

The value relevance of accounting numbers in presence of the Equity Method before and after IFRS 11: evidence from France.

This article studies the effects of IFRS 11 on the value relevance of accounting numbers (VRAN) in France. In 2014, IFRS 11 made the equity method (EM) mandatory to account for joint ventures (JVs) and disallowed proportionate consolidation, the method previously preferred by French groups. Panel method regressions are used to examine the evolution of value relevance in listed groups' financial statements over a long period (2007-2020). Generalization of the EM reallocates the VRAN, and post-IFRS 11 EM-related numbers are significantly and negatively linked to market value, raising questions about their faithfulness. These results concern all groups using the EM, whatever method they previously used for JVs. This study also looks at the standard-setters' proposed integral/non-integral classification of net income from JVs and associates, which is found to be non-value relevant. These results have implications at standard-setting level for improving the quality of financial reporting, and for investors.

Key words: equity method, IFRS 11, value relevance, stock price, France

Introduction

This study examines the value relevance of accounting numbers (VRAN) in presence of the equity method (EM), for listed companies in France. After long being mandatory for associates under IAS 28, the EM also became the mandatory method for reporting interests in joint ventures (JVs) in consolidated financial statements when IFRS 11 came into force. Previously, IAS 31¹ had allowed a choice between the EM and proportionate consolidation (PC). With the change of standard from IAS 31 to IFRS 11, PC was virtually eliminated and the EM was generalized. This raises questions both about the VRAN in this new configuration, and the recommendations² issued for presentation of EM-related accounting numbers in income statement.

The implementation of IFRS 11 had two major consequences. First, it put the spotlight on a little-known method (the EM) with rarely-studied informational consequences, particularly in France where most groups⁴ with JV-based business models preferred PC, like their Spanish and Dutch counterparts (IASB, 2011; Lopes & Lopes, 2019; Sarquis et al., 2022). Second, the new standard had considerable effects on the key accounting numbers, as reported by Lantin et al. (2018) for French groups⁵. Under the EM, rather than line-by-line consolidation as in PC, JVs' assets and liabilities are reported net in the balance sheet (as Investments accounted for by the Equity Method, IEM), and revenues and expenses are reported net in the income statement (as Share of Net Income of associates and JVs accounted for by the Equity Method, NIEM). This difference in the structure of information in the primary financial statements (called the

¹ IAS 31, Interests in joint ventures.

² Recommendation n° 2013-01 issued by the French Accounting Standards Authority (ANC), and later, a proposal by the IASB in its Exposure Draft ED 2019/7.

⁴ 54.5% in our panel and 87% in Sarquis et al.'s (2022) sample of 105 groups.

⁵ For example, the Safran, JCDecaux, and Véolia groups have experienced major modifications in their consolidated financial statements.

‘informational effect’ of the EM in this research) raises the question of the methods’ comparative usefulness for investors.

The IASB's decision to disallow PC is highly debated. The IASB considers PC inconsistent with its conceptual framework and control model (Sarquis et al., 2022). In its IFRS 11/12 Effect Analysis it states that ‘when applying IFRS 11, the accounting will not be driven by a policy choice but by the application of a principle’ (IASB, 2011, p. 32) and that uniformization will enhance information for users. The IASB (2011, p. 5) also argues that the volume of JV transactions has fallen, suggesting that the question of their accounting treatment (EM vs PC) is becoming less important. Alexander et al. (2012), however, expected greater effects than those described by the IASB⁶. They predicted that IFRS 11 would create a mismatch between internal management accounts (using PC) and the primary financial statements. As summarized by Sarquis et al. (2022), PC should provide a better description of a group’s economic situation. In addition, prior research conducted in periods when the EM was optional was widely critical of the EM. It argued that the EM contributed to a loss of value relevance (VR) as documented by Graham et al. (2003) and Lee et al. (2013), and facilitated manipulation of accounts (Morris & Gordon, 2006; Bohren & Haug, 2006; Lourenco & Curto, 2010). However, recent French studies disagree about the effects of mandatory application of the EM on information quality (Lantin et al., 2018; Sarquis et al., 2022; Gavana et al., 2020).

The main question is therefore whether generalization of the EM and the uniformization of practices since IFRS 11 have overcome its informational effect by enhancing the usefulness of information, and making accounting information more value relevant for users in France than previously. This research uses the VR methodology defined by Barth et al. (2001). It consists of joint tests of relevance and faithfulness (Barth et al., 2022), which are the two main

⁶ This was confirmed by Lopes and Lopes (2019).

characteristics of useful accounting information in the IASB's conceptual framework⁷ (IASB, 2018). The sample consists of public companies listed on the French Stock Exchange over the period 2007-2020, covering two sub-periods before and after IFRS 11 took effect in 2014. The research uses panel data regressions and specifically takes into account EM-related items, the presence of JVs, and the fact of being a group that switched from PC to the EM. It also takes into consideration the classification of entities as 'integral' or 'non-integral' (ANC, 2103, IASB, 2019). 'Integral' entities are those considered as essential for the business model, and the group's share of their net income is reported in its operating income.

This study highlights many interesting results on the combined effects of the EM itself and the uniformization resulting from IFRS 11. First, the contribution to VR by each accounting number has changed. The study shows a significant negative association between EM-related accounting numbers and market valuation since IFRS 11 (2014-2020), that was not there before. The significance of the coefficients indicates their relevance in the post-IFRS 11 period, but their signs raise questions about the faithfulness (Barth et al., 2022) of the accounting representation of JVs and associates. Moreover, the results reveal that all groups are impacted, whatever their components and whatever method they used for JVs before IFRS 11 (PC or the EM). This is in line with the expected uniformization effects. It also demonstrates that the effects of IFRS 11 are durable. However, the total VRAN remains comparable before and after IFRS 11, which was unexpected. Second, following an ANC recommendation and an IASB proposal, reporting the share of JVs' and associates' net income (NIEM) in operating income does not modify the VRAN. This is the case even for groups that were obliged by IFRS 11 to

⁷ Which defines two main characteristics of useful accounting information, relevance and faithful representation, and four secondary characteristics: understandability, timeliness, verifiability, and comparability.

switch method from PC to the EM for their JVs, and experienced changes in their primary financial statements.

This research makes empirical, methodological, normative and managerial contributions to both existing debates and new topics. First, the few existing studies of mandatory application of IFRS 11 in the French setting cover a short period after IFRS 11 came into force (Lantin et al., 2018; Sarquis et al.; 2022, Gavana et al., 2020). As the findings of these studies do not fully agree on IFRS 11 effects, we examine an enlarged sample and a longer period running until 2020. We clarify the nature of IFRS 11's effects, and highlight their complexity and durability. We also provide evidence of the absence of any difference in VR between pre-IFRS 11 financial statements in France using the EM and using PC, which is not consistent with results in the extant literature concerning other countries. This underlines the importance of contingency factors, and questions the need for uniformization by IFRS 11 in this specific national context. Second, this study is the first to take into account the effects of presenting the share of net income of "integral" JVs and associates in the group's operating income. Third, this study illustrates the subtleties of the concept and analysis of VR, using joint tests (Barth et al., 2022), and separates the relevance and faithfulness of EM-related items. Fourth, it fuels the debate on the effects of standardization by providing an original example and analysing the combined effects of a widely criticized method (the EM) and the uniformization of practices. Fifth, this research offers insights for standard-setters in their reflection on the EM and relevant financial information. It provides input for managerial discussion of best practices for consolidating the net income of JVs and associates under IFRS 11 and highlights some points of caution for investors.

The remainder of this paper is divided into five sections. The first section describes the institutional background of the EM. The second reviews the relevant literature and puts forward our hypotheses. The third presents the research design. The fourth reports the results, which are

discussed in the fifth and final section.

1. Institutional background of the EM

Under the EM, the investment in an entity is stated in the consolidated financial statements at its net asset value, and the share of net income corresponding to this net asset value is reported in the income statement. The EM is a sort of asset revaluation method rather than a true consolidation method, although it is known as ‘one-line consolidation’.

Until IAS 31 was superseded by IFRS 11, companies had the choice of using the EM or PC for JVs, but the EM was mandatory for associates (IAS 28). Today, the EM is mandatory⁸ for associates and for practically all joint arrangements (IAS 28, amended), except joint operations as defined by IFRS 11, which are not common. For the same level of ownership interest, all other things being equal, the EM and PC lead to the same group share of equity and net income, but the EM is a form of net reporting, whereas PC is a form of gross reporting. Therefore, the EM modifies the informativeness of financial statements for users. In the balance sheet, the EM masks the contribution of JVs’ assets and liabilities, since all ‘investments in associates and JVs’ are stated together at their net asset value in a single line. In the income statement, the group’s share of the profits of JVs (and associates) is also presented net on a single line, without consolidating their revenues and expenses line by line. To partly compensate for the resulting modification of group operating income, the ANC (2013), and later the IASB (2019), proposed a classification of JVs and associates based on their importance to the group’s business model. The idea was that their contribution to the group’s net income should be included in operating income for significant entities analysed as important (‘integral’) to the group’s business activity,

⁸ Conversely, in French standards applicable to companies that are not listed on a regulated market (ANC regulation 2020-01), the EM is mandatory for associates but remains optional for joint ventures.

and presented at the end of the income statement for entities deemed non-essential to the business model ('non-integral'). However, in the French setting, only 27%⁹ of groups with EM-related items in their accounts include NIEM from 'integral' entities in operating income. Moreover, some groups whose NIEM appears significant compared to total net income do not do so (Bouygues, Renault and Alstom, for example, see Appendix 1, table 9). It should be noted that very few groups¹⁰ actually report both integral and non-integral amounts.

In this context, the IASB launched a Post-Implementation Review (PIR) of IFRS 11 (together with IFRS 10 and 12), and published a Request for Information in April 2020 (IASB, 2020). Despite the informational effect of IFRS 11 and the low use of the integral/non-integral classification, at its October 2021 meeting, the Board concluded 'IFRS 11 *Joint Arrangements* and IFRS 12 [...] are working as intended'¹¹. At its February 2022 meeting¹², it concluded that 'sufficient work has been completed'¹³. Following the feedback received on the 2019 Exposure Draft on primary financial statements including the proposed integral/non-integral classification, the IASB tentatively decided to remove the integral/non-integral distinction (IASB, 2022b, proposal C23), whereas the ANC continues to recommend it. The IASB's conclusion appears to be a simple endorsement of what it had already done since 2011.

This study helps to show that the EM question remains important, even though it is unlikely that the IASB will reallocate PC.

⁹ This proportion remains steady from 2014 to 2020.

¹⁰ In the sample in 2020: Vivendi, Bolloré, Holcim, Saint Gobain, Assystem, Sodexo.

¹¹ <https://www.ifrs.org/news-and-events/updates/iasb/2021/iasb-update-october-2021/> and later in the Project Report and Feedback Statement (IASB, 2022a)

¹² <https://www.ifrs.org/news-and-events/updates/iasb/2021/iasb-update-october-2021/>

¹³ However, the IASB is still working on EM through its project to reform IAS 28¹³, and the French standard-setter, too, is still interested in the subject.

2. Literature review and hypothesis development

Due to the informational effect of the EM itself, the VRAN resulting from this method has been studied a great deal in the past. However, the effects of mandatory uniformization, combined with the contingency factors of pre-IFRS 11 practices and the variety of national accounting standards, are still not clearly identified.

2.1. EM Value relevance

Two streams of research have been developed in the literature revolving around VR. A first stream presupposes that the EM does not produce the same relevance as ‘true’ consolidation methods and compares the effects of the EM and PC. Mohr (1988) and Heian and Thies (1989) underscored the loss of information and unreliability of ratios when financial subsidiaries are accounted for by the EM. Similar results regarding JVs were reported by Reklau (1977), Dieter et al. (1978) and more recently, Alexander et al. (2012) and Demerens et al. (2014). Lantin et al. (2018) confirmed the EM’s significant impact on ratios, especially a decrease in debt, and argued that more detailed disclosures are needed in financial statements when the EM is used. The actors involved in the production of consolidated financial statements (preparers and auditors) do not all prefer the EM when it is an allowed alternative to a consolidation method. Mian and Smith (1990) showed that auditors prefer PC over the EM because PC reveals the scale of off-balance sheet liabilities. Lourenço and Curto (2010) and Catuogno et al. (2015) hypothesized that groups are more likely to prefer PC for joint arrangements based on strong cooperation links between entities, and the EM otherwise. These authors underlined that blanket application of the EM to all joint arrangements, regardless of their legal form and importance in the business model, is detrimental to information usefulness.

A second stream of research explicitly measures the VRAN in presence of the EM by the statistical associations between accounting data and financial data. Stock price volatility is more

closely correlated with the financial statements when PC (versus the EM) is used for JVs, according to Kothavala (2003). Equity markets prefer PC, or at least notes providing additional information to the EM, according to Bauman (2003), Lim et al. (2003), Soonawalla (2006), O’Hanlon and Taylor (2007) and Lourenço et al. (2010). The same applies to bond markets (Stoltzfus & Epps, 2005; Bauman, 2007). However, So et al. (2018) found an increase in value relevance with EM (versus PC) in the Hong Kong Stock Exchange during 2005-2008. Finally, the predictive capacity of accounting data derived from the EM compared with other methods has been studied. According to Graham et al. (2003), Soonawalla (2006), and Lee et al. (2013), financial forecasts are less reliable with the EM than with PC or with the EM supplemented with detailed notes.

In conclusion, the bulk of the extant literature provides evidence that the EM reduces the quality of financial reporting, or is perceived as less informative than PC. However, most of the research cited was done during a period when the EM was optional (as an alternative to PC) and not yet mandatory, which raises the additional question of the effects on the VRAN of standardization through mandatory use of the EM.

2.2. Effects of standardization, contingency of pre-IFRS 11 practices and national standards

Has the standardization resulting from mandatory application of the EM for JVs through IFRS 11 improved VRAN, especially for EM-related items? One central purpose of standardization is to facilitate investor decision-making by improving comparability between companies. Reducing the number of accounting choices should achieve that, by limiting opportunistic behaviour by managers and lowering discretionary costs (Barth et al. 2008). More generally, IFRS adoption appears to have improved the quality and comparability of financial disclosure (Barth, 2013). It has enhanced the information environment in general and increased the

disclosure level (Abdullah & Tursoy, 2019), and should lead to greater accounting uniformity both nationally and internationally (Siciliano, 2019). Mandatory application of the EM should enhance the VRAN because it eliminates discretionary choices and makes primary statements comparable. However, there are many incentives and opportunities for non-uniform application of standards (Nobes, 2006) and, according to Tan et al. (2011) and Isaboke and Chen (2019), standardization effects are contingent and context-dependent. Jeanjean and Stolowy (2008) showed that earnings management did not decline after the switch to IFRS. Aleksanyan and Dandbolt (2015) showed an increase in the quantity, but a decrease in the quality of financial information published in application of IFRS 8. Their findings converge with those of Morales-Diaz and Zamora-Ramirez (2018) concerning IFRS 16. Lastly, Christensen et al. (2015) showed that for a standard to improve the quality of information, it has to be applied correctly. Tsalavoutas et al. (2020), looking at compliance with disclosure requirements, noted a high degree of heterogeneity in reporting practices between companies, and between countries. They identified a number of important issues that have not yet been studied, including the impact of IFRS 11 and the mandatory use of the EM rather than PC. However, in the French case, it is unlikely that the observed heterogeneity results from groups applying IFRS 11 in a non-compliant way. It is true that historically, French standards favoured PC and that most listed French groups (54.5% in our sample) used it under IAS 31. But the differences between JVs and joint operations defined in IFRS 11 are perceived as clear and have been accepted by preparers (Lantin et al. 2018, p. 59), and compliance with IFRS 11 has benefited from auditors' advice and control¹⁴. All groups concerned have applied IFRS 11 and switched from PC to the EM, even if they waited until it became mandatory (Lantin et al. 2018). Moreover, recent work on IFRS has shown greater convergence and relevance in fair value practices, due to stricter requirements, and better understanding and application by preparers and users. This could be

¹⁴ In France, listed groups have two independent auditors.

due to the visibility effect, as documented by Fasan (2014) for Other Comprehensive Income and IAS 1, or the learning effect, as observed for fair value levels and IFRS 13 (Filip et al., 2021). Mandatory application of the EM for JVs could also have had a visibility and learning effect on all actors and enhanced the VR of EM-related accounting items.

It thus follows that reducing the options for consolidating joint arrangements, by making the EM almost mandatory, should have improved the VRAN. The IASB makes this assumption in its Effect analysis (2011), although without any demonstration or scientific explanation. A few studies deal with mandatory application of a consolidation method for JVs, studying two opposite changes in different periods and countries: EM to PC and PC to EM. The first case concerns mandatory adoption of PC for JVs (and withdrawal of the EM) in Canadian standards, and has been examined by Richardson et al. (2012). They find a decrease in the VRAN. However, it was not possible to conclude if this was due to the use of PC, or due to eliminating the choice of method. This calls for two comments. First, this case is the exact opposite of our research topic. Although making PC mandatory for JVs seems to decrease the VRAN, these results do not formally demonstrate that making the EM mandatory would have been more relevant. Second, the study cited shows that it is difficult to determine whether the impact on the VRAN stems from the method itself or its mandatory application. The second case (PC to EM) relates to this study and the specific field of IFRS 11 application. In France, Lantin et al. (2018) analysed 86 pro forma 2013¹⁵ accounts issued by groups listed in the SBF 120 index in 2014. They found no drop in VR linked to use of the EM, neither in the association between accounting numbers and stock price, nor in the predictive capacity of accounting numbers. In their study of 26 countries (including 105 French groups from 2005 to 2016), Sarquis et al. (2022) showed that the comparability of financial statements for the panel including France has

¹⁵ i.e. accounts for 2013 established under 2014 standards, including the new standard IFRS 11, for publication in 2014 annual reports.

improved, whereas Schipper (2022) underlined a problem with using only gross accounting data. Furthermore, in research covering 2008 to 2015 and including 59 French groups, Gavana et al. (2020) documented a decline in the VR of total assets and total liabilities in the financial statements of French and Italian groups that were obliged to switch to the EM with IFRS 11. And so on the one hand, the VRAN seems to be lower with the EM (versus PC) only in periods when its use is optional, while results remain partially contradictory in its mandatory period, especially in France. On the other hand, the IASB's arguments, and many studies of standardization effects, suggest that the uniformization resulting from mandatory application of the EM should enhance information quality in the French setting. Furthermore, the ANC recommendation and the IASB's proposal of an integral/non-integral classification should contribute to the usefulness of information by highlighting the particular importance of entities classified as integral.

2.3. Hypotheses

Our first hypothesis concerns the effects of the change from optional to mandatory use of the EM on the VRAN. The associated methodology makes it possible to separate the uniformization effects from the informational effects of the EM itself, which are not precisely documented for the French setting during the period when the EM was optional. Based on most of the extant literature, the informational effects might be expected to be negative if groups used the EM opportunistically, or else neutral or positive if the EM was chosen because it was appropriate for the nature of their relationship with their JVs. Whatever the initial situation, the VR of fundamental accounting numbers and EM-related items should increase, because of the post-IFRS 11 uniformization benefits. Therefore, groups that previously used PC and had to switch methods after IFRS 11 are of particular interest. As well as experiencing major modifications for their primary financial statements, they are involved in a uniformization process that should make them more comparable with others: the VRAN, including for EM-

related items, should be equivalent to other groups. Considering the above, and following the IASB's arguments, the first research hypothesis is that the uniformization effects of IFRS 11 may overcome the EM's informational effects, with the result that the enactment of IFRS 11 has enhanced the VRAN. H1 is as follows:

H1: 'The uniformization resulting from IFRS 11 has a positive and significant effect on the value relevance of accounting numbers, including EM-related numbers, in the French market'. Testing H1 over the period 2007-2020 requires examination of three dimensions: the initial VRAN resulting from use of the EM in its optional period for JVs, the incremental effects of IFRS 11 on the VRAN following the switch from optional to mandatory application of the EM, and the specific effect for groups that were obliged to switch methods for their JVs.

For our second hypothesis, we consider the French and international standard-setters' proposals to classify JVs and associates as operational/integral or non-operational/non-integral (ANC, 2013 and IASB, 2019) and report related items separately. These proposals were intended to clarify the formation of net income. This reflects a desire to improve the relevance of financial information and leads to the second hypothesis:

H2: 'After IFRS 11 and the generalization of the EM, the breakdown between NIEM from integral and non-integral entities has a significant and positive effect on the value relevance of accounting numbers, particularly for entities that had to switch methods from PC to the EM for their JVs.'

Testing this hypothesis over the period 2014-2020 requires examination of three dimensions: the VRAN resulting from reporting NIEM with no breakdown, the incremental effects of applying the integral/non-integral classification to NIEM, and the specific effect for groups that were obliged to switch methods for their JVs, as the integral/non-integral classification is supposed to improve the VRAN.

3. Research design

3.1. Methodology

This is a value relevance study ‘designed to assess whether particular accounting amounts reflect information that is used by investors in valuing firms’ equity’ (Barth et al., 2001). The models tested are based on the Ohlson model (Ohlson, 1995) linking market value, net profit, and shareholder equity. They are drawn from Soonawalla (2006), Lourenço et al. (2012), Richardson et al. (2012) and Lantin et al. (2018). As in those studies, variables are reported at their value per share, following the recommendations of Barth and Clinch (2009) and the practice adopted by Bilgic et al. (2018), Giner et al. (2020), Filip et al. (2021) and Barth et al. (2022) in other contexts.

3.1.1 General presentation of VR methodology

As Barth et al. (2001) observe, there are many ways to test value relevance, and the methodological variations are summarized by Beisland (2009). Some studies test predictions relating to the coefficients: predictions of sign, value, or a significant relationship with the stock price. Other studies compare two alternative amounts in a study of relative value relevance, or predictions relating to the magnitude of the coefficients. Others again are interested in the proportion of stock price variance that is explained by accounting numbers, i.e. the adjusted R^2 . These last two approaches (prediction testing or R^2) could be used to study incremental or relative value relevance. The incremental value relevance of an additional item is studied by reference to the significance of the coefficients and the R^2 comparison; the relative value relevance of an accounting number is analysed by comparing regressions on competing variables (Mechelli & Cimini, 2014). Any value relevance study is also impacted by the other variables that are present and their number, because they could influence the proportion of explained variance (Barth et al., 2022).

Moreover, Barth et al. (2022) explain that determining what has modified the VRAN is difficult because VR tests are joint tests. The evolution of VR could be due to a change in the relevance of accounting numbers for users, or a change in their specific faithfulness, or both¹⁶. In this research, the expected signs will be compared to the actual signs to analyse the relevance and faithfulness of accounting numbers.

To take into account the methodological remarks of Schipper (2022) on analysis of gross and net items, in this study, regressions were run and compared with and without inclusion of a breakdown to identify specific EM-related variables (NIEM and IEM). The Vuong tests¹⁷ confirm that the breakdown models, separating net amounts from gross amounts in regressions, fit the data better. This study will therefore run regressions with the EM-related variables (IEM, NIEM, the share of net income from integral entities (NIEM_{INT}), and the share of net income from non-integral entities (NIEM_{NI})) separately from the other accounting variables such as other assets or other shares of net income.

For each question inherent to hypotheses H1 and H2, the incremental and relative VR is analysed, in its different dimensions. The first analyses compare the value, sign and significance of the variables' coefficients (Mechelli & Cimini, 2014) for all models testing H1 (section 4.1) or H2 (section 4.2), and in additional or robustness tests (section 4.3). The goodness of fit is then analysed by comparing the adjusted R² with identical samples and periods, testing the

¹⁶ Barth et al. (2022) illustrate this topic with the example of Lev and Sougiannis (1996) for R&D: under US GAAP, R&D outlays are charged to expenses, and yet, like capital expenditure for intangible assets, they are positively associated with future operating earnings. This means that 'R&D expense is not a faithful representation of the value of R&D activities, which implies its VR derives from its relevance'.

¹⁷ The Vuong test is based on the likelihood ratio and uses the Kullback-Leibler information criterion (Kullback-Leibler, 1951).

difference by the Vuong test when the models are non-nested¹⁸ (Pesaran, 1990). Only a descriptive comparison of adjusted R^2 is performed for regressions by sub-periods in the robustness tests, because the periods are different (section 4.3.1). However, comparison of adjusted R^2 by the Vuong test is performed for models that test H2 and the breakdown of NIEM in the post-IFRS 11 period (section 3.2). Adjusted R^2 comparison is also used for additional tests of H2 introducing different operating income variable measurements (section 4.3.3), because the samples and periods are the same.

Heteroscedasticity and autocorrelation were addressed using the `vcovHAC` function of the R package ‘sandwich’ (Zeileis, 2004).

Fixed effects are taken into account with a year or dummy variable (POST) to distinguish the pre- and post-IFRS 11 periods. An industry¹⁹ dummy variable is used (INDUS), as generally practised in IFRS literature (De George et al., 2016). The dummy variable EXPC identifies groups that had to switch method from PC to the EM for their JVs. To streamline the tables, the year variables and interaction variables between the year and the dummy variable EXPC are not presented in results²⁰.

¹⁸ This is the case between models with and without a breakdown, but not between models with and without interaction variables.

¹⁹ Keeping all the SIC codes instead of the dummy business sector variable was tested, and gave similar results.

²⁰ Running regressions with or without these interactions does not modify the results.

Table 1 presents the list of variables, their definitions, and their expected signs.

Table 1 Definition of variables

| Variable | Definition | Sign |
|--------------------|--|------|
| P_{it} | Price: Market value per share for group i at end of year t | |
| NI_{it} | Net Income per share attributable to owners of the consolidating company i for year t | + |
| $NILEM_{it}$ | Net Income Less net income from IEM, per share, for group i in year t | + |
| $NIEM_{it}$ | Share of Net Income of associates and JVs accounted for by the Equity Method, per share, for group i in year t | + |
| $NIEM_{INT,it}$ | Share of Net Income of associates and JVs accounted for by the Equity Method that are classified as <i>integral</i> , per share, for group i in year t | + |
| $NIEM_{NI,it}$ | Share of Net Income of associates and JVs accounted for by the Equity Method that are classified as <i>non-integral</i> , per share, for group i in year t | + |
| A_{it} | Total Assets per share for group i in year t | + |
| $ALEM_{it}$ | Total Assets Less IEM, per share, for group i in year t | + |
| IEM_{it} | Investments accounted for by the Equity Method, per share, for group i in year t | + |
| D_{it} | Total net Debt per share for group i in year t | - |
| $\ln A_{it}$ | Natural logarithm of total assets. Proxy for the size of group i in year t | +/- |
| $INDUS_{it}$ | Dummy variable coded 1 if the group is Industrial (SIC 1, 2, 3,5) and 0 otherwise | +/- |
| $POST_t$ | Dummy variable coded 1 if the year is 2014 and after, and 0 otherwise | +/- |
| $EXPC_i$ | Dummy variable coded 1 if the group switched from PC to EM, and 0 otherwise | +/- |
| ε_{it} | Residual of the regression | |

3.1.2 H1 test methodology: model 1 and model 2

To test H1, this paper examines the incremental VR effects of IFRS 11 and the specific effect for groups that were obliged to switch methods. The two dummy variables POST and EXPC, and their interaction variables, are introduced. The introduction of POST combined with other variables should address the question of the uniformization effect and the new visibility of the EM after IFRS 11. The interaction of variables with POST x EXPC will show if, with uniformization benefits, there is no specific effect after IFRS 11 for groups that had to switch methods. Compared to EXPC x POST, EXPC alone addresses the question of a potential

significant difference between the pre-IFRS 11 VRAN of groups using PC for their JVs²¹, and other groups. These analyses were performed with model 1, which breaks down the net income (NI) to highlight the incremental value relevance of NIEM, and model 2, which breaks down total assets (A) to emphasize the incremental effect of IEM.

The variables A and NI were not broken down in the same model because of the strong correlation observed between IEM and NIEM²² and the risk of collinearity.

The first model relates market value per share (Price, P) to Net Income Less income of IEM (NILEM) and NIEM (where NI is the sum of NILEM and NIEM), A, total net Debt (D)²³, and the variables of control: size (LnA)²⁴, and INDUS. The two dummy variables POST and EXPC are included to interact with all variables. The regression equation for the NIEM model (1) is as follows:

$$\begin{aligned}
 P_{it} = & a_0 + a_1 NIEM_{it} + a_2 A_{it} + a_3 NILEM_{it} + a_4 D_{it} + a_5 INDUS_{it} + a_6 LnA_{it} \\
 & + a_7 POST + a_8 NIEM * POST_{it} + a_9 A * POST_{it} + a_{10} NILEM * POST_{it} + a_{11} D * POST_{it} \\
 & \quad + a_{12} INDUS * POST_{it} + a_{13} LnA * POST_{it} \\
 & + a_{14} EXPC + a_{15} POST * EXPC + a_{16} POST * EXPC * NIEM_{it} + a_{17} POST * EXPC * A_{it} + \\
 & \quad a_{18} POST * EXPC * NILEM_{it} + \\
 & + a_{19} POST * EXPC * D_{it} + a_{20} POST * EXPC * INDUS_{it} + a_{21} POST * EXPC * LnA_{it} + \varepsilon_{it} \quad (1)
 \end{aligned}$$

²¹ EXPC in interaction with other variables is used in the sub-period regression. See section 4.3.

²² 0.56 for the whole period (Table 5), rising to 0.7 for the sub-period 2014-2020 (Table 6).

²³ In the models used, the ‘Debt’ variable (D) is the ‘total net financial Debt’ rather than the ‘total debt and liabilities’ as used by Richardson et al. (2012) and Gavana et al. (2020), because of the strong correlations observed between the ‘total Assets’ (A) and ‘total financial debt’ and between ‘A’ and ‘total debt and liabilities’ (respective coefficients of 0.80*** and 0.95***). In the models presented, total net financial debt and the asset variables (A or ALEM) showed moderate (see Table 5 and 6) but highly significant correlation coefficients.

²⁴ There is no collinearity between ‘A’ and ‘LnA’ because they capture two different dimensions: ‘A’ measures total assets per share. It is a relative measure. LnA, as a control variable, is a proxy for size and is not a relative measure. Tables 5 and 6 show weak correlation coefficients (0.35 and 0.37). We run the model without LnA: global results do not change significantly.

The second model focuses on analysis of the components of total Assets, breaking down the variable A into ‘total Assets Less IEM’ (ALEM) and IEM (where A is the sum of ALEM and IEM). The regression equation for the IEM model (2) is as follows:

$$\begin{aligned}
P_{it} = & a_0 + a_1 IEM_{it} + a_2 ALEM_{it} + a_3 NI_{it} + a_4 D_{it} + a_5 LnA_{it} + a_6 INDUS_{it} + a_7 POST \\
& + a_8 IEM * POST_{it} + a_9 ALEM * POST_{it} + a_{10} NI * POST_{it} + a_{11} D * POST_{it} \\
& + a_{12} LnA * POST_{it} + a_{13} INDUS * POST_{it} + a_{14} EXPC + a_{15} EXPC * POST \\
& + a_{16} IEM * EXPC * POST_{it} + a_{17} ALEM * EXPC * POST_{it} + a_{18} NI * EXPC * POST_{it} + a_{19} \\
& D * EXPC * POST_{it} + a_{20} INDUS * EXPC * POST_{it} + a_{21} LnA * EXPC * POST_{it} + \varepsilon_{it} \quad (2)
\end{aligned}$$

3.1.4 H2 test methodology: models 3.1, 3.2, 3.3

To test hypothesis H2, three models are run over the period 2014-2020, when the integral/non-integral classification was recommended by the ANC (2013), and then proposed by the IASB (2019). The VR is analysed in two stages.

First, a comparison is performed between the models with (model 3.2) and without (model 3.1) the breakdown of NIEM into the share of net income from integral entities (NIEM_{INT}) and the share of net income from non-integral entities (NIEM_{NI}). Model (3.1) is similar to model (1) but does not include dummy or interaction variables:

$$\begin{aligned}
P_{it} = & a_0 + a_1 NIEM_{it} + a_2 A_{it} + a_3 NILEM_{it} + a_4 D_{it} + a_5 LnA_{it} \\
& + a_6 INDUS_{it} + \sum_{t=1}^T a_{7t} Year_t + \varepsilon_{it} \quad (3.1)
\end{aligned}$$

Model (3.2) with the breakdown of NIEM is:

$$\begin{aligned}
P_{it} = & a_0 + a_1 NIEM_{INT,it} + a_2 NIEM_{NI,it} + a_3 A_{it} + a_4 NILEM_{it} + a_5 D_{it} + a_6 LnA_{it} \\
& + a_7 INDUS_{it} + \sum_{t=1}^T a_{8t} Year_t + \varepsilon_{it} \quad (3.2)
\end{aligned}$$

Models (3.1) and (3.2) are compared by analysing the absolute value, sign and significance of accounting variables, especially those linked to NIEM, and also by comparison of their adjusted R² with the Vuong test.

Second, the specific effect for groups that were obliged to switch methods is tested by adding the dummy variable EXPC and its interaction variables in model (3.3):

$$\begin{aligned}
P_{it} = & a_0 + a_1 NIEM_{INT,it} + a_2 NIEM_{NI,it} + a_3 A_{it} + a_4 NILEM_{it} + a_5 D_{it} + a_6 LnA_{it} \\
& + a_7 INDUS_{it} + \sum_{t=1}^T a_{8t} Year_t + a_9 NIEM_{INT} * EXPC_{,it} + a_{10} NIEM_{NI} * EXPC_{,it} + a_{11} A_{it} \\
& + a_{12} NILEM * EXPC_{it} + a_{13} D * EXPC_{it} + a_{14} LnA * EXPC_{it} + a_{15} INDUS * EXPC_{it} + \\
& \sum_{t=1}^T a_{16t} (Year_t \times EXPC_{it}) + \varepsilon_{it}
\end{aligned} \tag{3.3}$$

In the case of model (3.3) with and model (3.2) without the dummy variable EXPC, the models are nested and the Vuong test could not be performed to compare adjusted R². Nevertheless, the models with the dummy variable EXPC can be used to analyse differences between the absolute value, sign and significance of a given variable, and of its product with the dummy variable.

3.2. Data and sample

The sample consists of companies listed on Euronext Paris from 2007 to 2020 (4,382 observations, table 2) with or without EM-related items in their accounts (i.e., with or without associates and JVs). We include companies that do not use the EM, to bring out the comparative effects of the EM on the VRAN. The data was extracted from the InfrontAnalytics database, and manually from groups' universal registration documents to verify or supplement the database information, particularly for NIEM and its breakdown between integral/non-integral entities. 'Finance, real estate, and insurance' sectors (code SIC-6) were excluded from the analysis, as were cases with missing data and outliers identified using Cook's distance. The universal registration documents were consulted to check the existence of JVs and the use of PC or the EM, and to code the variables.

Table 2 Sample selection

| | Whole sample 2007- 2020 | Sub-sample 2014- 2020 |
|--|----------------------------|--------------------------|
| InfrontAnalytics after exclusion of Code SIC 6 groups | 4,956 | |
| Final sample after exclusion of cases with missing data and outliers* | 4,382 | 2,164 |
| Observations with EM ** | 2,277 | 1,141 |
| Observations with JVs*** | 1,412 | 667 |
| Observations concerned by the change of method (EXPC =1)**** | 770 | 385 |
| Industrial sector | 2,571 | 1,259 |
| Service sector | 1,811 | 905 |
| Observations with NIEM_{INT} only | | 263 |
| Observations with NIEM_{NI} only | | 831 |
| Observations with NIEM_{INT} and NIEM_{NI} | | 47 |

* Final sample consists of groups using EM and groups that do not use EM because they have no associates or no JVs.

** Concerns groups in the final sample that use EM either for associates or JVs.

*** Concerns groups in the final sample that have JVs in their business model.

**** Concerns groups in the final sample that switched methods.

Use of the EM for JVs or associates is observed in 52% (2277/4382) of observations in the sample. Despite the implementation of IFRS 11, this proportion remains stable (52.7%=1141/2164) because most groups with JVs also had associates before (and after) IFRS 11 became mandatory, and so the occurrence of the EM remains steady. So does the portion of groups with JVs, at around 32% of the total sample (1412/4382 for the period 2007-2020 and 667/2164 for the period 2014-2020). Groups for which EXPC = 1 switched from PC to the EM for their JVs because of IFRS 11, some as early adopters and the rest when the standard took effect. These 55 groups are coded EXPC=1 over the whole period (2007- 2020), giving 770 observations for the entire period (770/1412 = 54.5% of groups with JVs), and 385 observations over the period 2014-2020 (385/667 = 57.7% of groups with JVs for 2014-2020). Only 27.2% ((263+47)/1141) of observations with the EM use the integral/non-integral classification for NIEM. Very few observations (see footnote n°10) present a breakdown of NIEM showing both integral and non-integral entities. 70% of observations concern the industrial sector.

The stationarity of the main variables was verified with the Augmented Dickey-Fuller test: all

the p-values for P, NI, IEM, D, A, and ALEM are under 0.01 with a lag order of 2, and the results are reported in Appendix 2 (table 10). The descriptive statistics are presented on a per-share basis for the periods 2007-2020 and 2014-2020 in tables 3 and 4 (in Appendix 3, table 11, for the period 2007-2012). The correlation matrices for the same periods are presented in tables 5 and 6 (in Appendix 3, table 12, for the period 2007-2012). The NIEM_{INT} and NIEM_{NI} variables are only shown for the period 2014-2020.

Table 3 Descriptive statistics 2007-2020 (€ per share)

| | N | Mean | St. Dev. | Minimum | Median | Maximum |
|-------|-------|------|----------|---------|--------|---------|
| P | 4,382 | 33.0 | 47.0 | 0.000 | 16.1 | 594.5 |
| NI | 4,382 | 1.5 | 4.9 | -49.9 | 0.8 | 69.6 |
| NILEM | 4,382 | 1.4 | 4.9 | -49.9 | 0.7 | 69.4 |
| NIEM | 4,382 | 0.1 | 0.6 | -5.6 | 0.0 | 15.9 |
| A | 4,382 | 61.7 | 93.1 | 0.02 | 28.1 | 1,639.1 |
| ALEM | 4,382 | 60.5 | 91.3 | 0.02 | 27.8 | 1,526.5 |
| IEM | 4,382 | 1.2 | 7.3 | -0.7 | 0.0 | 204.0 |
| D | 4,382 | 7.8 | 22.2 | -139.0 | 1.7 | 244.9 |
| LnA | 4,382 | 12.9 | 2.6 | 3.9 | 12.7 | 19.5 |

P: Price, *NI*: Net Income per share attributable to owners of the consolidating company, per share, *NILEM*: Net Income Less net income from IEM, per share, *NIEM*: Share of net Income of associates and JVs accounted for by the Equity Method, per share, *A*: total Assets per share, *ALEM*: total Assets Less IEM, per share, *IEM*: Investments accounted for by the Equity Method, per share, *D*: total net Debt per share, *LnA*: natural logarithm of total Assets.

Table 4 Descriptive statistics 2014-2020 (€ per share)

| | N | Mean | St. Dev. | Minimum | Median | Maximum |
|---------------------|-------|-------|----------|---------|--------|----------|
| P | 2,164 | 37.07 | 50.23 | 0.00 | 18.38 | 415.00 |
| NIEM | 2,164 | 0.09 | 0.67 | -3.65 | 0.75 | 39.67 |
| NIEM _{INT} | 2,164 | 0.04 | 0.45 | -2.22 | 0.69 | 39.67 |
| NIEM _{NI} | 2,164 | 0.05 | 0.49 | -3.65 | 0.00 | 15.92 |
| IEM | 2,164 | 1.17 | 5.28 | -0.68 | 0.00 | 15.92 |
| A | 2,164 | 62.35 | 89.76 | 0.02 | 0.00 | 12.65 |
| ALEM | 2,164 | 61.18 | 87.44 | 0.02 | 30.18 | 1,639.12 |
| NI | 2,164 | 1.42 | 4.81 | -46.35 | 29.77 | 1,526.49 |
| NILEM | 2,164 | 1.33 | 4.71 | -46.42 | 0.00 | 112.63 |
| Debt | 2,164 | 7.92 | 22.67 | -139.02 | 1.84 | 244.89 |
| LnA | 2,164 | 13.01 | 2.65 | 3.91 | 12.85 | 19.54 |

P: Price, *NIEM*: Share of net Income of associates and JVs accounted for by the Equity Method, per share, *NIEM_{INT}*: Share of Net Income of associates and JVs accounted for by the Equity Method that are classified as integral, per share, *NIEM_{NI}*: Share of Net Income of associates and JVs accounted for by the Equity Method that are classified as non-integral, per share, *IEM*: Investments accounted for by the Equity Method, per share, *A*: total Assets per share, *ALEM*: total Assets Less IEM, per share, *NI*: Net Income per share attributable to owners of the consolidating company, per share, *NILEM*: Net Income Less net income from IEM, per share, *D*: total net Debt per share, *LnA*: natural logarithm of total Assets.

Table 5 Pearson correlation matrix (2007-2020)

| | P | NI | NILEM | NIEM | A | ALEM | IEM | Debt |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|
| P | | | | | | | | |
| NI | 0.58*** | | | | | | | |
| NILEM | 0.57*** | 0.99*** | | | | | | |
| NIEM | 0.17*** | 0.19*** | 0.08*** | | | | | |
| A | 0.74*** | 0.44*** | 0.42*** | 0.27*** | | | | |
| ALEM | 0.74*** | 0.44*** | 0.42*** | 0.23*** | 0.99*** | | | |
| IEM | 0.18*** | 0.19*** | 0.12*** | 0.56*** | 0.28*** | 0.21*** | | |
| Debt | 0.21*** | 0.00 | -0.02 | 0.15*** | 0.51*** | 0.51*** | 0.19*** | |
| LnA | 0.34*** | 0.17*** | 0.16*** | 0.13*** | 0.35*** | 0.34*** | 0.15*** | 0.31*** |

***significant at the 1 % level; **significant at the 5 % level; *significant at the 10 % level.

P: Price, NI: Net Income per share attributable to owners of the consolidating company, per share, NILEM: Net Income Less net income from IEM, per share, NIEM: Share of net Income of associates and JVs accounted for by the Equity Method, per share, A: total Assets per share, ALEM: total Assets Less IEM, per share, IEM: Investments accounted for by the Equity Method, per share, D: total net Debt per share, LnA: natural logarithm of total Assets.

Table 6 Pearson correlation matrix (2014-2020)

| | P | NI | NILEM | NIEM | NIEM _{INT} | NIEM _{NI} | A | ALEM | IEM | Debt |
|---------------------|---------|---------|----------|---------|---------------------|--------------------|---------|---------|---------|---------|
| P | | | | | | | | | | |
| NI | 0.56*** | | | | | | | | | |
| NILEM | 0.55*** | 0.99*** | | | | | | | | |
| NIEM | 0.19*** | 0.22*** | 0.09*** | | | | | | | |
| NIEM _{INT} | 0.15*** | 0.12*** | 0.03 | 0.67*** | | | | | | |
| NIEM _{NI} | 0.12*** | 0.19*** | 0.09*** | 0.73*** | -0.01 | | | | | |
| A | 0.74*** | 0.41*** | 0.36*** | 0.37*** | 0.33*** | 0.19*** | | | | |
| ALEM | 0.75*** | 0.41*** | 0.37*** | 0.33*** | 0.31*** | 0.17*** | 0.99*** | | | |
| IEM | 0.22*** | 0.18*** | 0.08*** | 0.70*** | 0.52*** | 0.47*** | 0.46*** | 0.42*** | | |
| Debt | 0.21*** | -0.03 | -0.06*** | 0.21*** | 0.17*** | 0.13*** | 0.50*** | 0.49*** | 0.37*** | |
| LnA | 0.36*** | 0.19*** | 0.18*** | 0.13*** | 0.03 | 0.15*** | 0.37*** | 0.37*** | 0.24*** | 0.34*** |

***significant at the 1 % level; **significant at the 5 % level; *significant at the 10 % level.

P: Price, NIEM: Share of net Income of associates and JVs accounted for by the Equity Method, per share, NIEM_{INT}: Share of Net Income of associates and JVs accounted for by the Equity Method that are classified as integral, per share, NIEM_{NI}: Share of Net Income of associates and JVs accounted for by the Equity Method that are classified as non-integral, per share, IEM: Investments accounted for by the Equity Method, per share, A: total Assets per share, ALEM: total Assets Less IEM, per share, NI: Net Income per share attributable to owners of the consolidating company, per share, NILEM: Net Income Less net income from IEM, per share, D: total net Debt per share, LnA: natural logarithm of total Assets.

The price per share is positively correlated with net income (NI), assets (A), debt (D), and IEM.

The IEM variable is correlated with size (LnA): the EM is used mainly by large groups. Over the whole period, all correlations between the variables of interest NIEM or IEM and other explanatory variables were above 28%, ruling out collinearity issues between variables used in models 3.1 and 3.2.

4. Results

4.1. VRAN in presence of the EM, before and after IFRS 11 and the change of method

Results for the period 2007-2020 are presented in Table 7 for the NIEM model (1) and the IEM model (2).

Table 7 VRAN before and after IFRS 11 and the change of method

| NIEM model (1) | | | IEM model (2) | | |
|------------------------------|------------------|--------------|---------------------|------------------|--------------|
| Price (P) dependent variable | | | | | |
| Variables | Coefficient | t-statistics | Variables | Coefficient | t-statistics |
| (Intercept) | -12.767** | (-2.334) | (Intercept) | -12.329** | (-2.266) |
| NIEM | -0.296 | (-0.129) | IEM | 0.239*** | (2.885) |
| A | 0.306*** | (8.178) | ALEM | 0.306*** | (8.071) |
| NILEM | 2.375*** | (4.636) | NI | 2.361*** | (4.605) |
| D | -0.353*** | (-3.313) | D | -0.353*** | (-3.294) |
| INDUS | 3.127 | (1.640) | INDUS | 3.123 | (1.617) |
| LnA | 1.651*** | (3.588) | LnA | 1.614*** | (3.533) |
| POST | -8.762 | (-1.285) | POST | -10.777 | (-1.586) |
| NIEM x POST | -5.409* | (-1.914) | IEM x POST | -1.016*** | (-3.387) |
| A x POST | 0.100* | (1.958) | ALEM x POST | 0.109** | (2.087) |
| NILEM x POST | 0.479 | (0.771) | NI x POST | 0.430 | (0.704) |
| D x POST | 0.013 | (0.091) | D x POST | 0.040 | (0.284) |
| INDUS x POST | 0.582 | (0.230) | INDUS x POST | 0.704 | (0.278) |
| LnA x POST | 0.778 | (1.294) | LnA x POST | 0.926 | (1.563) |
| EXPC | -3.487 | (-1.360) | EXPC | -3.465 | (-1.353) |
| POST x EXPC | 10.694 | (0.378) | POST x EXPC | 10.319 | (0.358) |
| NIEM x POST x EXPC | 4.198 | (0.878) | IEM x POST x EXPC | 0.133 | (0.103) |
| A x POST x EXPC | -0.086 | (-1.016) | ALEM x POST x EXPC | -0.079 | (-0.760) |
| NILEM x POST x EXPC | -0.298 | (-0.277) | NI x POST x EXPC | -0.315 | (-0.323) |
| D x POST x EXPC | 0.167 | (0.445) | D x POST x EXPC | 0.167 | (0.472) |
| INDUS x POST x EXPC | -3.812 | (-0.460) | INDUS x POST x EXPC | -4.873 | (-0.576) |
| LnA x POST x EXPC | -0.457 | (-0.231) | LnA x POST x EXPC | -0.408 | (-0.204) |
| R ² | 0.674 | | | 0.676 | |
| Adj. R ² | 0.672 | | | 0.674 | |
| Num. obs. | 4,382 | | | 4,382 | |
| F statistic | 428.672 | | | 432.693 | |

Statistical significance is based on two-tailed tests and is indicated as follows: *** p-value < 0.01, ** p-value < 0.05, * p-value < 0.1. P: Price, NIEM: Share of net Income of associates and JVs accounted for by the Equity Method, per share, IEM: Investments accounted for by the Equity Method, per share, NILEM: Net Income Less net income from IEM, per share, ALEM: total Assets Less IEM, per share, NI: Net Income per share attributable to owners of the consolidating company, per share, A: total Assets per share, per share, D: total net Debt per share, LnA: natural logarithm of total Assets, INDUS: dummy variable coded 1 if the group is industrial, POST: Dummy variable coded 1 if the year is 2014 and after, and 0 otherwise, EXPC: Dummy variable coded 1 if the group has switched from PC to EM.

Both models are well specified with an acceptable adjusted R^2 (respectively 67.2 % and 67.4%). In the NIEM Model (1), the sign and significance of the interaction coefficient between the POST and NIEM variables (-5.049*) indicate that IFRS 11 has had a significant effect on the VR of the NIEM variable, which is now negatively and significantly associated with the market price for all groups that use the EM. In the absence of interaction with POST, NIEM is not significant, which means that prior to IFRS 11, EM-related items had no significant association with stock price. After IFRS 11, the NIEM coefficient's sign is the opposite of the expected sign. The other explanatory variables – assets, NILEM, size - are significantly and positively associated with the stock price, while net debt is significantly and negatively associated with stock price. The business sector is not significant. Combined with POST, the coefficient for the 'Asset' variable increases significantly (0.100*). Other combined variables with POST are not significant. The interaction variable NIEM*POST*EXPC is non-significant, as are all the interaction variables with EXPC, and EXPC*POST alone. After IFRS 11, as expected with the uniformization effects, the EXPC groups do not differ from the rest in terms of the VRAN. The non-significance of the EXPC dummy (in isolation) means that in the pre-IFRS 11 period, using PC or the EM does not modify the VRAN²⁵.

In the IEM model (2), similarly, the sign and significance of the interaction coefficient between the IEM and POST variables (-1.016***) indicate that IFRS 11 has had a significant effect on the value relevance of the IEM variable. After IFRS 11, the sign of the coefficient for IEM is the opposite of the expected sign. The other explanatory variables are significantly associated with stock price. INDUS is not significant. Combined with POST, the coefficient for the ALEM variable increases significantly (0.109**). Other combined variables with POST are

²⁵ Adding all the products between EXPC and all the variables in model 1 does not change these results, as all the corresponding coefficients are non-significant.

not significant, and adding the EXPC variable does not affect the results. The interaction variable IEM*POST*EXPC is non-significant, as are all the interaction variables with EXPC*POST, or EXPC*POST alone. After IFRS 11, the EXPC groups do not differ from the rest in terms of the VRAN, echoing the results obtained in model 1. In the absence of interaction with POST, IEM is positive and significant (0.239***), which means that prior to IFRS 11, IEM had a significant association with stock price, as did other assets (ALEM, 0.306***).

In summary, the results of models (1) and (2) are partially consistent with H1, which posited a positive and significant effect on the VRAN after IFRS 11. On the one hand, the results show that from that point, NIEM and IEM are significantly related to stock price, whereas only IEM showed a significant correlation before. Moreover, the coefficients for A (model 1) and ALEM (model 2) increase significantly, and it is likely that the change in the VR of some variables that become negative (NIEM and IEM) may have reinforced the positive association with other variables and stock price²⁶. On the other hand, the results also highlight an unexpected effect of IFRS 11 which does not support H1: the signs of the coefficients for NIEM and IEM are negative. Furthermore, while being one of the EXPC groups does not affect the VRAN after IFRS 11 (which seems to support H1), that was already the case before. This result calls into question the necessity of uniformization for French companies.

To sum up, these findings suggest that EM-related items are now more relevant and used more by investors than before IFRS 11, but negatively perceived by users.

4.2. Effects of the integral/non-integral classification of NIEM after IFRS 11

Table 8 presents the results of regressions testing the effects of the breakdown of NI. Model

²⁶ As Gavana (2020, p. 10) points out, the rule change has modified the contribution of each accounting variable to the VR.

(3.1) shows the effects of its breakdown into NILEM and NIEM over the period 2014-2020. Model (3.2) then presents the effects of the NIEM breakdown into the share of net income from integral entities ($NIEM_{INT}$) and the share of net income from non-integral entities ($NIEM_{NI}$) for the period 2014-2020. In model (3.3), the dummy variable EXPC is added to investigate whether reporting $NIEM_{INT}$ has specific effects for groups that switched from PC to the EM for their JVs.

Table 8 Effects of the integral/non-integral classification of NIEM, 2014-2020

| Price (P) dependent variable | NIEM model (3.1) | | NIEM INT model (3.2) | | NIEM INT EXPC model (3.3) | |
|------------------------------|--------------------|--------------|----------------------|--------------|---------------------------|--------------|
| | Coefficient | t-statistics | Coefficient | t-statistics | Coefficient | t-statistics |
| (Intercept) | -21.487 *** | (-2.969) | -20.896 *** | (-2.844) | -24.324 *** | (-3.402) |
| NIEM | -5.198 ** | (-2.559) | | | | |
| $NIEM_{INT}$ | | | -6.688 ** | (-2.553) | -4.862 *** | (-3.101) |
| $NIEM_{NI}$ | | | -4.078 * | (-1.661) | -6.115 * | (-1.867) |
| A | 0.390 *** | (11.923) | 0.392 *** | (11.657) | 0.406 *** | (9.640) |
| NILEM | 2.912 *** | (7.132) | 2.892 *** | (7.126) | 2.870 *** | (5.619) |
| D | -0.331 *** | (-3.541) | -0.333 *** | (-3.538) | -0.341 *** | (-3.465) |
| LnA | 2.182 *** | (3.748) | 2.137 *** | (3.601) | 2.420 *** | (3.989) |
| INDUS | 2.948 | (1.239) | 2.831 | (1.189) | 3.818 | (1.551) |
| EXPC | | | | | 7.262 | (0.255) |
| $NIEM_{INT} \times EXPC$ | | | | | 1.013 | (0.159) |
| $NIEM_{NI} \times EXPC$ | | | | | 7.255 | (1.571) |
| D x EXPC | | | | | 0.164 | (0.436) |
| A x EXPC | | | | | -0.074 | (-0.803) |
| LnA x EXPC | | | | | -0.735 | (-0.353) |
| NILEM x EXPC | | | | | -0.406 | (-0.383) |
| INDUS x EXPC | | | | | -4.432 | (-0.519) |
| R^2 | 0.666 | | 0.667 | | 0.672 | |
| Adj. R^2 | 0.665 | | 0.665 | | 0.668 | |
| Num. obs. | 2,164 | | 2,164 | | 2,164 | |
| F statistic | 358.143 | | 330.872 | | 162.300 | |
| Year fixed effects | Yes | | Yes | | Yes | |
| Vuong (p-value) | | 0.14 | | | | |

Statistical significance is based on two-tailed tests and is indicated as follows: *** p-value < 0.01, ** p-value < 0.05, * p-value < 0.1.
P: Price, NIEM: Share of Net Income of associates and JVs accounted for by the Equity Method, per share, $NIEM_{INT}$: Share of Net Income of associates and JVs accounted for by the Equity Method that are classified as integral, per share, $NIEM_{NI}$: Share of Net Income of associates and JVs accounted for by the Equity Method that are classified as non-integral, per share, A: total Assets per share, NI: Net Income per share attributable to owners of the consolidating company, per share, D: total net Debt per share, LnA: natural logarithm of total Assets, INDUS: dummy variable coded 1 if the group is industrial, EXPC: Dummy variable coded 1 if the group had to switch from PC to EM.

The regression results for the three models show a satisfactory goodness of fit, close to 66%. In model (3.1), the NIEM variable is significantly and negatively (-5.198**) associated with stock price, consistent with the results of model (1) including interaction with POST and NIEM. The hypothesis of an incremental VR effect provided by the breakdown of NIEM between integral and non-integral entities - comparison of models (3.1) and (3.2) - is rejected by the Vuong test (p-value = 0.14). Nevertheless, the coefficients for NIEM_{INT} and NIEM_{NI} remain significant and negative (-6.688** and -4.078*). The proposed integral/non-integral classification of JVs and associates does not improve the VRAN. The other explanatory variables are significantly associated with stock price. INDUS is not significant. The EXPC interaction variables are non-significant. This suggests that for groups that had to switch methods and experienced changes in their primary financial statements, the classification of JVs and associates as integral or non-integral does not increase the VRAN. The results do not support H2.

4.3. Additional tests

Supplementary tests and regressions were run for additional information or to check the robustness of previous findings.

4.3.1. Robustness checks by the study of sub-periods

The results presented in section 4.1 show that interactions of NIEM and IEM with POST are significant in this value relevance study. The Chow test was run on the NIEM and IEM models (1) and (2) without dummy and interaction variables, and the result rejected the equality of variable coefficients between the two sub-periods. This confirms that an analysis by sub-period is appropriate. As a complement to the previous regressions (section 4.1, Table 7), and as

robustness checks, separate regressions were run for the pre- and post-IFRS 11 periods (Appendix 4, table 13). Over 2007-2012, in the NIEM model, the NIEM coefficient is non-significant (0.505), and in the IEM model, the IEM coefficient is positive and significant (0.269***). Over 2014-2020, the NIEM coefficient is negative and significant (-5.198**), like the IEM coefficient (-0.888***). These findings confirm the robustness of the results reported in section 4.1. The relative contribution of different variables to VR has changed: on the one hand, EM-related items that were non-significant (NIEM) or positively linked to value (IEM), like other assets, are both now significant and negatively linked to VR. On the other hand, Total Asset (A) gains in VR (the coefficient rises from 0.291*** to 0.390***) in the NIEM model, and the Net Income (NI) gains in VR (the coefficient rises from 2.376*** to 2.830***) in the IEM model (see Appendix 4, table 13). Besides, in both models and both periods, EXPC and the products of EXPC and the variables are non-significant, confirming the results in section 4.1. Being one of the EXPC groups does not affect the VRAN before or after IFRS 11.

As a new result, Appendix 4 shows that the R^2 is almost the same in each model²⁷. For example, the adjusted R^2 of the NIEM EXPC model is 67.2% for the period 2007-2012 and 66.8% for the period 2014-2020. This suggests that the total VRAN did not change between the pre- and post-IFRS 11 periods. Although uniformization has significantly modified the VR of certain accounting numbers, it has not increased the total VRAN; this result is not totally consistent with H1.

4.3.2. Evolution of the effects of IFRS 11 from 2014 to 2020

Although the coefficients for the NIEM and IEM variables are negative and significant after IFRS 11 (over the period 2014-2020), they should have evolved progressively due to a learning

²⁷ Comparisons cannot be tested because the Vuong test cannot be applied to a regression performed on different periods.

effect (Filip, 2021) for both preparers and investors. To test the evolution of the effects of EM-related variables, regressions were run on sliding 4-year sub-periods of models (1) and (2) without dummy variables. The findings by sub-period, reported in Appendix 5 (table 14), show that both IEM and NIEM coefficients remain steadily significant and negative. No trend or modification is observed in the EM's effects on the association between accounting numbers and stock prices.

4.3.3 Effects of the integral/non-integral classification on operating income value relevance

In 2013 the ANC issued a recommendation (2013-01) designed to better reflect the fact that some groups' JVs or associates are entities of an operational nature. To respect IAS 1, which requires disclosure of Operating Income excluding NIEM, the ANC also recommended publishing an additional operating income item, NIEM_{INT}, for groups that considered it informative to do so. This leads to two levels of Operating Income: one without NIEM_{INT} (OI) and another including NIEM_{INT} (called OIWINT in this study: OI With NIEM_{INT}). The difference between the value relevance of OI versus OIWINT and the proportion of explained variance in both cases was then analysed. The results from both models, presented in Appendix 6 (table 15), show that the coefficients of OI and OIWINT are significant, positive and similar (respective coefficients of 2.989*** and 2.969***). The Vuong test result for these two models is not significant (p-value = 0.18), indicating that the models with OI and with OIWINT have the same value relevance. The integral/non-integral classification has no effect on the association between the operating income variable and stock prices. These results do not support H2 and are consistent with results from section 4.2. The integral/non-integral classification of NIEM has no effect on the VRAN.

5. Discussion

This study provides evidence on the effects, for French groups, of uniformization of the accounting method for including joint arrangements in consolidated financial statements. It analyses the post-IFRS 11 period when the EM became mandatory, compared to the pre-IFRS 11 period when the EM was optional. It complements recent studies including the French setting (Lantin et al., 2018; Sarquis et al., 2022; Gavana et al., 2020), and addresses some new issues.

In the French context, generalization of the EM following IFRS 11 contributed to a reallocation of the VRAN but did not change the total VRAN. Whereas EM-related items were non-significant (NIEM) or significant and positively related to stock price (IEM) before IFRS 11, they all became negatively value relevant after IFRS 11. Implementation of IFRS 11 has had durable, significant and negative effects on EM-related items. Before IFRS 11, whatever the accounting choice (EM or PC), the VRAN was similar and comparable to other groups. This was unexpected in the light of previous studies, in different settings, of the EM in its optional period. Furthermore, the integral/non-integral classification of NIEM, recommended by the ANC and proposed by the IASB, has no effect on the association between key accounting numbers and stock price. This study highlights that the consequences of IFRS 11 for the VRAN have concerned all groups that use the EM, whether or not they have JVs or associates, with no different effect for entities that were obliged to change the accounting method for their JVs (from PC to the EM).

Two important results emerge. First, our findings do not support the extant literature (see section 2.1) on the comparative effects of the EM versus PC during its optional period. The use of PC or the EM by groups before IFRS 11 did not lead to any difference in the VRAN. French groups probably made their choice between the EM and PC based on the nature of their relationship with their JVs, as Lourenço and Curto (2010) explain. This appears to have led to

primary statements that gave useful information for investors. Second, making the EM mandatory for JVs has generated uniformization benefits, but not the ones that were expected.

The standardization brought about by IFRS 11 has highlighted a method (the EM) which was little known or of little concern to users before IFRS 11, but has since become a hotly debated topic in France. The VR of EM-related items after IFRS 11 shows that users take those items into account in their valuing process. But the negative association of EM-related items with stock price raises questions about the EM's ability to provide a faithful representation and translate the business model for groups with JVs (or associates), at least in the French case. These findings are important because they do not match the IASB's Post-Implementation Review conclusion that 'IFRS 11 *Joint Arrangements* and IFRS 12 [...] are working as intended' (IASB, 2022a), i.e. that users are reaping the expected benefits of IFRS 11 as presented in the Effect analysis: a significant increase in comparability, and greater usefulness, verifiability, understandability, and consistency (IASB, 2011). Use of the EM thus appears to be out of step with one of the first principles of the IASB's conceptual framework: faithful representation (IASB, 2018, §2.5).

This study contributes to the discussion of the concept and analysis of VR, as it shows that the combined effects of a method and uniformization of practices can be complex. As Barth et al. (2022) comments, the treatment of R&D expenses under US GAAP does not provide a faithful representation of R&D activities, because despite being charged to expenses, they are, like capital expenditures for intangible assets, positively associated with future operating earnings. Our research encountered a somewhat similar problem, but in reverse. IEM and NIEM, like any other asset and net income, should be positively associated with market value, but in fact they are negatively associated. The negative impact on the value of the IEM balance sheet item is probably partly explained by the fact that, being stated net, it implicitly includes the debt of associates and JVs and this modifies perception of the group's liabilities. Similarly, NIEM (the

net balance of JVs' revenues and costs) does not play the same role as line-by-line consolidation of JVs' revenues and costs (gross) under PC. At least for JVs, IFRS 11 leads to unfaithful representation of entities, like US GAAP does for R&D expenses. The difference is that in the case of R&D, the amount of the expenses is explicitly readable in the income statement: the faithfulness problem comes from their location (in the income statement rather than the balance sheet) and their accounting definition (expenses rather than assets). In the case of the EM, it is very hard to measure the extent of JVs' debts or determine the amount of costs attributable to JVs (and the same applies to the debts and costs of associates) because these amounts are reported in a single net figure. At best, they are disclosed in notes as required by IFRS 12, but disclosure practices vary greatly in content and detail from one group to another (Lantin et al. 2018; Sarquis et al. 2022). This situation contrasts with other groups that have no IEM, whose assets and liabilities (and revenues and costs) are all reported gross.

IFRS 11 attracted attention to the EM, a previously little-known method. The 'visibility effect' (Fasan et al., 2014) may have led financial analysts and investors to improve their analytical capabilities and their understanding of the EM's consequences, as highlighted by Filip et al. (2021) for IFRS 13. However, the case of IFRS 13 is different from that of the EM: the former enhances information quality by providing more details on asset classification, while the latter has replaced gross amounts with net amounts.

In summary, the uniformization effect of IFRS 11 produces the following paradox. The /non-uniformization of the pre-IFRS 11 period did not interfere with the VR of primary financial statements for investors, whereas uniformization through IFRS 11 has resulted in EM-related items making a negative contribution to VR. This situation raises questions about the faithfulness of EM-related items.

ANC recommendation 2013-01, and the IASB's 2019 Exposure Draft on primary financial statements proposing the separation of net income from integral and non-integral investments

accounted for by the EM, do not improve the VRAN. The IASB decided to drop this proposal in 2022, a step that seems to be in line with the findings of this study. But it is also the case that these ANC and IASB proposals are applied quite unevenly, and that could explain the absence of any effect on the VR. Total and Bouygues, for example, do not classify any of their JVs and associates as integral, even though their NIEM represents up to 50% of the consolidating company's net income. Other groups, such as Renault, refuse to classify entities as integral if only part of their activity is essential to the business model. Furthermore, there is a heterogeneity issue. The share of the net income from integral investments accounted for by the EM is calculated after financial income and corporation tax, whereas the group's operating income is reported before financial income and corporation tax. One possible solution would be to set in motion a standard-setting process that goes well beyond the simple classifications proposed, aiming either to regulate and standardize the production of useful additional disclosures. Another would be to reconsider the consolidation methods for associates and JVs. This would require a thorough analysis of the complex links between groups and their investments accounted for by the EM - not just joint ventures but also associates, which are rarely studied.

Although this study concludes that the EM is detrimental to the VRAN, that does not mean a return to PC would be a good idea. It would be difficult and costly for preparers, and the IASB would probably incur high political costs. Instead, work could be done to improve the readability, understandability and comparability of financial statement notes concerning JVs and associates. These notes need more regulation, particularly with regard to the terminology, location and details of EM-related items presented in the primary consolidated financial statements (balance sheet and income statement) and their notes. Some French groups, such as JCDecaux, Renault, and Véolia, are keen to communicate on their business models. They go further than the framework of consolidation rules on use of the EM, and publish additional

information that could become a best practice in consolidated financial reporting. Otherwise, investors and stakeholders should be more vigilant when group financial statements show significant proportions of IEM or NIEM. Particular vigilance is necessary when groups do not provide detailed notes about their entities accounted for by the EM, especially their debt and their contribution to the group's economic performance.

Ultimately, the issues raised by use of the EM point to more fundamental questions about the scope of consolidation and how increasingly complex groups of companies should be represented in financial statements. They highlight a core problem: the EM is not, and never has been, a consolidation method. It was never much more than a method to avoid consolidation of subsidiaries at the beginning of the 20th century (Walker, 1978). Later, it became the default method for dealing with atypical subsidiaries such as financial subsidiaries in certain periods, then associates and joint arrangements (Nobes, 2002).

Like all research, this study has its limitations, but it also opens up new research perspectives. Value relevance research methodologies based on the association between accounting numbers and stock price have been criticized for using stock price as an explained variable. They also raise questions regarding the choice of deflators, and the inherent endogeneity. The linear models tested are traditional in structure. It would be interesting to use a non-parametric model (Barth et al., 2022) or to perform value relevance testing based on measurement error (Barth et al., 2001). A non-linear approach and U-curve would probably be appropriate (Clarkson et al., 2011; Athanasakou et al., 2020), assuming that groups with substantial EM-related figures do not necessarily have the same business models as others. A value driver analysis should be conducted, more explicitly testing the visibility effect as analysed by Fasan et al. (2014), or perhaps studying the effect of the lack of transparency (Maines & McDaniel, 2000; Chambers et al., 2007), and the role of the reporting location (Hirst & Hopkins, 1998). Our study does not precisely capture the ownership interest in JVs (and associates) which might have been a

relevant explanation for some of the effects observed. However, to use ownership interest, it would be necessary to identify the relative contribution of each JV or associate to the consolidated amount, a task made difficult by the heterogeneity of the relevant notes. Other studies could be done on sub-samples, including determinants of financial position and financial stress, to explain the pre-IFRS 11 choice of accounting method for JVs. Research on the VR effects of EM-related notes and their completeness is an important perspective in this field.

Lastly, broader samples of groups in the EU could be used to conduct inter-country comparisons, and to take account of differences in shareholder protection and legal systems (La Porta, 1998; Hung, 2000). In the French setting, a study of unlisted companies that prepare accounts under French GAAP (as opposed to IFRS) would be interesting, as under French rules the EM remains optional for JVs (PC is also allowed, as it was under IAS 31).

Conclusion

This research examines the effects in France of IFRS 11 and its generalization of the EM as a ‘consolidation’ method for JVs in the financial statements of listed groups. The EM is not a true consolidation method, but consists of reporting the value of all investments in JVs and associates on a single line in the accounts. Its mandatory use for JVs since IFRS 11, when PC ceased to be allowed, raises new challenges for the use of financial statements and issues about their relevance.

This study of the financial statements of groups listed in France covers the period 2007-2020. It shows that EM-related accounting numbers have been significantly and negatively associated with stock price since 2014 (post-IFRS 11), which was not previously the case, whether PC or the EM was used. This sheds additional light on the research concerning the French setting, which has previously reported non-consistent results. Moreover, this study investigates, for the first time, the effect of the integral/non-integral classification of equity-accounted entities, in

application of the recommendations by the ANC and the proposals of the IASB. The results indicate that the integral/non-integral classification does not compensate for the negative effects of widespread use of the EM.

These results suggest that it is time for some reflection on the options for improving the information content of financial statements published by groups whose scope of consolidation includes joint ventures. This research also demonstrates that reducing accounting options is not necessarily enough to ensure quality in accounting and financial reporting.

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References

Abdullah, H., & Tursoy, T. (2019). Capital structure and firm performance: Evidence of Germany under IFRS adoption. *Review of Managerial Science*, 1–20.

- Aleksanyan, M., & Danbolt, J. (2015). Segment reporting: Is IFRS 8 really better? *Accounting in Europe*, 12(1), 37–60.
- Alexander, D., Delvaille, P., Demerens, F., Manh-Béna, A. L., & Saccon, C. (2012). La consolidation des co-entreprises en IFRS : étude de l'impact du changement de méthodes pour les sociétés européennes. *33ème Congrès de l'AFC, Grenoble, France*, 27.
- ANC. (2013). Recommandation n° 2013-01 du 4 avril 2013 relative à la présentation de la quote-part du résultat net des entreprises mises en équivalence dans le compte de résultat consolidé établi selon les normes comptables internationales.
- Athanasakou, V., Eugster, F., Schleicher, T., & Walker, M. (2020). Annual Report Narratives and the Cost of Equity Capital: U.K. Evidence of a U-shaped Relation. *European Accounting Review*, 29(1), 27–54. <https://doi.org/10.1080/09638180.2019.1707102>
- Barth, M. E., Beaver, W. H., & Landsman, W. R. (2001). The relevance of the value relevance literature for financial accounting standard setting: Another view. *Journal of Accounting and Economics*, 31(1–3), 77–104.
- Barth, M. E. (2013). Global comparability in financial reporting: What, why, how, and when? *China Journal of Accounting Studies*, 1(1), 2–12.
- Barth, M. E., Beaver, W. H., & Landsman, W. R. (2001). The relevance of the value relevance literature for financial accounting standard setting: Another view. *Journal of Accounting and Economics*, 31(1–3), 77–104.
- Barth, M. E., & Clinch, G. (2009). Scale Effects in Capital Markets-Based Accounting Research. *Journal of Business Finance & Accounting*, 36(3/4), 253–288. <https://doi.org/10.1111/j.1468-5957.2009.02133.x>
- Barth, M. E., Landsman, W. R., & Lang, M. H. (2008). International Accounting Standards and Accounting Quality. *Journal of Accounting Research*, 46(3), 467–498. <https://doi.org/10.1111/j.1475-679X.2008.00287.x>
- Barth, M. E., Li, K., & McClure, C. (2022). Evolution in Value Relevance of Accounting Information. *The Accounting Review*.
- Bauman, M. P. (2003). The impact and valuation of off-balance-sheet activities concealed by equity method accounting. *Accounting Horizons*, 17(4), 303.
- Bauman, M. P. (2007). Proportionate consolidation versus the equity method: Additional evidence on the association with bond ratings. *International Review of Financial Analysis*, 16(5), 496–507.

- Beisland, L. A. (2009). A review of the value relevance literature. *The Open Business Journal*, 2(1), 7-27.
- Bilgic, F. A., Ho, S., Hodgson, A., & Xiong, Z. (2018). Do Macro-economic Crises Determine Accounting Value Relevance? *Accounting in Europe*, 15(3), 402–422. <https://doi.org/10.1080/17449480.2018.1514123>
- Bohren, O., & Haug, J. (2006). Managing Earnings with Intercorporate Investments. *Journal of Business Finance & Accounting*, 33(5–6), 671–695. <https://doi.org/10.1111/j.1468-5957.2006.00592.x>
- Catuogno, S., Allini, A., & D'Ambrosio, A. (2015). Information perspective and determinants of proportionate consolidation in Italy. An ante IFRS 11 analysis. *Rivista Dei Dottori Commercialisti*, 4, 555–577.
- Chambers, D., Linsmeier, T. J., Shakespeare, C., & Sougiannis, T. (2007). An evaluation of SFAS No. 130 comprehensive income disclosures. *Review of Accounting Studies*, 12(4), 557–593.
- Christensen, H. B., Lee, E., Walker, M., & Zeng, C. (2015). Incentives or standards: What determines accounting quality changes around IFRS adoption? *European Accounting Review*, 24(1), 31–61.
- Clarkson, P., Hanna, J. D., Richardson, G. D., & Thompson, R. (2011). The impact of IFRS adoption on the value relevance of book value and earnings. *Journal of Contemporary Accounting & Economics*, 7(1), 1–17.
- De George, E. T., Li, X., & Shivakumar, L. (2016). A review of the IFRS adoption literature. *Review of Accounting Studies*, 21(3), 898–1004. <https://doi.org/10.1007/s11142-016-9363-1>
- Demerens, F., Le Manh, A., Delvaille, P., & Paré, J.-L. (2014). An ex ante analysis of change in reporting methods: The example of joint ventures. *Gestion 2000*, 31(4), 65–89.
- Dieter, R., Wyatt, A. R., & Reklau, D. L. (1978). The expanded equity method—An alternative in accounting for investments in joint ventures. *Journal of Accountancy (Pre-1986)*, 145(000006), 89.
- Fasan, M., Fiori, G., & Tiscini, R. (2014). What drives value relevance? The visibility effect in the adoption of a new accounting standard. *International Journal of Accounting, Auditing and Performance Evaluation*, 10(4), 430–446.
- Filip, A., Hammami, A., Huang, Z., Jeny, A., Magnan, M., & Moldovan, R. (2021). The Value Relevance of Fair Value Levels: Time Trends under IFRS and US GAAP. *Accounting in Europe*, 1–22.

- Gavana, G., Gottardo, P., & Moisello, A. M. (2020). Did the switch to IFRS 11 for joint ventures affect the value relevance of corporate consolidated financial statements? Evidence from France and Italy. *Journal of International Accounting, Auditing and Taxation*, 38, 100300. <https://doi.org/10.1016/j.intaccaudtax.2020.100300>
- Giner, B., Allini, A., & Zampella, A. (2020). The Value Relevance of Risk Disclosure: An Analysis of the Banking Sector. *Accounting in Europe*, 17(2), 129–157. <https://doi.org/10.1080/17449480.2020.1730921>
- Graham, R. C., King, R. D., & Morrill, C. K. J. (2003). Decision Usefulness of Alternative Joint Venture Reporting Methods. *Accounting Horizons*, 17(2), 123–137. <https://doi.org/10.2308/acch.2003.17.2.123>
- Heian, J. B., & Thies, J. B. (1989). Consolidation of Finance Subsidiaries: \$230 Billion in Off-Balance-Sheet Financing Comes Home to Roost. *Accounting Horizons*, 3(1), 1.
- Hirst, D. E., & Hopkins, P. E. (1998). Comprehensive income reporting and analysts' valuation judgments. *Journal of Accounting Research*, 36, 47–75.
- Hung, M. (2000). Accounting standards and value relevance of financial statements: An international analysis. *Journal of Accounting and Economics*, 30(3), 401–420.
- IAS 28 (2014). Investments in associates and joint ventures.
- IAS 31 (1990). Interests in joint ventures.
- IASB. (2011). Effect analysis: IFRS 11 Joint Arrangements and disclosure for joint arrangements included in IFRS 12 Disclosure of Interests in Other Entities. IFRS Foundation.
- IASB (2018). Conceptual Framework for Financial Reporting. *IFRS foundation*.
- IASB (2019). General Presentation and Disclosures. IFRS Standards Exposure Draft ED/2019/07.
- IASB (2020). Request for Information : Post-implementation Review : IFRS 10 Consolidated Financial Statements, IFRS 11 Joint Arrangements, IFRS 12 Disclosure of Interests in Other Entities. *IFRS Foundation*.
- IASB (2022a). Project Report and Feedback Statement: Post Implementation Review of IFRS 10, 11, 12. *IFRS Foundation*.
- IASB (2022b). Primary Financial Statements, Cover note and summary of feedback and redeliberations. *IFRS Foundation*.
- IFRS 8 (2006). Operating segments
- IFRS 11 (2013). Joint Arrangements.
- IFRS 12 (2013). Disclosure of Interests in Other Entities

- Isaboke, C., & Chen, Y. (2019). IFRS adoption, value relevance and conditional conservatism: Evidence from China. *International Journal of Accounting & Information Management*, 27(4), 529–546.
- Kothavala, K. (2003). Proportional consolidation versus the equity method: A risk measurement perspective on reporting interests in joint ventures. *Journal of Accounting and Public Policy*, 22(6), 517–538.
- Kullback, S., & Leibler, R. A. (1951). On information and sufficiency. *The Annals of Mathematical Statistics*, 22(1), 79–86.
- Jeanjean, T., & Stolowy, H. (2008). Do accounting standards matter? An exploratory analysis of earnings management before and after IFRS adoption. *Journal of Accounting and Public Policy*, 27(6), 480–494.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1998). Law and finance. *Journal of Political Economy*, 106(6), 1113–1155.
- Lantin, F., Tort, E., & Lenormand, G. (2018). *Projet de recherche ANC - Etude sur l'application du pack consolidation IFRS*.
- Lee, S., Pandit, S., & Willis, R. H. (2013). Equity method investments and sell-side analysts' information environment. *The Accounting Review*, 88(6), 2089–2115.
- Lev, B., & Sougiannis, T. (1996). The capitalization, amortization, and value-relevance of R&D. *Journal of accounting and economics*, 21(1), 107-138.
- Lim, C. Y., Yeo, G. H., & Liu, C.-S. (2003). Information asymmetry and accounting disclosures for joint ventures. *The International Journal of Accounting*, 38(1), 23–39.
- Lopes, A. I., & Lopes, M. (2019). Effects of adopting IFRS 10 and IFRS 11 on consolidated financial statements. *Meditari Accountancy Research*.
- Lourenço, I. C., Branco, M. C., Curto, J. D., & Eugénio, T. (2012). How Does the Market Value Corporate Sustainability Performance? *Journal of Business Ethics*, 108(4), 417–428. <https://doi.org/10.1007/s10551-011-1102-8>
- Lourenço, I. C., & Curto, J. D. (2010). Determinants of the Accounting Choice between Alternative Reporting Methods for Interests in Jointly Controlled Entities. *European Accounting Review*, 19(4), 739–773. <https://doi.org/10.1080/09638181003687844>
- Maines, L. A., & McDaniel, L. S. (2000). Effects of comprehensive-income characteristics on nonprofessional investors' judgments: The role of financial-statement presentation format. *The Accounting Review*, 75(2), 179–207.

- Mechelli, A., & Cimini, R. (2014). Is Comprehensive Income Value Relevant and Does Location Matter? A European Study. *Accounting in Europe*, *11*(1), 59–87.
<https://doi.org/10.1080/17449480.2014.890777>
- Mian, S. L., & Smith Jr, C. W. (1990). Incentives associated with changes in consolidated reporting requirements. *Journal of Accounting and Economics*, *13*(3), 249–266.
- Mohr, R. M. (1988). Unconsolidated Finance Subsidiaries: Characteristics and Debt/Equity Effects. *Accounting Horizons*, *2*(1), 27.
- Morales-Díaz, J., & Zamora-Ramírez, C. (2018). The impact of IFRS 16 on key financial ratios: A new methodological approach. *Accounting in Europe*, *15*(1), 105–133.
- Morris, R. D., & Gordon, I. (2006). Equity accounting adoption in regulated and unregulated settings: An empirical study. *Abacus*, *42*(1), 22–42.
- Nobes, C. (2002). An analysis of the international development of the equity method. *Abacus*, *38*(1), 16–45.
- Nobes, C. (2006). The survival of international differences under IFRS: towards a research agenda. *Accounting and Business Research*, *36*(3), 233–245.
- O’Hanlon, J., & Taylor, P. (2007). The value relevance of disclosures of liabilities of equity-accounted investees: UK evidence. *Accounting and Business Research*, *37*(4), 267–284.
- Ohlson, J. A. (1995). Earnings, book values, and dividends in equity valuation. *Contemporary Accounting Research*, *11*(2), 661–687.
- Pesaran, M. H. (1990). Non-nested hypotheses. In *Econometrics* (pp. 167–173). Springer.
- Reklau, D. L. (1977). Accounting for investments in joint ventures-A reexamination. *Journal of Accountancy (Pre-1986)*, *144*(000003), 96.
- Richardson, A. W., Roubi, R. R., & Soonawalla, K. (2012). Decline in financial reporting for joint ventures? Canadian evidence on removal of financial reporting choice. *European Accounting Review*, *21*(2), 373–393.
- Sarquis, R. W., dos Santos, A., Lourenço, I., & Braunbeck, G. O. (2022). The impact of the adoption of IFRS 11 on the comparability of accounting information. *Accounting and Business Research*, 1–37.
- Schipper, K. (2022). Discussion of ‘The impact of the adoption of IFRS 11 on the comparability of accounting information’. *Accounting and Business Research*, *52*(6), 727-733.
- Siciliano, G. (2019). Has IFRS Enhanced Accounting Uniformity? *Accounting in Europe*, *16*(3), 313–339.

- So, S., Wong, K. S., Zhang, F. (Frank), & Zhang, X. (2018). Value relevance of proportionate consolidation versus the equity method: Evidence from Hong Kong. *China Journal of Accounting Research*, 11(4), 255–278. <https://doi.org/10.1016/j.cjar.2018.06.002>
- Soonawalla, K. (2006). Accounting for Joint Ventures and Associates in Canada, UK, and US: Do US Rules Hide Information? *Journal of Business Finance & Accounting*, 33(3–4), 395–417. <https://doi.org/10.1111/j.1468-5957.2006.00609.x>
- Stoltzfus, R. L., & Epps, R. W. (2005). An empirical study of the value-relevance of using proportionate consolidation accounting for investments in joint ventures. *Accounting Forum*, 29(2), 169–190.
- Tan, H., Wang, S., & Welker, M. (2011). Analyst following and forecast accuracy after mandated IFRS adoptions. *Journal of Accounting Research*, 49(5), 1307–1357.
- Tsalavoutas, I., Tsoligkas, F., & Evans, L. (2020). Compliance with IFRS mandatory disclosure requirements: A structured literature review. *Journal of International Accounting, Auditing and Taxation*, 40, 100338.
- Walker, R. G. (1978). *Consolidated Statements*. Arno Press.
- Zeileis, A. (2004). Econometric Computing with HC and HAC Covariance Matrix Estimators. *Journal of Statistical Software*, 11(10). <https://doi.org/10.18637/jss.v011.i10>

Appendices

Appendix 1 Classification of NIEM

Table 9 Examples of integral/non-integral classification and the proportion of NIEM in 2020

| In M€ | | | | | | | |
|---|--------------|--------|--------|--------------------------------|------------------|--------|---------|
| Group | Airbus | Safran | Veolia | Vivendi | Bouygues | Alstom | Renault |
| Classification of JVs and associates | All integral | | | Both integral and non-integral | All non-integral | | |
| Operating income | (549) | 1,345 | 1,335 | 1,450 | 1,222 | 300 | (1,999) |
| NIEM (integral entities) | 39 | 48 | 130 | (18) | - | - | - |
| Operating income after NIEM | (510) | 1,393 | 1,465 | 1,650 | 1,222 | 300 | (1,999) |
| NIEM (non-integral entities) | - | - | - | 126 | 216 | 83 | (5,145) |
| Net income (NI) | (1,133) | 352 | 625 | 1,440 | 696 | 259 | (8,008) |
| % NIEM/NI | -3.4% | 13.6% | 20.8% | 7.5% | 31% | 32% | 64% |

Practices are still heterogeneous even though the percentage of NIEM can be high, suggesting that many entities could be classified as integral. Airbus, Safran, and Veolia classify all their JVs and associates as integral. Bouygues, Alstom and Renault consider all their JVs and associates non-integral even though the percentage of NIEM is respectively 31%, 32%, and 64%.

Appendix 2 Study of the stationarity of variables

Table 10 Results of unit root tests

| | Dickey-Fuller statistic (with lag order of 2) |
|---------------------|--|
| P | -18.581*** |
| NI | -27.432*** |
| NILEM | -27.799*** |
| NIEM | -23.598*** |
| NIEM _{INT} | -31.364*** |
| NIEM _{NI} | -22.423*** |
| A | -19.365*** |
| ALEM | -19.458*** |
| IEM | -24.458*** |
| D | -19.093*** |
| LnA | -28.718*** |

***significant at the 1 % level; **significant at the 5 % level; *significant at the 10 % level.

P: Price, NI: Net Income per share attributable to owners of the consolidating company, per share, NILEM: Net Income Less net income from IEM, NIEM: Share of net Income of associates and JVs accounted for by the Equity Method, per share, NIEM_{INT}: Share of Net Income of associates and JVs accounted for by the Equity Method that are classified as integral, per share, NIEM_{NI}: Share of Net Income of associates and JVs accounted for by the Equity Method that are classified as non-integral, per share, A: total Assets per share, ALEM: total Assets Less IEM, per share, IEM: Investments accounted for by the Equity Method, per share, D: total net Debt per share, LnA: natural logarithm of total Assets.

No unit root is present for any of the variables, and the series are considered as stationary.

Appendix 3 Descriptive statistics and correlation matrix for 2007-2012

Table 11 Descriptive statistics 2007-2012 (€ per share)

| | N | Mean | St. Dev. | Minimum | Median | Maximum |
|-------|-------|------|----------|---------|--------|---------|
| P | 1,897 | 28.3 | 40.8 | 0.1 | 13.8 | 356.0 |
| NIEM | 1,897 | 0.1 | 0.5 | -5.6 | 0.0 | 10.8 |
| NI | 1,897 | 1.6 | 5.0 | -49.9 | 0.8 | 69.6 |
| NILEM | 1,897 | 1.6 | 5.0 | -49.9 | 0.8 | 69.4 |
| IEM | 1,897 | 1.3 | 9.4 | -0.001 | 0.0 | 204.0 |
| A | 1,897 | 60.7 | 92.5 | 0.1 | 25.9 | 1,030.9 |
| ALEM | 1,897 | 59.4 | 91.0 | 0.1 | 25.5 | 1,030.2 |
| Debt | 1,897 | 7.8 | 22.0 | -83.6 | 1.6 | 203.0 |
| LnA | 1,897 | 12.8 | 2.5 | 7.0 | 12.4 | 19.3 |

P: Price, NIEM: Share of net Income of associates and JVs accounted for by the Equity Method, per share, NI: Net Income per share attributable to owners of the consolidating company, NILEM: Net Income Less net income from IEM, per share, IEM: Investments accounted for by the Equity Method, per share, A: total Assets per share, ALEM: total Assets Less IEM, per share, D: total net Debt, per share, LnA: natural logarithm of total Assets.

Table 12 Pearson correlation matrix between price, IEM (2007-2012)

| | P | NI | NILEM | NIEM | A | ALEM | IEM | Debt |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|
| P | | | | | | | | |
| NI | 0.62*** | | | | | | | |
| NILEM | 0.61*** | 1.00*** | | | | | | |
| NIEM | 0.13*** | 0.17*** | 0.07*** | | | | | |
| A | 0.73*** | 0.47*** | 0.46*** | 0.15*** | | | | |
| ALEM | 0.73*** | 0.46*** | 0.45*** | 0.10*** | 0.99*** | | | |
| IEM | 0.19*** | 0.21*** | 0.16*** | 0.51*** | 0.21*** | 0.11*** | | |
| Debt | 0.21*** | 0.03 | 0.02 | 0.06*** | 0.54*** | 0.54*** | 0.08*** | |
| LnA | 0.30*** | 0.16*** | 0.15*** | 0.12*** | 0.33*** | 0.33*** | 0.09*** | 0.29*** |

***significant at the 1 % level; **significant at the 5 % level; *significant at the 10 % level.

P: Price, NI: Net Income per share attributable to owners of the consolidating company, per share, NILEM: Net Income Less net income from IEM, per share, NIEM: Share of net Income of associates and JVs accounted for by the Equity Method, per share, A: total Assets per share, ALEM: total Assets Less IEM, per share, IEM: Investments accounted for by the Equity Method, per share, D: total net Debt, per share, LnA: natural logarithm of total Assets.

Appendix 4 Comparison of the periods before and after IFRS 11

Table 13 Comparison of 2007-2012 and 2014-2020

| Price (P) dependent variable | 07-12 | | | | 14-20 | | | |
|------------------------------------|--|--|--|--|---|---|---|---|
| | NIEM model | NIEM EXPC model | IEM model | IEM EXPC model | NIEM model | NIEM EXPC model | IEM model | IEM EXPC model |
| (Intercept) | -1.810 (-0.332) | -5.201 (-0.836) | -1.491 (-0.275) | -4.976 (-0.803) | -21.487 ^{***} (-2.969) | -24.264 ^{***} (-3.468) | -23.664 ^{***} (-3.265) | -25.737 ^{***} (-3.588) |
| NIEM | 0.505 (0.213) | -0.072 (-0.035) | | | -5.198 ^{**} (-2.559) | -5.679 ^{**} (-2.402) | | |
| IEM | | | 0.269 ^{***} (3.637) | 0.249 ^{***} (2.896) | | | -0.888 ^{***} (-2.968) | -0.766 ^{**} (-2.541) |
| A | 0.291 ^{***} (7.584) | 0.288 ^{***} (6.419) | | | 0.390 ^{***} (11.923) | 0.406 ^{***} (9.749) | | |
| ALEM | | | 0.291 ^{***} (7.499) | 0.288 ^{***} (6.374) | | | 0.398 ^{***} (11.714) | 0.415 ^{***} (9.509) |
| NI | | | 2.376 ^{***} (4.824) | 2.328 ^{***} (3.768) | | | 2.830 ^{***} (7.065) | 2.802 ^{***} (5.548) |
| NILEM | 2.392 ^{***} (4.840) | 2.349 ^{***} (3.784) | | | 2.912 ^{***} (7.132) | 2.869 ^{***} (5.714) | | |
| D | -0.327 ^{***} (-3.034) | -0.343 ^{***} (-2.743) | -0.327 ^{***} (-3.013) | -0.345 ^{***} (-2.749) | -0.331 ^{***} (-3.541) | -0.342 ^{***} (-3.483) | -0.296 ^{***} (-3.140) | -0.316 ^{***} (-3.168) |
| INDUS | 3.000 [*] (1.715) | 3.873 ^{**} (1.975) | 2.993 [*] (1.701) | 3.952 ^{**} (1.980) | 2.948 (1.239) | 3.769 (1.540) | 2.792 (1.159) | 3.879 (1.557) |
| LnA | 1.394 ^{***} (3.274) | 1.582 ^{***} (3.277) | 1.367 ^{***} (3.218) | 1.557 ^{***} (3.238) | 2.182 ^{***} (3.748) | 2.419 ^{***} (4.075) | 2.347 ^{***} (4.055) | 2.532 ^{***} (4.230) |
| EXPC | | 11.293 (0.745) | | 13.635 (0.879) | | 3.840 (0.142) | | 3.309 (0.119) |
| NIEM x EXPC | | 5.490 (0.546) | | | | 4.708 (0.989) | | |
| IEM x EXPC | | | | 1.061 (0.788) | | | | 0.208 (0.160) |
| A x EXPC | | 0.035 (0.486) | | | | -0.086 (-1.006) | | |
| ALEM x EXPC | | | | 0.021 (0.296) | | | | -0.079 (-0.750) |
| NI x EXPC | | | | 0.037 (0.043) | | | | -0.327 (-0.328) |
| NILEM x EXPC | | 0.043 (0.051) | | | | -0.336 (-0.315) | | |
| D x EXPC | | 0.086 (0.369) | | 0.081 (0.341) | | 0.163 (0.424) | | 0.158 (0.435) |
| LnA x EXPC | | -0.444 (-0.396) | | -0.647 (-0.563) | | -0.467 (-0.239) | | -0.444 (-0.224) |
| INDUS x EXPC | | -5.752 (-1.348) | | -5.048 (-1.207) | | -4.068 (-0.480) | | -5.069 (-0.582) |
| R ² | 0.671 | 0.676 | 0.670 | 0.675 | 0.666 | 0.672 | 0.670 | 0.676 |
| Adj. R ² | 0.669 | 0.672 | 0.668 | 0.672 | 0.665 | 0.668 | 0.668 | 0.672 |
| Num. obs. | 1,897 | 1,897 | 1,897 | 1,897 | 2,164 | 2,164 | 2,164 | 2,164 |
| F statistic | 349.327 | 169.577 | 348.549 | 169.517 | 358.143 | 175.027 | 364.464 | 178.248 |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

Statistical significance is based on two-tailed tests and is indicated as follows: *** p-value < 0.01, ** p-value < 0.05, * p-value < 0.1.

P: Price, IEM: Investments accounted for by the Equity Method, per share, NIEM: Share of Net Income of associates and JVs accounted for by the Equity Method, per share, NIEM_{INT}: Share of Net Income of associates and JV accounted for by the Equity Method that are classified as integral, per share, NIEM_{NI}: Share of Net Income of associates and JV accounted for by the Equity Method that are classified as non-integral, per share., A: total Assets per share, ALEM: total Assets Less IEM, per share, NI: Net Income per share attributable to owners of the consolidating company, NILEM: Net Income Less net income from IEM, per share, D: total net Debt, per share, LnA: natural logarithm of total Assets, INDUS: dummy variable coded 1 if the group is industrial, EXPC: Dummy variable coded 1 if the group has switched from PC to EM.

The year 2013 was excluded from regressions by sub-periods, as a transition period when the EM could be adopted early under the consolidation package (Reg. EU 1254/2012), which was more difficult to analyse due to the ‘visibility effect’. This effect describes the fact that ‘investors begin to focus on the item being discussed before an actual financial statement is reported under the new standard’ (Fasan et al. 2014).

Appendix 5 Study of the durability of effects

Table 14 Durability of the effects on NIEM and IEM

| Price (P) dependent variable | NIEM model | | | | | IEM model | | | |
|------------------------------------|--------------------------------|-------------------------------|-------------------------------|-------------------------------|---------------------|--------------------------------|-------------------------------|-------------------------------|-------------------------------|
| | 14-17 | 15-18 | 16-19 | 17-20 | | 14-17 | 15-18 | 16-19 | 17-20 |
| (Intercept) | -21.941 *** (-3.058) | -18.288 ** (-2.280) | -16.899 * (-1.954) | -14.476 * (-1.690) | (Intercept) | -23.938 *** (-3.411) | -19.556 ** (-2.476) | -19.073 ** (-2.222) | -17.103 ** (-1.980) |
| NIEM | -5.172 ** (-2.151) | -5.878 ** (-2.253) | -5.171 ** (-2.079) | -5.067 ** (-2.263) | IEM | -0.837 ** (-2.482) | -0.765 ** (-2.181) | -1.014 *** (-3.452) | -0.951 *** (-2.803) |
| A | 0.354 *** (10.310) | 0.373 *** (8.229) | 0.394 *** (8.875) | 0.435 *** (10.939) | ALEM | 0.362 *** (9.688) | 0.385 *** (7.950) | 0.408 *** (8.860) | 0.444 *** (11.007) |
| NILEM | 3.289 *** (5.331) | 3.255 *** (5.530) | 3.066 *** (5.833) | 2.680 *** (5.818) | NI | 3.104 *** (5.202) | 3.072 *** (5.323) | 2.976 *** (5.724) | 2.631 *** (5.774) |
| D | -0.196 * (-1.830) | -0.224 * (-2.020) | -0.322 *** (-2.729) | -0.443 *** (-3.843) | D | -0.180 * (-1.720) | -0.212 * (-1.908) | -0.279 ** (-2.466) | -0.402 *** (-3.522) |
| INDUS | 4.055 (1.634) | 2.913 (1.195) | 2.307 (0.912) | 1.209 (0.436) | INDUS | 3.750 (1.535) | 2.822 (1.167) | 2.414 (0.943) | 1.231 (0.435) |
| LnA | 2.228 *** (3.795) | 2.076 *** (3.104) | 2.067 *** (2.884) | 2.124 *** (3.043) | LnA | 2.395 *** (4.216) | 2.197 *** (3.347) | 2.239 *** (3.155) | 2.322 *** (3.315) |
| R ² | 0.687 | 0.666 | 0.655 | 0.650 | R ² | 0.688 | 0.668 | 0.664 | 0.656 |
| Adj. R ² | 0.685 | 0.664 | 0.653 | 0.648 | Adj. R ² | 0.686 | 0.665 | 0.661 | 0.653 |
| Num. obs. | 1,277 | 1,272 | 1,250 | 1,205 | Num. obs. | 1,277 | 1,272 | 1,250 | 1,205 |
| F statistic | 309.443 | 280.105 | 262.046 | 247.049 | F statistic | 310.452 | 281.860 | 271.895 | 253.196 |
| Year fixed effects | Yes | Yes | Yes | Yes | Year fixed effects | Yes | Yes | Yes | Yes |

Statistical significance is based on two-tailed tests and is indicated as follows: *** p-value < 0.01, ** p-value < 0.05, * p-value < 0.1.

P: Price, NIEM: Share of Net Income of associates and JVs accounted for by the Equity Method, per share, IEM: Investments accounted for by the Equity Method, per share, A: total Assets per share, ALEM: total Assets Less IEM, per share, NI: Net Income per share attributable to owners of the consolidating company, NILEM: Net Income Less net income from IEM, per share D: total net Debt, per share, INDUS: Dummy variable coded 1 if the group is industrial, LnA: natural logarithm of total Assets.

Appendix 6 Effects of the integral/non-integral classification on operating income value relevance

Two models are run. The first breaks down NI between operating income excluding NIEM_{INT} (i.e. the value of operating income if the ANC recommendation or IASB proposal were not applied), NIEM, and the remainder of the Net Income: Other Net Income (ONI). The second breaks down NI between OIWINT (which includes NIEM_{INT}), NIEM_{NI} as presented at the end of the income statement, and ONI.

$$P_{it} = a_0 + a_1OI + a_2NIEM_{it} + a_3ONI_{it} + a_4A_{it} + a_5D_{it} + a_6LnA_{it} + a_7INDUS_{it} + \sum_{t=1}^T a_{7t}(Year_t) + \varepsilon_{it} \quad (\text{model OI})$$

$$P_{it} = a_0 + a_1OIWINT + a_2NIEM_{NIit} + a_3ONI_{it} + a_4A_{it} + a_5D_{it} + a_6LnA_{it} + a_7INDUS_{it} + \sum_{t=1}^T a_{8t}(Year_t) + \varepsilon_{it} \quad (\text{model OIWINT})$$

Table 15 Operating income and effects on value relevance of the integral/non-integral classification

| Price (P) dependent variable | OI model | | OIWINT model | | |
|---------------------------------|--------------------|----------|---------------------|--------------------|----------|
| (Intercept) | -20.174 *** | (-2.909) | (Intercept) | -21.649 *** | (-3.171) |
| OI | 2.989 *** | (7.265) | OIWINT | 2.969 *** | (7.001) |
| NIEM | -4.252 ** | (-2.075) | NIEM _{NI} | -2.431 | (-1.093) |
| ONI | 0.165 | (0.368) | ONI | 0.067 | (0.151) |
| A | 0.319 *** | (8.568) | A | 0.303 *** | (8.133) |
| D | -0.332 *** | (-3.592) | D | -0.340 *** | (-3.737) |
| LnA | 2.097 *** | (3.741) | LnA | 2.208 *** | (3.959) |
| INDUS | 2.636 | (1.115) | INDUS | 2.852 | (1.216) |
| R ² | 0.684 | | R ² | 0.679 | |
| Adj. R ² | 0.682 | | Adj. R ² | 0.677 | |
| Num. obs. | 2,164 | | Num. obs. | 2,164 | |
| F statistic | 357.632 | | F statistic | 349.133 | |
| Year fixed effects | Yes | | Year fixed effects | Yes | |

Statistical significance is based on two-tailed tests and is indicated as follows: *** p-value < 0.01, ** p-value < 0.05, * p-value < 0.1.

P: Price, OI: operating income excluding NIEM_{INT}, per share, OIWINT: Operating Income with NIEM_{INT} per share, NIEM: Share of Net Income of associates and JV accounted for by the Equity Method, per share, NIEM_{NI}: Share of Net Income of associates and JV accounted for by the Equity Method that are classified as non-integral, per share, A: total Assets per share, NI: Net Income per share attributable to owners of the consolidating company, per share, D: total net Debt, per share, LnA: natural logarithm of total Assets, POST: Dummy variable coded 1 if the year is 2014 and after, INDUS: dummy variable coded 1 if the group is industrial.