as proxy of corporate governance quality, investors also show different preferences in terms of value relevance when the quality of corporate governance changes. However, as regards results tabulated in the previous tables, the difference between regression coefficients estimated in the sample of firms with short auditor tenure is not statistically significant; those estimated over the cluster of firms with long auditor tenure are statistically different only at 10%.

In the second test, whose findings are reported in Table 6, this paper investigated whether the firm-level quality of corporate governance and the country-level quality

Table 5 Sensitivity analyses (Auditor tenure as a measure of corporate governance quality)

	Cluster 1—Short auditor tenure				Cluster 2—Long auditor tenure			
	Equation (1)		Equation (2)		Equation (1)		Equation (2)	
	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
NI_i	4.04	1.18	4.43	1.46	1.65	3.40***	1.63	5.37***
BV_{IAS39i}	0.66	3.59***	–	–	0.56	3.41***	–	–
BV_{IFRS9i}	–	–	0.63	3.91***	–	–	0.64	5.73***
Intercept	1.47	2.18**	1.77	3.21***	29.46	1.24	25.34	1.69
N° FYO	170		170		146		146	
Mean V.I.F	10.73		10.73		5.34		5.34	
R^2	89.98%		89.99%		80.48%		84.16%	
Adj. R^2	89.96%		89.97%		74.04%		78.93%	
Vuong Z-statistic	−1.20				−1.68			
	(p-value: 0.2285)				(p-value: 0.09)			
Test	$BV_{IAS39i}=BV_{IFRS9i}$: 0.04				$BV_{IAS39i}=BV_{IFRS9i}$: 3.25*			

Table 5 shows the regression parameters estimated by using auditor tenure in place of the percentage of independent board members as a measure of corporate governance quality. It shows the regression parameters of Eqs. (1) and (2) estimated using the OLS over the clusters of firms with short (cluster 1) and long auditor tenure (cluster 2). The meaning of the variables is the same as previous tables. (***) denotes 1% level of significance; (**) denotes 5% level of significance

Table 6 Sensitivity analyses (the effect of corporate governance and investor protection environment on impairment)

Panel a)	N	5%	10%	25%	50%	75%	90%	95%	Mean
ΔBV_i (€)	188	−2.94	−1.47	−0.54	−0.06	0.00	+0.21	+1.15	−1.12
IMP_i (€)	188	−1.98	−0.93	−0.25	−0.01	0.00	0.00	0.00	−17.68
$|IMP_i|/|\Delta BV_i|$ (%)	188	0.00	0.00	0.00	+8.00	+167.53	+710.27	+1441.02	+270.37
BV_{IAS39i}	188	+0.45	+0.66	+2.24	+6.22	+19.77	+42.55	+79.26	+18.57
BV_{IFRS9i}	188	+0.37	+0.61	+1.96	+5.87	+17.69	+43.05	+80.35	+17.45
NI_i (€)	188	−0.15	+0.00	+0.12	+0.53	+1.74	+3.79	+5.93	+0.75
BI_i (%)	188	+0.00	+0.00	+0.00	+0.09	+0.50	+0.67	+0.71	+0.25
IP_i (1–10)	188	+5.70	+6.00	+6.30	+6.50	+7.25	+7.80	+7.80	+6.70

Panel b)	High-quality CO.GO		Low-quality CO.GO		High-quality I.P.E		Low-quality I.P.E	
	Coeff	*T-stat*	*Coeff*	*T-stat*	*Coeff*	*T-stat*	*Coeff*	*T-stat*
NI_i	+1.36	+8.04[***]	+6.74	+4.18[***]	+2.13	+2.81[***]	+1.51	+8.72[***]
BV_{IAS39i}	+0.53	+7.94[***]	+0.45	+4.05[***]	+0.74	+8.86[***]	+0.77	+16.50[***]
ΔBV_i—IMP_i	+0.81	+3.21[***]	+0.82	+1.66[*]	+0.88	+2.31[**]	+0.43	+1.54
IMP_i	+0.80	+3.11[***]	+0.01	+0.83[*]	+0.89	+2.34[**]	+2.03	+6.26[***]
Intercept	+4.53	+3.11[***]	+1.30	+0.68	+1.40	−1.90[*]	+4.14	+2.39[**]
N° FYO	+94		+94		+70		+118	
R^2	+66.61%		+80.37%		+94.19%		+73.33%	
Adj. R^2	+65.11%		+79.45%		+93.82%		+72.35%	

Panel a) tabulates the descriptive statistics of variables useful for running a price model by using Eq. (3). Panel b) tabulates the regression parameters of the price model obtained running Eq. (3) over the clusters of firms with high-quality and low-quality corporate governance (CO.GO.) and over the clusters of firms with high- and low-quality investor protection environments (I.P.E.). Data refer to a sample of 188 European entities. Variable definitions: ΔBV_i is the difference between book value of equity calculated according to the requirements of IAS 39 and IFRS 9; IMP_i is the portion of ΔBV_i related to the change of the impairment model. The meaning of the variables is the same as previous tables. (***) denotes 1% level of significance; (**) denotes 5% level of significance; (*) denotes 10% level of significance

of the investor protection environment affect the value relevance of the transition effect due to impairment that is the most significant one in magnitude. Because of the difficulties in finding such information in the transition reports of the entities analysed, this paper focuses on the 188 European entities that belong to our sample.

Panel (a) of Table 6 provides some descriptive statistics of variables used to run Eq. (3) and of a ratio calculated to assess the weight of the impairment effect. The ratio between the absolute value of IMP_i (that is, the portion of ΔBV_i due to the change of impairment model) and the absolute value of ΔBV_i suggests that in the presence of differences between the two measures of equity book value calculated according to the requirements of different accounting standards on financial instruments, the weight of impairment transition effects is higher than ΔBV_i in almost half the sample analysed. The negative sign of this transition effect means the difference between the equity values calculated on per-share basis according to the

requirements of different accounting standards on financial instruments is negative (ΔBV_i has a median value of -0.06 and a mean value of -1.12). Panel (a) of Table 6 also shows that the values of board independence and the investor protection environment are higher in the sub-sample of European countries than in the full sample.

Research results tabulated in Table 6 Panel b) suggest that only the quality of corporate governance drives the value relevance of the impairment transition effects. As a matter of fact, while in entities that rely on high-quality corporate governance the coefficient of the variable IMP_i is value relevant at 1%, when the quality of corporate governance is low, the same variable is not value relevant at the traditional level of significance (i.e., 5%) but only at 10%. This might be due to the hypothesised concerns of investors toward expected loss estimates. This provides additional support to the theory that investors do not price the portion of ΔBV_i due to the change of the impairment model when there are not high-quality corporate governance mechanisms that obstruct the loss of confidence produced by possible intentional and/or unintentional mistakes behind their estimates. On running regression over the cluster of firms listed in countries with high- and low-quality investor protection environments, the variable IMP_i is always value relevant, providing evidence that the quality of the legal system does not drive value relevance judgements.

In the last three tests, whose results are not tabulated, this paper runs regression by considering European countries, by using models without a dummy variable that controls for fixed effects and by using price-per-share as of 31st December. In all these cases, research findings achieved in the main analysis are validated, suggesting that methodological choices mentioned above have not driven research findings.

5 Conclusions

In the accounting literature, both the FTA of IAS/IFRS and the issuance or revisions of accounting standards provided mixed results regarding their ability to improve accounting quality.

A possible reason is that there are also factors other than accounting rules that are able to affect accounting quality and one of its dimensions, value relevance. Among these factors are the quality of corporate governance and country-level investor protection environments.

This paper assessed and compared the value relevance of book value calculated according to the requirements of IAS 39 and IFRS 9 at the beginning of 2018, the fiscal year the new standard on financial instruments was adopted. The replacement process was an opportunity to test whether the quality of firm-level corporate governance and country-level investor protection environments affected investors' judgements. Results show differences according to the level of firm and country-level factors. Evidence has suggested that in the presence of high-quality corporate governance mechanisms or investor protection environments, IFRS 9 is more value relevant than IAS 39. Contrasting results have been found for firms that rely less on high-quality corporate governance or are listed in countries with low-quality investor protection environments. These results provide the first empirical evidence on the value relevance of the new accounting standard on financial instruments and

take part in the debate on the other factors that, together with the quality of IASB standards, affect the quality of financial reporting. Particularly when new standards allow discretion or imply a high degree of complexity, the effect on value relevance depends on firm-level and country-level characteristics.

Despite its contribution to the accounting literature and practice, the paper suffers from several limitations. Some of them might be an opportunity for future developments of this study. First, equity book value calculated according to the requirements of IFRS 9 depends on several transition effects that can go in contrasting directions. Unfortunately, it is not possible in the full sample to investigate the value relevance of the single adjustments which make up the difference between the two measures of equity values. Indeed, the information provided by banks was not homogeneous; there are different approaches to the disclosure policies adopted in the transition reports to reconcile the different measures of equity book value. Future studies might investigate the value relevance of these items if the regulation obliges entities to disclose homogeneous and detailed information regarding the transition effects. In that case, scholars will be able to test how firm-level and country-level factors may affect the value relevance of such adjustments by analysing the FTA of IFRS 9, its future amendments, or the FTA or amendments of other accounting standards.

Second, the percentage of independent directors, auditor tenure and the quality of investor protection calculated by the WEF were the variables used as proxy of the quality of corporate governance and the legal system, respectively. Future studies might use other variables to measure the factors which, according to this paper, affect value relevance in addition to the quality of the standard setting process.

Third, the paper focuses on a sample of financial entities. Future studies might verify whether the same results are achieved in samples only comprising non-financial entities. It is likely that the negative effect on value relevance of discretion should be lower than in financial entities due to the lower proportion of financial assets subject to impairment in the annual report.

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