Journal of Accounting and Economics xxx (xxxx) xxx

Contents lists available at ScienceDirect

Journal of Accounting and Economics

journal homepage: www.journals.elsevier.com/journal-of-accounting-and-economics

The effect of fair value accounting on the performance evaluation role of earnings

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ARTICLE INFO

Article history:
Received 4 February 2019
Received in revised form 10 April 2020
Accepted 31 July 2020
Available online xxx

Keywords:
Fair value accounting
Historical cost accounting
Cash pay
Accounting earnings
Management performance evaluation
IFRS adoption

ABSTRACT

We study the effect of fair value accounting on the association between net income and cash pay following the 2005 worldwide adoption of IFRS. We find that, while IFRS's *non*-fair-value provisions are associated with an increase in this association, its fair value provisions are associated with a decrease in this association. Overall, we contribute to the literature on the usefulness of fair value accounting by presenting evidence that fair value accounting is associated with a decrease in this association. Under assumptions that we detail and subject to caveats that we detail, our evidence suggests that fair value accounting may reduce the usefulness of earnings in evaluating management performance.

1. Introduction

A large body of research examines the usefulness of historical costs versus fair values in financial reporting. Most of this research investigates whether fair value accounting affects the valuation role of accounting, while relatively few studies explore the effects of fair values on the contracting role of accounting. Studies that examine the use of fair values in management compensation primarily focus on the association between fair value-based income statement components and management compensation. However, this literature's focus on fair value-based components necessarily results in relatively small samples that are limited to specific industries. In this study, we examine the effects of fair value accounting on the association between net income and executive cash compensation by exploiting the worldwide mandatory adoption of International Financial Reporting Standards (IFRS) in 2005. IFRS resulted in an increased use of fair values, relative to the local GAAP it replaced, for thousands of companies worldwide (Armstrong et al., 2010; Ball et al., 2015). As a result, IFRS adoption allows us to provide large-sample evidence on the effects of switching to an accounting system in which fair values are embedded in the measurement of many accounts, and are not generally reported as separable earnings components.

The contracting literature suggests that firms should place greater weight on performance measures that are more sensitive to an agent's effort (e.g., Holmstrom, 1979; Lambert and Larcker, 1987; Banker and Datar, 1989). If IFRS's fair value provisions help net income better reflect companies' risks and economic performance (e.g., IASB, 2006, p. 57), we predict an

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https://doi.org/10.1016/j.jacceco.2020.101341
0165-4101/

increase in the association between net income and management compensation among the firms most affected by IFRS's fair value provisions. However, if these provisions contain noise or bias that makes net income a poor summary measure of management performance (Kothari et al., 2010), we predict a decrease in the association between net income and management compensation among the firms most affected by IFRS's fair value provisions.

We test our predictions using a difference-in-differences (DiD) research design that compares the change in the association between net income and executive cash pay for the firms most affected by IFRS's fair value standards ("high FV firms"), with this change for other IFRS adopters ("low FV firms"), during the three years before and after adoption. Ideally, we would measure management compensation using total compensation, which equals total pay plus changes in the value of management's holdings of stock, options, and performance vested plans (Core et al., 2003). However, due to data limitations, we follow Ozkan et al. (2012) by using cash pay as a proxy for total compensation.

We identify the high FV firms using Ball et al. (2015) classification of the IFRS standards that prescribe the use of fair values. We measure the magnitude of the fair value effects using the reconciliations from local GAAP to IFRS that are reported in the transition year, and classify firms as high FV firms when the absolute value of their fair value reconciliations exceeds the sample median.[1] All else equal, these firms' net income is most affected by IFRS's fair value provisions during the post-adoption period. Using a *firm-level* measure to capture the fair value effects helps control for firm events that may confound our results. This should strengthen identification, as compared with prior studies, which generally employ aggregate country-level measures of the differences between IFRS and local GAAP (e.g., Li, 2010; Tan et al., 2011; Ozkan et al., 2012).

Our full sample consists of 21,462 executive-years for 1,654 unique nonfinancial firms across 22 countries that mandated IFRS adoption in 2005. Since the high FV firms may differ systematically from the low FV firms, we also conduct tests using a propensity-score-matched (PSM) sample. In addition, we perform analyses that restrict our sample to CEOs and include a control variable that captures the firms most affected by IFRS's *non*-fair-value provisions.

Our primary DiD analysis finds that while the association between net income and cash pay after IFRS adoption generally increases for the low FV firms, it decreases for the high FV firms, the net effect of which is a decrease in this association for the high FV firms relative to the low FV firms. In addition, we find that for the firms most affected by IFRS's *non*-fair-value provisions, this association increases after IFRS adoption. Taken together, these findings suggest that, while IFRS's non-fair-value provisions are associated with an increase in the association between net income and cash pay, its fair value provisions are associated with a decrease in this association.

We also perform several analyses that assess the construct validity of our measure of high FV firms. Consistent with our measure capturing firms most affected by IFRS's fair value provisions, we find that the high FV firms are more likely to report fair value revaluation gains and losses in the post-IFRS period and that our results hold after restricting the analysis to short-term investments, an account that is likely to be strongly affected by the fair value provisions. We further examine the association between cash pay and separately reported fair value revaluation gains and losses in the post-IFRS period. While this analysis finds little evidence that boards place lower weight on the fair value components of earnings, a caveat for this cross-sectional analysis is that it may suffer from low power (Dechow et al., 2010).

Next, we investigate the channels through which fair value accounting reduces the association between net income and cash pay. These tests find that the high FV firms report an increase in earnings management and an increase in the variance of earnings divided by the variance of returns, following IFRS adoption. However, we find little evidence of changes in earnings timeliness or persistence among the high FV firms.

We further find that the negative effects of IFRS's fair value provisions on the association between net income and cash pay are concentrated among countries with small differences between IFRS and local GAAP ("IFRS-LGAAP differences"), as captured by the GAAP differences index of Bae et al. (2008). This is consistent with the index being composed primarily of disclosure requirements and non-fair-value provisions, which weakens our results in countries with large IFRS-LGAAP differences by confounding our firm-level fair value measure. Finally, our results are robust to a variety of sensitivity tests, including the use of alternative samples, an alternative measure of the high FV firms, alternative standard error clustering schemes, and additional control variables. We also obtain similar inferences using alternative regression specifications and in analyses of the association between CEO turnover and performance.

An assumption underlying our tests is that the association between net income and cash pay captures the usefulness of earnings in evaluating management performance. We caution, however, that restricting our analysis to cash pay, rather than total compensation, potentially confounds this assumption. Some of the executives in our analysis may be compensated through performance vested plans, which often vest based on the achievement of accounting-based goals (Carter et al., 2009; Bettis et al., 2018).[2] IFRS's fair value provisions could also increase the performance sensitivity of or reduce the noise in stock prices, making stock-based performance a relatively better measure of management performance than net income. If so, firms may respond to IFRS adoption by increasing their executives' holdings of stock, options, and performance vested plans, which could result in more efficient performance incentives.

[1] Studies that use reconciliations in the IFRS transition year to compute a firm-level measure of GAAP changes include those by Hung and Subramanyam (2007), Christensen et al. (2009), and Barth et al. (2014).

[2] Fernandes et al. (2013) report that the mean proportion of equity-based pay for non-U.S. CEOs is 22%.

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Another limitation is that we cannot observe whether or how compensation committees transform reported net income in determining management compensation. The literature finds that boards regularly adjust net income for non-persistent components, like restructuring charges (Dechow et al., 1994; Adut et al., 2003). Firms may use the same non-GAAP earnings measure to evaluate management performance both before and after mandatory IFRS adoption but more adjustments may be required after IFRS adoption.[3] In addition, changes in regulation that coincided with IFRS adoption may also reduce the association between net income and cash pay. For example, several of our sample countries mandated additional executive pay disclosures (Fernandes et al., 2013), which may increase the number and variety of performance measures used in executive compensation contracts (Gipper, 2017). Thus firms may shift the incentive weight from net income to other performance measures, such as sales or environmental performance. While our result is robust to controlling for sales, our analysis does not speak to other income statement components (or combinations of components) that companies may use to evaluate management performance following the adoption of IFRS.

Our study contributes to the literature in several ways. One contribution is to the literature on the usefulness of fair value accounting (e.g., Dechow et al., 2010; Kothari et al., 2010; Livne et al., 2011; Manchiraju et al., 2016; Chen and Tang, 2017).[4] Subject to the caveats that we detail above, our findings are consistent with fair value accounting reducing the usefulness of earnings in evaluating management performance. We further find evidence that this reduction results from greater earnings manipulation and noisier earnings.

Our study also contributes to the long line of research on the effects of mandatory IFRS adoption, most of which examines the valuation role of accounting information. The few studies that examine the contracting role of IFRS-based accounting find mixed results. While Ball et al. (2015) conclude that IFRS adoption reduces the usefulness of accounting information in debt contracting, other studies find that IFRS adoption increases the association between net income and cash pay (Ozkan et al., 2012) and the sensitivity of CEO turnover to earnings (Wu and Zhang, 2009, 2019).[5] Our study suggests that these mixed findings likely result from the opposing effects of IFRS's non-fair-value provisions and its fair value provisions on management performance evaluation.

Finally, we contribute to the literature by using a research design that helps address causality. The literature suggests that the association between earnings and compensation depends on the ability of earnings to reflect managerial effort and align incentives (Baber et al., 1998; Bushman et al., 2006). Because earnings properties are determined by managerial actions, the endogeneity issue is inherently challenging in cross-sectional studies. We address this concern by using a firm-level treatment variable in a DiD research design and by examining a mandatory change in accounting standards that makes the effect of management choices less important (Atanasov and Black, 2016).

2. Hypothesis development

2.1. Mandatory IFRS adoption and fair value accounting

The 2005 mandatory IFRS adoption resulted in an increase in the use of fair value accounting, relative to prior local GAAP.[6] However, the costs and benefits associated with IFRS's fair value provisions are hotly debated (Ball et al., 2015; DeFond et al., 2015). Proponents argue that fair values better reflect firms' underlying risks and economic performance, a view held by the IASB: “In many accounting pronouncements, the Board has concluded that fair value information is relevant, and users of financial statements generally have agreed” (IASB, 2006, p. 57).

Opponents argue that fair value introduces noise and obscures firm performance. For example, an article from the *Financial Times* states: “Many company directors are still disputing whether fair value accounting gives a more meaningful insight into a company's economic performance than other measures” (Hargreaves, 2005). Consistent with this view, the Association of French Financial Analysts states: “The use of fair value can confuse interpretation of a company's operational results. Fair value accounting is less reliable, allows greater manipulation of results and introduces volatility” (Comments from the Association of French Financial Analysts, Hawkins et al., 2008).

The IASB's motivation for increasing use of fair value accounting is based on the assumption that GAAP's primary objective is to assist in equity valuation. In contrast, Kothari et al. (2010) argue that GAAP's principal objective is to facilitate efficient capital allocation and that this objective would lead to its primacy in stewardship and management performance evaluation.

[3] Making such adjustments, however, is consistent with a reduction in the usefulness of reported earnings in evaluating management performance (Ball et al., 2015). Our additional analysis, reported in Panel C of Table 9, suggests that only the firms least affected by IFRS's fair value provisions exhibit an increase in the sensitivity of CEO turnover to changes in earnings, which is consistent with IFRS's fair value provisions reducing the association between net income and management performance evaluation.

[4] For example, Livne et al. (2011) examine 152 U.S. banks and find that boards do not consider fair value components in compensating CEOs. Manchiraju et al. (2016) examine 87 oil and gas firms and find that boards reward CEOs for hedge derivative gains and penalize them for hedge derivative losses. Chen and Tang (2017) examine a sample of 70 Hong Kong property companies and find that boards reward CEOs for revaluation gains but not losses. A related literature examines how compensation contracts affect management's use of fair values (e.g., Shalev et al., 2013).

[5] Like ours, these are cross-country studies. Single country studies include those by Ke et al. (2016) and Voulgaris et al. (2014).

[6] IFRS defines fair value as “the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date” (IFRS 13: Fair Value Measurement).

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Fair values that are based on observable prices in liquid secondary markets may help facilitate performance evaluation and monitoring. But absent verifiable markets, fair value estimates can be manipulated by managers, reducing their reliability.

2.2. The effects of fair value accounting on the association between net income and management performance

Contracting theory suggests that when multiple performance measures are present, optimal incentive-compatible contracts should place greater weight on measures that are more precise and more sensitive to the agent's effort (e.g., Holmstrom, 1979; Banker and Datar, 1989). Thus the measures used in evaluating management performance can differ from those used in valuing equity, which focus on the estimation of future cash flows (Natarajan, 1996).

Fair value accounting may increase the association between net income and management compensation by reflecting management's contribution to firm performance in a timelier manner (De George et al., 2016). While fair value accounting permits both write-downs and write-ups of current asset values, historical cost accounting requires assets to be valued at their initial cost and only permits write-downs when their recoverability is in question. Ozkan et al. (2012) argue that increased transparency and comparability should also increase the association between net income and management compensation. Thus, if fair value accounting increases transparency and comparability, it should render net income a more precise measure of managerial effort.

On the other hand, there are arguments suggesting that fair value accounting may reduce the association between net income and management compensation. One is that fair value accounting facilitates earnings management, which can reduce the ability of earnings to reflect managers' true performance. This is consistent with the results of Dechow et al. (2010), who find that managers use the discretion in the fair value accounting rules for securitization to boost earnings. It is also consistent with the findings of Kothari et al. (2010), who argue that the lack of verifiability of many fair value measurements decreases their usefulness in contracting, Other arguments suggest that fair values introduce uncontrollable market-wide movements into earnings (Sloan, 1993; Baber et al., 1998) and that the use of fair value accounting lowers the distinction between earnings and stock prices (De George et al., 2016).

In summary, if fair value accounting increases the ability of net income to reflect managerial effort and its contribution to profitability, the association between net income and management compensation should increase among firms for which IFRS's fair value provisions have relatively large effects. Alternatively, if fair value accounting results in more opportunistic reporting, increases the noise in net income, or both, the association between net income and management compensation will decrease. To the extent that cash pay is an adequate proxy for total compensation, this leads to our Hypothesis, which is non-directional.

Hypothesis: *The association between net income and cash pay will either increase or decrease among the firms whose net income is most affected by IFRS's fair value provisions following IFRS adoption.*

We caution, however, that we cannot observe whether or how boards respond to the fair value effects of IFRS adoption by adjusting net income in evaluating management performance. U.S. boards commonly use adjusted income statement numbers (i.e., net income minus adjustments) in executive compensation contracting (e.g., Dechow et al., 1994; Adut et al., 2003; Black et al., 2017; Curtis et al., 2018). Anecdotal evidence also suggests that U.K. boards exclude the effects of fair value accounting in compensation contracts following IFRS adoption.[7] Thus firms may adjust net income when using it to evaluate management performance and that the adjusted net income may be correlated with compensation both before and after IFRS.

3. Data and research design

3.1. Data and sample selection

We restrict our analysis to countries that mandatorily adopted IFRS in 2005 to maintain identical economic and regulatory environments across the high and low FV firms. We classify mandatory adopters as firms that adopt IFRS for the first time on or after December 31, 2005. Our sample period consists of the three fiscal years prior to adoption and the first three fiscal years after adoption. We exclude the first year of IFRS adoption because firms may need time to adjust their compensation contracts (Ozkan et al., 2012).

We obtain firm-level financial data from Worldscope and executive-level cash pay data from S&P Capital IQ. Capital IQ contains detailed information on cash pay and firm executives in over 100 countries.[8] Due to data limitations, we focus on cash pay, rather than total compensation, which includes for example, stock-based compensation or changes in value of holdings of stock. In many of our sample countries, data on some non-cash pay components only became available following proxy reforms that occurred at about the same time as mandatory IFRS adoption (Fernandes et al., 2013). In addition, data on holdings of stock, options, and performance-vested plans are often missing or not disclosed in the early part of our sample period, and even when disclosed, they are not necessarily available in the Capital IQ database.

[7] For example, Alliance and Leicester's 2005 Annual Report (p. 36) notes that the remuneration committee "has agreed that calculation of the underlying EPS should exclude fair value accounting volatility."

[8] We study cash pay of key executives, flagged by *KEYEXECFLAG* = 1 in Capital IQ.

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To ensure comparability across countries, we require the sample firms to have positive pre-tax income, market capitalization greater than $10 million, and minimum annual executive cash pay of $10,000. To compute our firm-level measure of the effect of fair value accounting, we require the sample firms to include the reconciliation of local GAAP with IFRS, as required by IFRS 1, in their first-year financial statements following adoption. We exclude observations with firm-level continuous variables at the top and bottom one percentile of their distributions, yielding a sample of 21,462 executive-year observations for 5,032 firm-years of 1,654 unique non-financial firms (one-digit SIC code is not "6") from 22 IFRS adoption countries. Compared to the sample of IFRS adopters of Ozkan et al. (2012), ours is substantially larger, due to the greater coverage of Capital IQ as compared with BoardEx.

Table 1 reports the distribution of our sample by country and year and shows that the number of firms and executive-years vary widely across countries. Australia and the U.K. have the most executive-years and firms, while Austria has the least. Panel B of Table 1 reports the sample distribution by calendar year. For December 31 year-end firms, the pre-adoption period falls in calendar years 2002–2004, and the post-adoption period falls in calendar years 2006–2008; for non-December 31 year-end firms, the pre-adoption period falls in calendar years 2003–2005, and the post-adoption period falls in calendar years 2007–2009. Because of the differences in fiscal year-ends and the increasing coverage of Capital IQ, the number of observations is relatively large in calendar years 2007–2008.

3.2. Measuring the effect of fair value changes under IFRS

To create our treatment variable, we begin by constructing a firm-level continuous variable (ΔFV). Following Hung et al. (2015), we measure ΔFV using the difference between the financial statement accounts computed under IFRS and under local GAAP. During the first year of adoption, IFRS adopters are required to report these reconciliations for the year prior to adoption, along with a reference to the IFRS standards that explain the differences. While Hung et al. (2015) capture the overall effects of IFRS in their analysis, we focus on the accounts most affected by IFRS's fair value provisions. We identify these accounts based on the list of IFRS's fair value provisions in Ball et al. (2015). Specifically, we first obtain the data on the

Table 1
Sample distribution.

Panel A: Sample Distribution by Economy

Economy	Executive-Years	Firm-Years	Unique Firms
Australia	8,821	1,533	516
Austria	3	1	1
Belgium	40	21	12
Denmark	27	11	5
Finland	254	118	52
France	1,080	338	128
Germany	357	116	56
Hong Kong	12	3	1
Iceland	17	5	3
Ireland	353	75	17
Italy	83	24	12
Netherlands	506	217	61
Norway	573	150	66
Philippines	28	13	8
Poland	60	13	8
Portugal	7	4	2
Slovenia	19	5	4
South Africa	2,015	462	122
Spain	133	33	17
Sweden	479	244	114
Switzerland	51	19	14
U.K.	6,544	1,627	435
Total	21,462	5,032	1,654

Panel B: Sample Distribution by Calendar Year

Year	Executives	Firms
2002	425	115
2003	1,748	427
2004	3,049	729
2005	2,820	560
2006	1,743	523
2007	4,872	1,148
2008	4,435	1,054
2009	2,370	476
Total	21,462	5,032

Table 1 presents the sample distribution. Panel A reports the distribution by country and Panel B reports the distribution by calendar year.

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reconciliation amounts reported for each of the following eight financial statement accounts, with the IFRS standards shown in parentheses: (1) property, plant, and equipment (IAS 16: Property, Plant, and Equipment; IAS 40: Investment Property); (2) short-term investments (IAS 39: Financial Instruments); (3) long-term investments (IAS 39: Financial Instruments)[9]; (4) intangibles (IAS 22: Business Combinations; IAS 38: Intangible Assets); (5) provisions (IAS 37: Provisions, Contingent Liabilities and Contingent Assets); (6) post-retirement benefits (IAS 19: Employee Benefits)[10] (7) stock options (IFRS 2: Share-based Payment); and (8) discontinued operations (IFRS 5: Non-current Assets Held for Sale and Discontinued Operations).[11] We then measure ΔFV as the sum of the absolute values of the local GAAP-to-IFRS reconciliations, scaled by shareholders' equity (as do Hung and Subramanyam, 2007).

ΔFV is necessarily measured with noise. For example, ΔFV potentially includes reconciliation amounts that are affected by IFRS's *non*-fair-value provisions. To help mitigate this measurement error, we transform ΔFV into a binary indicator variable, *High* ΔFV, which takes a value of one if ΔFV is greater than the sample median and zero otherwise.[12]

Table 2 provides summary statistics for the firm-level reconciliation items that arise from the accounting provisions related to fair value accounting under IFRS. Panel A presents statistics for the eight individual accounts used in constructing ΔFV. For each financial statement account, we report the number of observations with nonzero values, the corresponding mean and median of the scaled absolute values, and the related IFRS standards. This panel shows that intangibles; property, plant, and equipment; and provisions have the most nonzero observations. The two accounts with the largest adjustments are post-retirement benefits (14.6% of shareholders' equity) and provisions (11% of shareholders' equity). The bottom row of Panel A reports that the aggregate firm-level measure of ΔFV has a mean of 0.346 and a median of 0.13, indicating that the reconciled amounts are economically significant. Panel B presents summary statistics of ΔFV by country and indicates that there is reasonable variation across countries.

To assess the validity of our fair value measure, we test its association with the likelihood of reporting revaluation gains and losses during the post-IFRS period of 2006–2016. We collect data from Worldscope on separately disclosed fair value gains and losses in the post-IFRS adoption period. We define *PRGL* as one if a firm reports nonzero revaluation gains and losses in the income statement and zero otherwise. We regress *PRGL* on our variable of interest (*High* ΔFV), firm-level controls (*STDCF*, ΔE, *RET*, *BM*, and *SIZE*), and country, industry, and year fixed effects. Appendix A provides the variable definitions. Table 2, Panel C, presents the results. In column (1), we find that *High* ΔFV is positively associated *PRGL*. In column (2), we decompose the fair value measure into two indices: fair value changes related to short-term investment accounts (*High* ΔFV_SINV) and fair value changes related to other accounts (*High* ΔFV_OTH). We find that both indices relate positively to *PRGL*. Thus the analysis in Panel C lends support to the validity of *High* ΔFV in capturing changes in fair value accounting that arise from IFRS adoption.

3.3. Research design

We test our Hypothesis using a DiD design that compares the change in the association between net income and cash pay for the high FV firms versus the low FV firms. Specifically, we regress the change in the natural logarithm of annual cash pay ($\Delta CashPay$) on two performance measures (changes in pre-tax income, ΔE, and stock returns, *RET*), an indicator variable that captures the post-adoption period (*POST*), a firm-level indicator that captures the treatment effect (*High* ΔFV), their interactions, and control variables.

We include stock returns as an alternative performance measure because studies show that executive compensation is associated with stock performance (e.g., Gibbons and Murphy, 1990). Including stock returns also allows us to determine whether a general trend in the efficiency of setting compensation contracts around IFRS adoption explains our results (Ozkan et al., 2012).

We test our Hypothesis using the following regression model.

[9] Long-term investments include investments in associated companies. For example, Bollore's 2005 annual report states (p. 70): "The restatement on January 1, 2005 of the holdings accounted for by the equity method mainly consists of the valuing at fair value of the Vallourec shares (29 million Euros)."

[10] While Cascino and Gassen (2015) suggest that local GAAP in countries, such as Germany, used similar valuation methods for employee benefits before IFRS adoption, Hung and Subramanyam (2007, Table 2, accounting treatment for pensions) point out that, under German GAAP, the discount rate is generally fixed at 6% and there is no consideration of expected future compensation levels. Thus the difference in employee benefits under German GAAP versus IFRS likely results from the consideration of market interest rates and future compensation levels, which are fair value-oriented. This is consistent with Elringklinger AG's 2005 annual report, which states (p. 77): "The valuation of the pension obligation in the HGB financial statements was computed on the basis of the entry-age method that is recognized for tax purposes. The IFRS value is computed by the projected unit credit method in accordance with IAS 19, under which the discount rate reflects the economic development, in contrast to the measurement under HGB … The valuation of the provisions for pensions under IFRS as at January 1, 2004, was EUR'000 7,807 higher than under German commercial law."

[11] The first six items are from the balance sheet, and the last two are from the income statement. We do not use the reconciled equity account to avoid double counting some fair value provisions. Also, the reconciled equity may underestimate the overall effect of IFRS adoption, as fair value increases can be offset by fair value decreases.

[12] Another potential source of measurement error in ΔFV is that some fair value changes may not flow through earnings. For example, if a company chooses to apply fair values to property, plant, and equipment, the adjustment goes through other comprehensive income. However, this revaluation would eventually be reflected in net income through future depreciation charges (Christensen and Nikolaev, 2013).

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Table 2
Statistics for reconciled amounts of financial statement items related to fair value accounting under IFRS.

Panel A: Fair-Value Related Accounts

Accounting items	N	Mean	Median	IFRS's fair value provisions
Observations with non-zero value				
PP&E	14,880	0.078	0.017	IAS 16, IAS 40
Short-term investments	5,821	0.092	0.013	IAS 39
Long-term investments	9,078	0.068	0.009	IAS 39
Intangibles	17,384	0.067	0.023	IAS 22, IAS 38
Provisions	12,769	0.110	0.022	IAS 37
Post-retirement benefits	8,922	0.146	0.034	IAS 19
Stock options	5,681	0.004	0.002	IFRS 2
Discontinued operations	3,438	0.093	0.016	IFRS 5
Aggregate measure				
ΔFV	21,462	0.346	0.130	

Panel B: Fair-value Changes (Δ*FV*) by Country

Economy	N	Mean	Median
Australia	8,821	0.201	0.079
Austria	3	0.055	0.055
Belgium	40	0.560	0.432
Denmark	27	0.110	0.045
Finland	254	0.208	0.154
France	1,080	0.559	0.226
Germany	357	0.684	0.152
Hong Kong	12	0.018	0.018
Iceland	17	0.685	0.195
Ireland	353	0.380	0.174
Italy	83	0.532	0.475
Netherlands	506	0.345	0.291
Norway	573	0.245	0.180
Philippines	28	0.130	0.031
Poland	60	0.357	0.048
Portugal	7	2.089	2.849
Slovenia	19	0.484	0.363
South Africa	2,015	0.197	0.053
Spain	133	0.463	0.417
Sweden	479	0.170	0.074
Switzerland	51	0.328	0.133
U.K.	6,544	0.553	0.262
Total/Median	21,462	0.351	0.164

Panel C: Testing the Association between the Likelihood of Reporting Revaluation Gains and Losses and the Fair Value Indices, 2006–2016

Dep var.=	*PRGL*	
	(1)	(2)
High ΔFV	**0.296*****	
	(3.73)	
High ΔFV_SINV		**0.243*****
		(3.06)
High ΔFV_OTH		**0.355*****
		(4.31)
STDCF	0.273	0.269
	(0.66)	(0.66)
ΔE	0.527***	0.521***
	(2.89)	(2.88)
RET	−0.136***	−0.131***
	(-3.09)	(-2.97)
BM	0.521***	0.502***
	(9.04)	(8.68)
SIZE	0.407***	0.385***
	(18.12)	(16.61)
Country and Industry FE	Yes	Yes
Year FE	Yes	Yes
OBS.	18,017	18,017
Pseudo R^2	0.132	0.135

Panels A and B of Table 2 report the statistics and the aggregate measure of the fair-value-related reconciled amounts (i.e., Δ*FV*) by country, respectively. Panel C presents Logit regression results of the likelihood of reporting fair value revaluation gains or losses on our fair value proxies over the post-IFRS period of 2006–2016. See Appendix A for other variable definitions. *z-stats*, reported in parentheses, are calculated based on robust standard errors clustered by firm. ***, **, and * indicate significance at the 1%, 5%, and 10% two-tailed levels, respectively.

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$$\Delta CashPay_{j,t} = \beta_0 + \beta_1 \Delta E_{j,t} + \beta_2 \Delta E_{j,t} \times POST + \beta_3 \Delta E_{j,t} \times POST \times High\ \Delta FV_j + \beta_4 \Delta E_{j,t} \times High\ \Delta FV_j + \beta_5 RET_{j,t} + \beta_6 RET_{j,t} \times POST + \beta_7 RET_{j,t} \times POST \times High\ \Delta FV_j + \beta_8 RET_{j,t} \times High\ \Delta FV_j + \beta_9 POST \times High\ \Delta FV_j + \beta_{10} POST + \beta_{11} High\ \Delta FV_j + \beta_{12} BM_{j,t} + \beta_{13} SIZE_{j,t} + \beta_{14} CEO_{i,j,t} + \beta_{15} LnAGE_{i,j,t} + \beta_{16} LnTENURE_{i,j,t} + Country\ and\ Industrial\ Fixed\ Effects + \mu. \quad (1)$$

A significantly positive (negative) coefficient on $\Delta E \times POST \times High\ \Delta FV$ indicates that the association between net income and cash pay increases (decreases) after IFRS adoption for the high FV firms, relative to the low FV firms. In addition to the control variables of Ozkan et al. (2012), we also include country and industry fixed effects. We use robust standard errors clustered by firm to evaluate the significance of regression coefficients in all our analyses.

In our expanded model, we include a control variable that captures the firms most affected by IFRS's non-fair-value provisions. We construct this variable by first creating a firm-level continuous measure that captures the extent to which a firm's financial statements are influenced by IFRS's non-fair-value provisions (ΔNFV), which equals the absolute value of the local GAAP-to-IFRS equity reconciliations excluding ΔFV, scaled by shareholders' equity. We then create an indicator variable, *High* ΔNFV, that equals one for firms with ΔNFV greater than the sample median and zero otherwise. Including *High* ΔNFV in our regression controls for the effects of changes unrelated to fair value accounting under IFRS. By controlling for *High* ΔNFV, the firms least affected by IFRS adoption (i.e., those with *High* $\Delta FV = 0$ and *High* $\Delta NFV = 0$) are implicitly used as the benchmark firms.

While our research design assumes comparability across the high and low FV firms, these two groups of firms may differ systematically. In an attempt to mitigate this concern, we perform a PSM analysis using firms selected from the full sample. Appendix B provides a detailed description of this procedure. An advantage of this analysis is that the high and low FV firms are comparable on such dimensions as size, and there is less risk from misspecification of the functional form of the regressions (DeFond et al., 2017; Shipman et al., 2017). A limitation of this analysis is that matching reduces the sample size. Because of these trade-offs, we consider the results from both the full and matched samples in drawing our conclusions.[13]

Table 3
Summary statistics of key variables.

Panel A: Descriptive Statistics

	High FV firms (*High* $\Delta FV = 1$) ($N = 10{,}540$)			Low FV firms (*High* $\Delta FV = 0$) (N = 10,922)			Diff.
	Mean	Median	STD	Mean	Median	STD	
CashPay (in 1,000 US$)	576.3	365.2	726.2	393.9	261.0	483.3	182.3***
$\Delta CashPay$	0.159	0.094	0.451	0.163	0.100	0.421	−0.005
ΔNFV	0.251	0.119	0.509	0.044	0.019	0.072	0.207***
ΔE	0.016	0.002	0.113	0.020	0.004	0.122	−0.004**
RET	0.064	0.017	0.447	0.069	−0.001	0.518	−0.006
BM	0.620	0.482	0.508	0.684	0.528	0.558	−0.064***
SIZE	6.067	6.142	1.762	5.303	5.233	1.574	0.764***
CEO	0.224	0.000	0.417	0.204	0.000	0.403	0.020***
AGE (in years)	53.79	53.50	8.357	52.79	52.00	8.431	0.992***
TENURE (in years)	5.049	4.000	4.226	5.046	4.000	4.365	0.002

Panel B: Correlation Matrix

	ΔCashPay	High ΔFV	High ΔNFV	ΔE	RET	BM	SIZE	CEO	LnAGE
High ΔFV	−0.005								
High ΔNFV	0.001	0.493***							
ΔE	0.019***	−0.116***	−0.080***						
RET	0.082***	−0.006	0.006	0.163***					
BM	−0.032***	−0.060***	−0.073***	−0.337***	−0.259***				
SIZE	0.015**	0.223***	0.186***	0.069***	0.069***	−0.426***			
CEO	0.014**	0.025***	0.026***	−0.012*	0.008	0.005	−0.012*		
LnAGE	−0.098***	0.060***	0.039***	−0.030***	−0.017**	0.017**	0.101***	−0.045***	
LnTENURE	−0.195***	−0.001	0.019***	0.026***	−0.034***	0.009	0.036***	0.092***	0.187***

Table 3 presents descriptive statistics on the variables used in our main analysis. Panel A reports the summary statistics. Panel B reports the Pearson correlation coefficients ($N = 21{,}462$). ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. See Appendix A for variable definitions.

[13] In additional analyses (untabulated), we use a balanced sample that requires IFRS adopters in our full sample to appear in both the pre- and post-adoption periods. We also use an expanded sample that includes the high FV firms in our full sample and benchmark firms that consist of local GAAP users in 15 non-IFRS adoption economies (i.e., Argentina, Bermuda, Brazil, Canada, Cayman Islands, Chile, China, India, Indonesia, Malaysia, Taiwan, Thailand, Tunisia, the U.S., and Virgin Islands) or in two dominant non-IFRS adoption countries (the U.S. and Canada). We find robust results with these alternative samples.

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Table 4
The effect of fair value accounting on the association between net income and cash pay.

Dep var. = Δ*CashPay*		Full sample	PSM sample	CEO sample	Controlling for Δ*NFV*
		(1)	(2)	(3)	(4)
Δ*E*	β_1	0.001	0.117	−0.010	0.016
		(0.01)	(1.06)	(-0.11)	(0.31)
Δ*E* × *POST*	β_2	0.203**	0.436	0.330*	0.114
		(1.99)	(1.55)	(1.69)	(1.02)
Δ*E* × *POST* × *High* Δ*FV*	**β_3**	**−0.378*****	**−0.670****	**−0.728****	**−0.569*****
		(-2.70)	**(-2.08)**	**(-2.53)**	**(-3.62)**
Δ*E* × *High* Δ*FV*	β_4	0.276***	0.127	0.425**	0.307***
		(3.08)	(0.91)	(2.19)	(2.71)
RET		0.068***	0.109***	0.083***	0.079***
		(3.39)	(3.03)	(2.74)	(3.54)
RET × *POST*		−0.007	−0.091**	−0.009	−0.017
		(-0.30)	(-2.01)	(-0.25)	(-0.63)
RET × *POST* × *High* Δ*FV*		0.046	0.171**	−0.005	0.031
		(1.30)	(2.56)	(-0.10)	(0.81)
RET × *High* Δ*FV*		−0.042	−0.065	0.030	−0.024
		(-1.59)	(-1.49)	(0.72)	(-0.86)
POST × *High* Δ*FV*		−0.006	0.045*	0.042*	−0.015
		(-0.39)	(1.80)	(1.72)	(-0.91)
POST		0.026**	−0.013	−0.012	0.022*
		(2.29)	(-0.66)	(-0.66)	(1.76)
High Δ*FV*		0.006	−0.033	−0.020	0.007
					(0.49)
Δ*E* × *POST* × *High* Δ*NFV*	β_5				0.361**
					(2.24)
Δ*E* × *High* Δ*NFV*	β_6				−0.072
					(-0.62)
RET × *POST* × *High* Δ*NFV*					0.035
					(0.92)
RET × *High* Δ*NFV*					−0.039
					(-1.40)
POST × *High* Δ*NFV*					0.017
					(1.08)
High Δ*NFV*					−0.001
					(-0.06)
BM		−0.003	0.000	−0.006	−0.003
		(-0.33)	(0.03)	(-0.42)	(-0.29)
SIZE		0.007**	0.013**	0.004	0.007**
		(2.46)	(2.09)	(0.84)	(2.32)
CEO		0.036***	0.023**	n.a.	0.036***
		(5.42)	(2.19)		(5.43)
LnAGE		−0.168***	−0.165***	−0.162***	−0.167***
		(-8.26)	(-5.30)	(-3.22)	(-8.21)
LnTENURE		−0.128***	−0.111***	−0.106***	−0.128***
		(-21.20)	(-11.22)	(-10.02)	(-21.20)
Country and Industry FE		Yes	Yes	Yes	Yes
OBS.		21,462	7,740	4,582	21,462
Adjusted R^2		0.060	0.064	0.063	0.060

Table 4 presents results on the effect of IFRS's fair value provisions on the association between net income and cash pay. The dependent variable is the change in executive cash pay (Δ*CashPay*). See Appendix A for variable definitions. *t-stats*, reported in parentheses, are calculated based on robust standard errors clustered by firm. ***, **, and * indicate significance at the 1%, 5%, and 10% two-tailed levels, respectively.

3.4. Descriptive statistics

Table 3 presents summary statistics of key variables used in our primary analysis. Panel A reports descriptive statistics for the high FV firms (*High* Δ*FV* = 1) and the low FV firms (*High* Δ*FV* = 0), separately. The average annual executive cash pay (*CashPay*) is $576,300 and $393,900 for high FV firms and low FV firms, respectively, and the difference between the two groups is statistically significant. However, the mean value of our dependent variable, Δ*CashPay*, for the high FV firms is not significantly different from that for the low FV firms. For the high FV group, the mean and median Δ*CashPay* are 0.159 and 0.094, respectively, indicating that the average (median) ratio of cash pay in year *t* over that in year *t-1* is 1.17 (1.10).[14]

[14] $\Delta CashPay = \text{Ln}CashPay_t - \text{Ln}CashPay_{-1} = \text{Ln}(CashPay_t/CashPay_{t-1})$. Thus the mean and median values of $CashPay_t/CashPay_{t-1}$ are 1.17 (Exp(0.159)) and 1.10 (Exp(0.094)), respectively.

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Panel B reports the correlation matrix based on the full sample for the variables used in our regressions. $\Delta CashPay$ is positively correlated with both accounting- and market-based performance measures (ΔE and *RET*). We also find a positive correlation between *High* ΔFV and *High* ΔNFV.

4. Hypothesis tests

Table 4 presents the results of testing our Hypothesis. We estimate Eq. (1) using the full sample in column (1) and using the PSM sample in column (2). In column (3), we restrict the sample to CEOs only. In column (4), we also include *High* ΔNFV and its interactions with *POST*, ΔE, and *RET*.[15] We find that the coefficient on $\Delta E \times POST \times High\ \Delta FV$ (β_3) is significantly negative in all four columns. This indicates that the high FV firms experience a decline in the association between net income and cash pay, relative to the low FV firms. In addition, Column (4) reports a significant and positive coefficient on $\Delta E \times POST \times High\ \Delta NFV$, indicating that IFRS's non-fair-value provisions increase the association between net income and cash pay. Further, in an untabulated analysis, we find that the sum of the coefficients on $\Delta E \times POST$ and $\Delta E \times POST \times High\ \Delta FV$ ($\beta_2 + \beta_3$) in three of all four models is significantly negative, while the sum of the coefficients on $\Delta E \times POST$ and $\Delta E \times POST \times High\ \Delta NFV$ ($\beta_2+\beta_5$) in column (4) is significantly positive. This indicates that, while high FV firms experience a decline in the association between net income and cash pay after IFRS adoption, the high non-FV firms experience an increase in this association.

As in prior studies (e.g., Chen and Tang, 2017), the smaller coefficient on the fair-value based income may result from the capitalization of a permanent income component under fair value accounting. For example, suppose that fair value accounting results in capitalizing a permanent component of income, so that instead of a coefficient of 10 on a permanent income item, we observe a coefficient of one on a transitory item (which is 10 times the old permanent item). Thus the decrease in the association between net income and cash pay for the high FV firms may reflect both the capitalization of permanent cash flows and noise/bias in managers' fair value estimation. However, our analysis in Section 5.4 finds no changes in earnings persistence for the high FV firms following IFRS adoption, which is inconsistent with this alternative explanation.

The magnitude of the coefficients on $\Delta E \times POST \times High\ \Delta FV$ indicates that, relative to the changes among the low FV firms, a one standard-deviation increase in ΔE is associated with a decrease in cash pay of approximately 4.2 percent to 7.9 percent, depending on the sample specifications, after the IFRS mandate.[16] As noted by Ozkan et al. (2012), this change suggests a much higher change in bonus, because a large fraction of cash pay is base salary, which varies little over time.

The coefficients on $\Delta E \times POST$ in Table 4 indicate that the association between net income and cash pay after IFRS adoption increases for the low FV firms in the full sample and the CEO-only sample (columns (1) and (3)). In addition, the coefficients on $\Delta E \times High\ \Delta FV$ in columns (1), (3) and (4) indicate that this association is larger for the high FV firms than for the low FV firms during the pre-IFRS period. We conjecture that this is because high FV firms use relatively fewer fair value provisions prior to IFRS adoption. The coefficient on $\Delta E \times High\ \Delta FV$ is not significant for the PSM analysis in column (2), because our matching procedure requires ΔE to be insignificantly different across the high and low FV firms in the pre-adoption period. Finally, Table 4 shows that IFRS's fair value provisions have little effect on the association between stock returns and cash pay, as indicated by the insignificant coefficients on $RET \times POST \times High\ \Delta FV$ (except in column (2)). Among the control variables, we find positive coefficients on *SIZE* (except in column (3)) and *CEO* and negative coefficients on *LnAGE* and *LnTENURE* in all four columns. This is consistent with executives who are older and more experienced receiving smaller increases in cash pay and with executives who are CEOs and in larger companies receiving larger increases. Overall, the results in Table 4 suggest that, while IFRS's non-fair-value provisions increase the association between net income and cash pay, its fair value provisions reduce this association.[17]

5. Additional analyses

5.1. Assessment of the parallel trends assumption

Panels A and B in Fig. 1 plot the annual association between net income and cash pay of high and low ΔFV firms for the full sample and PSM sample, respectively. We estimate the annual association by conducting annual regressions of $\Delta CashPay$ on ΔE and the control variables from Eq. (1) (i.e., *RET, BM, SIZE, CEO, LnAGE, LnTENURE*, and country and industry fixed effects). The coefficient on ΔE captures the association between net income and cash pay. Both panels indicate similar pre-IFRS period trends in the association across the high and low FV firms. Importantly, the high FV firms experience a decline in the association from the year prior to adoption (year −1) to the year after (year 1) for both samples, and the declining trend

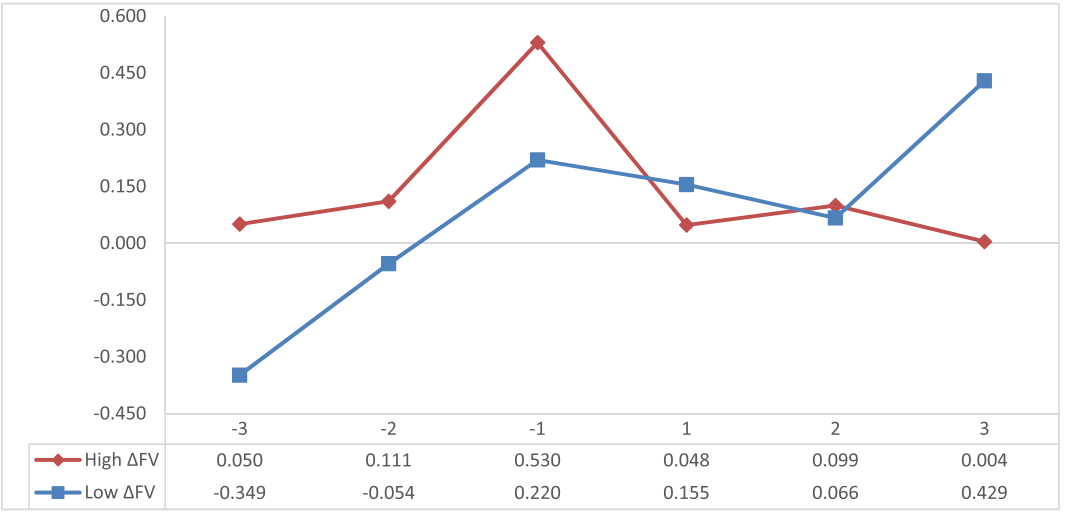
[15] All subsequent results are robust to the specification in column (4) of Table 4.

[16] As our dependent variable is a log-transformed variable, 4.2% is calculated as Exp(-0.378 × 0.113) - 1, and 7.9% is calculated as Exp(-0.728 × 0.113) - 1, where −0.378 and −0.728 are the coefficients on $\Delta E \times POST \times High\ \Delta FV$ in columns (1) and (3), respectively, and 0.113 is the standard deviation of ΔE for the full sample of high FV firms reported in Panel A of Table 3.

[17] In an untabulated analysis, we examine how IFRS's fair value provisions affect the association between net income and cash pay for financial firms, among which the fair value effects of IFRS are heavily concentrated in the investment accounts. Our analysis suggests that the fair value provisions have a generally insignificant effect on this association for financial firms. This is perhaps because fair values may be relatively more useful in evaluating executive performance in financial firms, as risk trading and risk management are key tasks for these executives, and fair values may be better at capturing the risk associated with financial instruments.

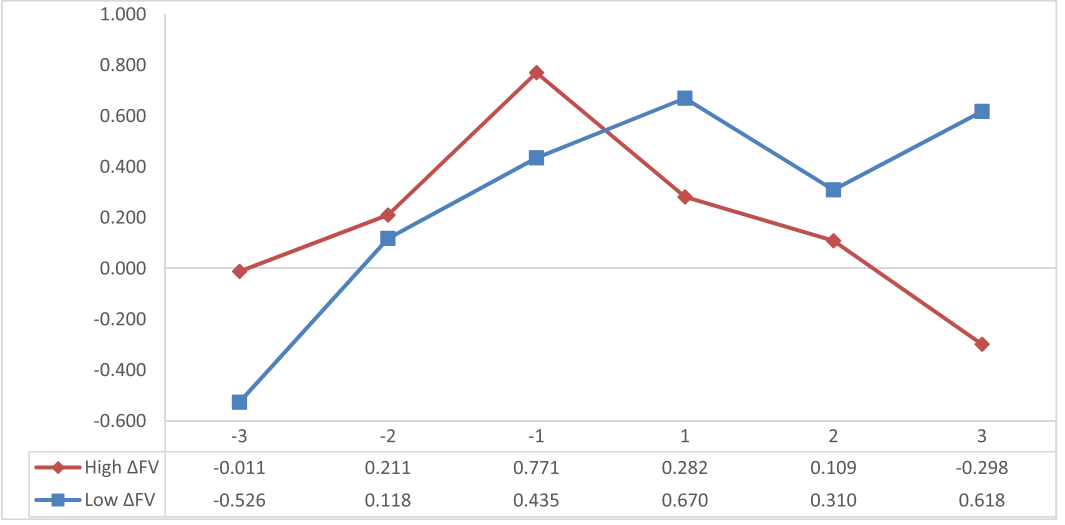
Please cite this article as: DeFond, M et al., The effect of fair value accounting on the performance evaluation role of earnings, Journal of Accounting and Economics, https://doi.org/10.1016/j.jacceco.2020.101341

Panel A: Full Sample



	-3	-2	-1	1	2	3
High ΔFV	0.050	0.111	0.530	0.048	0.099	0.004
Low ΔFV	-0.349	-0.054	0.220	0.155	0.066	0.429

Panel B: PSM Sample



	-3	-2	-1	1	2	3
High ΔFV	-0.011	0.211	0.771	0.282	0.109	-0.298
Low ΔFV	-0.526	0.118	0.435	0.670	0.310	0.618

Fig. 1. Annual Association between Net Income and Cash Pay. Panel A: Full Sample. Panel B: PSM Sample. Fig. 1 plots the annual association between Δ*CashPay* and Δ*E*. The association is estimated in annual regressions of Δ*CashPay* on Δ*E* and the control variables from Eq. (1) (i.e., *RET, BM, SIZE, CEO, LnAGE, LnTENURE,* and country and industry fixed effects).

continues into the third year after the adoption for the matched sample. The low FV firms, in contrast, experience a decrease in the association from year -1 to year 1 for the full sample and an increase for the matched sample.

We also employ a placebo test to further assess the parallel trends assumption. In the absence of IFRS adoption, we expect an insignificant coefficient on $\Delta E \times POST \times High\ \Delta FV$. Our placebo test restricts the analyses to the post-adoption period and sets the pseudo adoption year to three years after the actual IFRS adoption year.[18] Thus our pseudo pre-adoption period is 2006–2008, and our pseudo post-adoption period is from 2009 to 2011 for December 31 year-end firms. The results (untabulated) find that the coefficient on $\Delta E \times POST \times High\ \Delta FV$ is insignificant for both samples. This is consistent with the high FV and low FV firms exhibiting a similar trend in the association between net income and cash pay absent IFRS adoption.

[18] We cannot conduct a placebo test in the pre-adoption period, because Capital IQ's coverage of executive cash pay information is limited prior to 2002.

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5.2. Mitigating the effect of IFRS's non-fair-value provisions

As acknowledged earlier, our indicator of high fair value effect (*High ΔFV*) may also capture the effects of IFRS's non-fair-value provisions on the eight accounts that we classify as most affected by IFRS's fair value-oriented provisions. In this section, we conduct two tests that attempt to mitigate the influence of non-fair-value provisions on *High ΔFV*.

Our first test repeats our analysis after partitioning *High ΔFV* into two measures: one comprised only of the reconciled amounts related to short-term investments (*High ΔFV_SINV*) and one comprised of the reconciled amounts related to the other seven accounts that are most affected by IFRS's fair value provisions (*High ΔFV_OTH*). We separately examine short-term investments because they are heavily affected by IAS 39, which is a mandatory fair value provision.[19] Thus we expect IFRS's fair value effects to dominate its non-fair-value effects on short-term investments. *High ΔFV_SINV* is set to one for firms reporting nonzero reconciliation amounts for their short-term investment accounts (because the sample median is zero for this variable). *High ΔFV_OTH* is set to one for firms that report total absolute reconciled amounts for the seven other fair-value-related accounts that are greater than the sample median. We set both *High ΔFV_SINV* and *High ΔFV_OTH* to zero only when both measures equal zero, so that our benchmark firms are not confounded by the effects of large fair value changes from either group.

Table 5 presents the results of this analysis using both samples. The coefficients on $\Delta E \times POST \times$ *High ΔFV_SINV* and $\Delta E \times POST \times$ *High ΔFV_OTH* are both significantly negative. Thus we find robust results after restricting our analysis to an account where IFRS's fair value provisions are likely to have a dominant effect.[20] These results also suggest that our findings are not sensitive to management discretion in adopting the fair value provisions of IFRS.

Table 5
Mitigating the effect of IFRS's non-fair-value provisions.

Dep var. = Δ*CashPay*	Full sample		PSM sample	
	Short-term investment account	Other fair value-related accounts	Short-term investment account	Other fair value-related accounts
High ΔFV=	*High ΔFV_SINV*	*High ΔFV_OTH*	*High ΔFV_SINV*	*High ΔFV_OTH*
ΔE	−0.024	−0.026	0.013	0.143
	(-0.45)	(-0.47)	(0.06)	(0.65)
ΔE × POST	0.245**	0.263**	0.495	0.391
	(2.28)	(2.38)	(1.45)	(1.15)
ΔE × POST × High ΔFV	**−0.395****	**−0.417*****	**−0.749***	**−0.613***
	(-1.99)	**(-2.89)**	**(-1.65)**	**(-1.66)**
ΔE × High ΔFV	0.313**	0.269***	0.451	0.012
	(2.49)	(2.94)	(1.62)	(0.05)
RET	0.083***	0.081***	0.167***	0.164***
	(3.33)	(3.21)	(3.94)	(3.76)
RET × POST	−0.016	−0.015	−0.132**	−0.126**
	(-0.54)	(-0.50)	(-2.39)	(-2.30)
RET × POST × High ΔFV	0.071*	0.041	0.203***	0.201***
	(1.65)	(1.04)	(2.63)	(2.91)
RET × High ΔFV	−0.069**	−0.045	−0.168***	−0.104**
	(-2.20)	(-1.45)	(-3.39)	(-2.07)
POST × High ΔFV	−0.025	−0.014	0.026	0.031
	(-1.28)	(-0.86)	(0.77)	(1.13)
POST	0.034***	0.033**	−0.004	−0.006
	(2.58)	(2.57)	(-0.18)	(-0.24)
High ΔFV	0.023	0.010	0.001	−0.021
	(1.33)	(0.70)	0.013	0.143
Controls	Yes	Yes	Yes	Yes
Country and Industry FE	Yes	Yes	Yes	Yes
OBS.	14,548	19,043	5,169	6,868
Adjusted R^2	0.067	0.060	0.076	0.067

Table 5 presents results on the effect of fair value accounting on the association between net income and cash pay conditional on fair value accounts for the full sample and PSM sample. See Appendix A for variable definitions. *t-stats*, reported in parentheses, are calculated based on robust standard errors clustered by firm. ***, **, and * indicate significance at the 1%, 5%, and 10% two-tailed levels, respectively.

[19] IAS 39 requires fair value measurement for financial assets and financial liabilities held for trading and available for sale (AFS). While the recognition of fair value changes for AFS financial assets goes to other comprehensive income, rather than flowing through earnings, the fair value measurement of trading securities nonetheless creates incentives for managers to selectively sell AFS securities to counter the negative effects of the fair value adjustments (He et al., 2012).

[20] Our results are also robust to excluding discontinued operations, a transitory account, from the fair value measure.

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In our second test, we repeat our analysis after partitioning the sample based on the extent to which consolidation rules differ between IFRS and local GAAP. We focus on consolidation rules because business combinations can result in changes to the accounts captured by *High ΔFV* that are unrelated to fair values. Thus *High ΔFV* is less likely to be confounded in countries where IFRS adoption results in relatively smaller changes to local GAAP's consolidation rules. As reported in Section I of the internet appendix, this analysis finds that the effects of fair value accounting on the association between net income and cash pay are not due to the non-fair-value changes resulting from IFRS's consolidation rules.

5.3. The relation between cash pay and post-IFRS fair value gains and losses

To illuminate whether and how compensation committees adjust for separable fair value components of earnings, we investigate the association between cash pay and fair value-based gains and losses during the post-IFRS adoption period of 2006–2016. Specifically, we construct four variables: (1) revaluation gains/losses in investments, *RGL_INV*; (2) revaluation gains/losses in investment properties, *RGL_INVP*; (3) revaluation gains/losses in hedges and derivatives, *RGL_HD*; and (4) revaluation gains/losses in other accounts, *RGL_OTH*. We also combine the four components into a single measure of revaluation gains and losses (*RGL_TOT*). Panel A of Table 6 reports the descriptive statistics of these variables. We find that 30% of sample observations report revaluation gains and losses in these accounts and that the average absolute value of revaluation gains and losses is 0.611% of total assets. For the four component variables, the mean absolute values of revaluation gains and losses scaled by total assets are 0.62% for *RGL_INV*, 0.849% for *RGL_INVP*, 0.489% for *RGL_HD*, and 0.392% for *RGL_OTH*. Considering that these accounts usually represent a small portion of nonfinancial firms' assets, their revaluation gains and losses are economically significant.

In columns (1) and (2) of Table 6, Panel B, we follow Chen and Tang (2017) and regress the level of cash pay (*LnCashPay*) on earnings before revaluation gains and losses (*EBFRGL*), total revaluation gains and losses (*RGL_TOT*), firm-level controls (*RET*,

Table 6
Cash pay and fair value gains and losses, 2006–2016.

Panel A: Descriptive Statistics of Reported Fair Value Gains and Losses, Absolute Values (%)

	Non-zero N	Mean	STD	Q1	Median	Q3
RGL_TOT	24,279 (30%)	0.611	1.244	0.055	0.186	0.589
RGL_INV	6,622 (8%)	0.620	1.381	0.032	0.131	0.553
RGL_INVP	2,411 (3%)	0.849	1.286	0.062	0.280	1.124
RGL_HD	16,801 (21%)	0.489	1.122	0.041	0.142	0.435
RGL_OTH	3,692 (5%)	0.392	0.432	0.063	0.207	0.650

Panel B: The Association between Cash Pay and Fair Value Gains and Losses

Dep var. = *LnCashPay*	(1)	(2)	(3)	(4)
EBFRGL (β_1)	0.684***	1.042***	0.687***	1.042***
	(4.37)	(10.41)	(4.39)	(10.40)
RGL_TOT (β_2)	1.111	0.428		
	(1.42)	(0.73)		
F-test of $\beta_1 = \beta_2$, p-value	***0.584***	***0.298***		
RGL_INV			3.316**	1.602
			(2.34)	(1.57)
RGL_INVP			−0.922	−3.683
			(-0.25)	(-1.49)
RGL_HD			−0.206	0.594
			(-0.27)	(0.83)
RGL_OTH			9.257*	1.021
			(1.70)	(0.32)
RET		0.035***		0.036***
		(4.16)		(4.19)
GROWTH		0.018***		0.018***
		(5.11)		(5.08)
SIZETA		0.336***		0.336***
		(71.27)		(71.39)
CEO		0.805***		0.805***
		(65.99)		(66.00)
LnAGE		−0.813***		−0.813***
		(-11.16)		(-11.16)
LnTENURE		0.155***		0.155***
		(19.19)		(19.20)
Country and Industry FE	Yes	Yes	Yes	Yes
OBS.	80,173	80,173	80,173	80,173
Adjusted R^2	0.156	0.484	0.156	0.484

Table 6 presents the analysis on the association between executive cash pay and fair value revaluation gains/losses using post-IFRS data from 2006 to 2016. See Appendix A for variable definitions. *t-stats*, reported in parentheses, are calculated based on robust standard errors clustered by firm. ***, **, and * indicate significance at the 1%, 5%, and 10% two-tailed levels, respectively.

Please cite this article as: DeFond, M et al., The effect of fair value accounting on the performance evaluation role of earnings, Journal of Accounting and Economics, https://doi.org/10.1016/j.jacceco.2020.101341

GROWTH, *SIZETA*, *CEO*, *LnAGE*, and *LnTENURE*), and country and industry fixed effects in the post-IFRS period. In both columns with or without including firm-level controls, we find that cash pay is positively associated with *EBFRGL* but not associated with *RGL_TOT*. However, the *F*-test indicates that the coefficients on *EBFRGL* and *RGL_TOT* are not statistically different.

In columns (3) and (4) of Panel B, we replace the total revaluation gains and losses with the four components. When the model includes firm-level controls (column (4)), none of the four components of unrealized revaluation gains and losses are associated with cash pay. Additional *F*-tests (untabulated) find that the coefficient on *EBFRGL* is significantly higher than the coefficient on revaluation gains/losses in investment properties (*RGL_INVP*) but is insignificantly different from the coefficients on the other components in column (4).

Overall, Table 6 provides little evidence that reported revaluation gains and losses have lower weight on the association between net income and cash pay than earnings before these revaluation gains and losses. However, this finding may result from lack of statistical power, because this analysis is confined to a small set of accounts where fair value gains and losses are separately disclosed.

5.4. Channels through which IFRS's fair value provisions affect the association between net income and cash pay

We next explore the channels through which IFRS's fair value provisions reduce the association between net income and cash pay. We examine four channels: earnings management, the variation of earnings relative to the variance of returns, earnings timeliness, and earnings persistence, all of which is predicted by the literature to affect the usefulness of earnings in measuring executive performance. We measure earnings management using *JMBE*, a variable indicating whether earnings per share meet or beat analyst consensus forecasts by one cent or less. The variance of earnings relative to the variance of returns, *VAR(E)/VAR(RET),* equals the ratio of the standard deviation of pre-tax earnings divided by total assets to the standard deviation of weekly stock returns. We use one ratio in each of the pre- and post-IFRS periods and require at least three years in each four-year period to compute the standard deviations. To capture earnings timeliness, we use the coefficient on returns from a firm-specific regression model of change in earnings on contemporaneous stock returns (Ball et al., 2000). To capture earnings persistence, we use the coefficient on earnings from a firm-specific model that regresses earnings in the next period on earnings in the current period. Our variables of interest are the DiD estimates of $POST \times High\ \Delta FV$ in the tests of earnings management and relative variance, $RET \times POST \times High\ \Delta FV$ in the timeliness test, and $E \times POST \times High\ \Delta FV$ in the persistence test. We control for *STDCF*, *BM*, *SIZE*, and country and industry fixed effects in all four tests and further control for *RET* and ΔE in the tests of earnings management and relative variance.

Panels A and B of Table 7 report the results for the full sample and the PSM sample, respectively. In column (1) of both panels, we find that the coefficient on $POST \times High\ \Delta FV$ is significantly positive. This indicates a relative increase in the likelihood of meeting or beating analyst consensus forecasts for the high FV firms following the IFRS adoption. In column (2) of both panels, we find a significantly positive coefficient on $POST \times High\ \Delta FV$, indicating that the high FV firms experience an increase in the variance of earnings, relative to the variance of returns after IFRS adoption. In the full sample, column (3) reports an insignificant coefficient on $RET \times POST \times High\ \Delta FV$, indicating that the high FV firms exhibit no change in earnings timeliness. In the PSM sample, however, the coefficient on $RET \times POST \times High\ \Delta FV$ is positive and significant at the 10% level, suggesting weak evidence of increased timeliness for the high FV firms. Lastly, column (4) of both panels finds an insignificant coefficient on $E \times POST \times High\ \Delta FV$, indicating that there is no change in earnings persistence for the high FV firms.

Overall, the results in Table 7 suggest that increased earnings management and increased noise are the likely channels through which IFRS's fair value provisions reduce the association between net income and cash pay.[21] We note, however, that price may become a relatively better performance measure than earnings following IFRS adoption. If firms respond by requiring more equity holdings, IFRS's fair value provisions may improve the contracting properties of price such that, even with a lower weight on earnings, management incentives are improved.

5.5. Extending Ozkan et al. (2012)

Ozkan et al. (2012) find a weak increase in the association between net income and cash pay and a strong increase in relative performance evaluation (RPE) after IFRS adoption. In addition, they find that the increase in the association between net income and cash pay following IFRS adoption is driven by firms in countries with large IFRS-LGAAP differences, as captured by Bae et al. (2008) GAAP differences index.[22]

In Table 8, we extend the analysis in Ozkan et al. (2012) by rerunning Eq. (1) after partitioning the sample into large and small IFRS-LGAAP differences. We find a significantly positive coefficient on $\Delta E \times POST$ in both subsamples (columns (1) and (2)). While the coefficient on $\Delta E \times POST \times High\ \Delta FV$ is negative in both subsamples, it is significant only in countries with small IFRS-LGAAP differences (column (2)), indicating that IFRS's fair value provisions reduce the association between net

[21] We also explore the role of legal institutions on the effect of fair value provisions on the association between net income and cash pay. In an untabulated analysis, we find that, while the coefficient on $\Delta E \times POST \times High\ \Delta FV$ is significantly negative only in the subsample of countries with strong legal institutions (as proxied by high rule of law, following Kaufmann et al., 2010; common-law legal origin; and the high anti-self-dealing index of Lel and Miller, 2019), the differences across subsamples with strong and weak legal institutions are all statistically insignificant.

[22] See Section II of the internet appendix for a replication of Ozkan et al. (2012) using our data.

Please cite this article as: DeFond, M et al., The effect of fair value accounting on the performance evaluation role of earnings, Journal of Accounting and Economics, https://doi.org/10.1016/j.jacceco.2020.101341

Table 7
The Channels through which Fair Value Accounting Affects the Association between Net Income and Cash Pay.

Panel A: Full Sample

Dep var.=	*JMBE* (Earnings mgt)	*VAR(E)/VAR(RET)* (Relative variance)	Δ*E* (Timeliness)	E_{t+1} (Persistence)
	(1)	(2)	(3)	(4)
POST	−0.148	−0.165***	−0.022***	−0.041***
	(-1.64)	(-3.44)	(-6.83)	(-8.04)
***POST* × *High* ΔFV**	**0.424*** **	**0.135** **	0.002	0.011*
	(3.38)	**(2.19)**	(0.56)	(1.78)
High Δ*FV*	−0.285***	−0.051	−0.003	−0.017***
	(-2.83)	(-1.02)	(-0.86)	(-3.88)
RET	0.055	−0.225***	0.060***	
	(0.90)	(-4.39)	(9.53)	
RET × *POST*			−0.008	
			(-0.84)	
***RET* × *POST* × *High* ΔFV**			**0.018**	
			(1.31)	
RET × *High* Δ*FV*			−0.008	
			(-0.90)	
E				0.459***
				(10.40)
E × *POST*				0.041
				(0.66)
***E* × *POST* × *High* ΔFV**				**0.030**
				(0.35)
E × *High* Δ*FV*				0.035
				(0.62)
Δ*E*	0.444**	0.217		
	(2.15)	(0.47)		
STDCF	−2.038***	6.395***	0.113***	−0.238***
	(-2.86)	(12.89)	(3.30)	(-6.44)
BM	−0.221***	−0.077***	−0.006***	−0.019***
	(-3.27)	(-3.13)	(-2.66)	(-6.35)
SIZE	−0.058**	0.009	0.001	0.008***
	(-2.22)	(0.89)	(0.92)	(8.06)
Country and Industry FE	Yes	Yes	Yes	Yes
OBS.	9,611	5,114	15,952	16,184
Pseudo/Adjusted R^2	0.116	0.219	0.157	0.171

Panel B: PSM Sample

Dep var.=	*JMBE* (Earnings mgt)	*VAR(E)/VAR(RET)* (Relative variance)	Δ*E* (Timeliness)	E_{t+1} (Persistence)
	(1)	(2)	(3)	(4)
POST	−0.068	−0.161***	−0.019***	−0.036***
	(-0.59)	(-2.94)	(-5.90)	(-5.87)
***POST* × *High* ΔFV**	**0.481*** **	**0.145** **	−0.004	0.002
	(2.90)	**(2.08)**	(-0.91)	(0.28)
High Δ*FV*	−0.252*	−0.057	0.003	−0.011**
	(-1.84)	(-1.01)	(0.85)	(-2.30)
RET	−0.009	−0.328***	0.051***	
	(-0.09)	(-4.38)	(7.95)	
RET × *POST*			−0.009	
			(-0.96)	
***RET* × *POST* × *High* ΔFV**			**0.028***	
			(1.89)	
RET × *High* Δ*FV*			0.005	
			(0.49)	
E				0.517***
				(13.46)
E × *POST*				0.092
				(1.52)
***E* × *POST* × *High* ΔFV**				**0.092**
				(0.86)
E × *High* Δ*FV*				−0.013
				(-0.21)
Δ*E*	0.479	0.580		
	(1.50)	(0.95)		
STDCF	−1.565	7.171***	0.147***	−0.230***
	(-1.56)	(9.60)	(3.06)	(-4.13)

(*continued on next page*)

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Table 7 (*continued*)

Panel B: PSM Sample				
Dep var.=	*JMBE* (Earnings mgt)	*VAR(E)/VAR(RET)* (Relative variance)	Δ*E* (Timeliness)	E_{t+1} (Persistence)
	(1)	(2)	(3)	(4)
BM	−0.257***	0.001	−0.009***	−0.015***
	(-2.82)	(0.02)	(-2.96)	(-4.91)
SIZE	−0.105***	0.027*	0.000	0.005***
	(-2.65)	(1.96)	(-0.39)	(4.28)
Country and Industry FE	Yes	Yes	Yes	Yes
OBS.	5,143	2,992	9,030	8,730
Pseudo/Adjusted R^2	0.135	0.237	0.140	0.131

Table 7 presents results on the channels through which fair value accounting affects the association between net income and cash pay. Panels A and B report results for the full sample and PSM sample, respectively. Columns (1) reports the result of a Logit regression, where the dependent variable is the indicator of meeting or beating earnings benchmarks (*JMBE*). Column (2) reports the regression result where the dependent variables are the variance of earnings divided by the variance of returns. Columns (3) and (4) report the results testing the changes in earnings timeliness and persistence. *z-stats* (in column (1)) or *t-stats* (in columns (2) and (3)), reported in parentheses, are calculated based on robust standard errors clustered by firm. ***, **, and * indicate significance at the 1%, 5%, and 10% two-tailed levels, respectively.

Table 8
Extension of Ozkan et al. (2012).

Dep var. = Δ*CashPay*	Large *IFRS-LGAAP Diff.*		Small *IFRS-LGAAP Diff.*		Controlling for RPE	
	(1)		(2)		(3)	
	coeff.	*t-stat.*	*coeff.*	*t-stat.*	*coeff.*	*t-stat.*
Δ*E*	−0.498	−1.45	0.007	0.14	0.006	0.10
Δ*E* × *POST*	1.407**	2.48	0.184*	1.79	0.237*	1.86
Δ*E* × *POST* × *High* Δ*FV*	**−0.770**	**−0.74**	**−0.390****	**−2.80**	**−0.301***	**−1.65**
Δ*E* × *High* Δ*FV*	0.636	0.71	0.269***	2.99	0.225**	2.08
Δ*DPE*					−0.135	−1.49
Δ*FPE*					0.399**	2.09
Δ*DPE* × *POST*					0.180	1.52
Δ*FPE* × *POST*					−0.723**	−2.55
Δ*DPE* × *POST* × *High* Δ*FV*					−0.360*	−1.66
Δ*FPE* × *POST* × *High* Δ*FV*					0.459	1.24
Δ*DPE* × *High* Δ*FV*					0.292*	1.81
Δ*FPE* × *High* Δ*FV*					−0.440	−1.64
RET	−0.017	−0.62	0.073***	3.50	0.081***	2.90
RET × *POST*	−0.024	−0.28	−0.010	−0.39	−0.030	−0.93
RET × *POST* × *High* Δ*FV*	0.336*	1.79	0.041	1.13	0.108**	2.42
RET × *High* Δ*FV*	−0.230	−1.58	−0.043	−1.56	−0.075**	−2.08
POST × *High* Δ*FV*	−0.058	−0.74	−0.007	−0.46	−0.007	−0.36
High Δ*FV*	0.104	1.36	0.003	0.21	0.009	0.52
POST	0.050	0.79	0.027**	2.33	0.024	1.61
BM	0.015	0.46	−0.004	−0.37	−0.007	−0.58
SIZE	0.005	0.44	0.008***	2.63	0.009**	2.32
CEO	0.047**	2.19	0.034***	4.92	0.031***	3.73
LnAGE	−0.257***	−4.06	−0.158***	−7.32	−0.156***	−6.20
LnTENURE	−0.077***	−3.44	−0.134***	−21.17	−0.121***	−16.12
Country and Industry FE	Yes		Yes		Yes	
OBS.	2,095		19,350		13,587	
Adjusted R^2	0.046		0.064		0.057	

Table 8 presents results extending the main results of Ozkan et al. (2012) to consider the effect of IFRS's fair value provisions partitioned on the Bae et al.'s *IFRS-LGAAP* index. As in Ozkan et al., we choose up to eight companies with the closest size to that of the treatment company in the same three-digit SIC industry as the peer companies. See Appendix A for other variable definitions. Except for those otherwise denoted, *t-stats* reported in parentheses are calculated based on robust standard errors clustered by firm. ***, **, and * indicate significance at the 1%, 5%, and 10% two-tailed levels, respectively.

income and cash pay only in countries with small IFRS-LGAAP differences. This is consistent with the fact that the IFRS-LGAAP differences documented by Bae et al. (2008) are composed primarily of additional disclosure requirements and non-fair-value GAAP differences.[23] While large IFRS-LGAAP differences are expected to increase the association between net income and

[23] Bae et al.'s index includes many disclosure requirements, including those related to statement of changes in equity, segment reporting, and statement of cash flows (items 1, 3, and 19) as well as several non-fair-value GAAP differences, including those related to deferred tax accounting, capitalization of leases, and recognition of provisions (items 2, 4, and 15). In addition, as noted by Bae et al. (2008), the GAAP differences index captures differences in accounting standards, not necessarily actual practice. This contrasts with our firm-level fair value measure, which captures the effects of IFRS on the actual accounts.

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cash pay by increasing the transparency and comparability of earnings, they are also expected to confound *High ΔFV*, thereby weakening our results in countries with large IFRS-LGAAP differences. In contrast, in countries with small IFRS-LGAAP differences, where these confounding factors are likely to be limited, our treatment variable is significant.[24]

In column (3) of Table 8, we repeat our analysis after controlling for RPE by adding the two earnings-based RPE measures used by Ozkan et al. (2012)— Δ*DPE* and Δ*FPE*—as well as their associated interaction terms. Following Ozkan et al. (2012), we also require the peer's size to be less than three times the size of the focal firm in the analysis of column (3). This analysis continues to find a significantly negative coefficient on $\Delta E \times POST \times High\ \Delta FV$, consistent with our primary findings. Overall, our study extends their results by suggesting that IFRS's fair value provisions reduce the association between net income and cash pay.

6. Sensitivity tests

6.1. Robustness checks for the main results reported in Table 4

We conduct a series of sensitivity tests to check the robustness of our primary results in column (1) of Table 4. Panel A of Table 9 presents the results. For brevity, we only tabulate the coefficients and statistical significance on the variable of interest, $\Delta E \times POST \times High\ \Delta FV$.

6.1.1. Using alternative samples

Christensen and Nikolaev (2013) find that only a small percentage of their sample firms in Germany and the U.K. are affected by fair value accounting for property, plant, and equipment; investment property; and intangibles upon IFRS adoption. We find that the negative coefficient on $\Delta E \times POST \times High\ \Delta FV$ remains significant after excluding firms from these two countries. Our results are also robust to (1) restricting the sample only to firms in Germany and the U.K.,[25] (2) relaxing the requirement of only retaining firms with positive earnings, (3) using 2010−2012 as an alternative post-IFRS period, and (4) excluding 2008 to mitigate the influence of the global financial crisis.

Because companies in Australia and the U.K. account for many observations in our sample, we repeat our analysis after excluding these countries one at a time. We also exclude Swiss firms because they were allowed to adopt either IFRS or U.S. GAAP in 2005. An untabulated analysis confirms the robustness of our results after excluding firms from these countries.

6.1.2. Using alternative measures of high ΔFV

We rerun our analysis after using a decile rank of the effect of fair value accounting and continue to find robust results.

6.1.3. Using alternative clustering schemes

Our inferences are robust to clustering the standard errors by executive, industry, country, or year. In addition, we adjust the standard errors using industry and year two-way clusters and find robust results. We also use two-way clustering schemes by firm-year and executive-year and obtain robust results (untabulated).

6.1.4. Controlling for potential correlated omitted variables

Sales may be used as a substitute for earnings in evaluating managers in firms that are heavily affected by IFRS's fair value provisions. Thus we re-estimate equation (1) after including sales as a variable in the analysis (measured as annual net revenues scaled by total assets) and its interactions with the variables indicating the post-period and the high FV firms. We continue to find robust results. Furthermore, untabulated results show that the coefficients on sales and its associated interaction terms are insignificant at conventional levels.

Another concern is that our results may be driven by concurrent executive turnover, because newly hired executives are likely to have different compensation contracts. To mitigate this concern, we construct a binary variable, *MTO_POST*, indicating whether an executive turnover occurred during or after the first year of IFRS adoption. We then re-estimate equation (1) after including *MTO_POST* and its interactions with Δ*E*, *RET*, *High* Δ*FV*, and *High* Δ*NFV*. Our inferences are unchanged. Our results are also robust to controlling for the country-level GDP growth rate. In addition, we employ firm and year fixed effects to control for potential correlated omitted variables related to firm- or year-specific characteristics as well as country-year fixed effects to allow for different time-trends and possible transition effects across countries. Our results remain robust.

[24] While the result is consistent with this inference, it is also consistent with other explanations (e.g., large IFRS-LGAAP differences can be correlated with many other country-level changes; see Ball et al., 2015).

[25] In untabulated tests, we also find robust results after restricting the fair value changes to accounts other than short-term investments (i.e., financial instruments) in Germany and the U.K. The mean (median) adjustments of property, plant, and equipment and intangibles, both scaled by equity, upon IFRS adoption is 0.14 (0.04) for German and the U.K. firms and 0.09 (0.02) for the rest of the sample. The relatively large adjustments of property, plant, and equipment and intangibles for German and U.K. firms suggest that these accounts are more likely to be affected by non-fair-value changes (e.g., the elimination of tax-based accelerated depreciation methods in Germany; see Hung and Subramanyam, 2007). In an additional test (untabulated), we find an insignificant coefficient on $\Delta E \times POST \times High\ \Delta FV$ when restricting the fair value changes to property, plant, and equipment and intangibles in German and U.K. firms, suggesting that our result is not driven by these changes.

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Table 9
Robustness checks.

Panel A: Robustness Checks of the Results in Column (1) of Table 4

Dep var. = Δ*CashPay*	Coefficient on Δ*E* × *POST* × *High* Δ*FV*	*t-stats.*	OBS.	Adj. R^2
Alternative sample				
1. Excluding German and U.K. firms	−0.306**	−2.09	14,561	0.051
2. Restricting to German and U.K. firms	−0.918**	−2.45	6,901	0.088
3. Including firms with negative earnings	−0.131**	−2.06	28,339	0.063
4. Using 2010–2012 as the post period	−0.287**	−2.14	18,353	0.056
5. Removing 2008	−0.367**	−2.48	17,027	0.056
Alternative measure of High ΔFV				
1. Decile rank	−0.053**	−2.13	21,462	0.059
Alternative clustering schemes				
1. Executive	−0.378***	−3.23	21,462	0.059
2. Industry	−0.378***	−2.98	21,462	0.059
3. Country	−0.378***	−4.40	21,462	0.059
4. Year	−0.378***	−3.81	21,462	0.059
5. Industry and year	−0.378***	−2.80	21,462	0.059
Additional control variables				
1. Sales	−0.362***	−2.59	21,462	0.060
2. Post-IFRS executive turnover	−0.371***	−2.63	21,462	0.060
3. GDP growth	−0.374***	−2.68	21,462	0.060
4. Firm and year FE	−0.481**	−2.48	21,462	0.111
5. Country-year FE	−0.376***	−2.68	21,462	0.061

Panel B: Analyses Using Alternative Regression Specifications

Dep var. = Δ*CashPay*		Low Δ*FV* & Low Δ*NFV*	Low Δ*FV* & High Δ*NFV*	High Δ*FV* & High Δ*NFV*	High Δ*FV* & Low Δ*NFV*	Full sample
		(1)	(2)	(3)	(4)	(5)
Δ*E*	β_1	0.049	−0.060	0.273***	0.283**	0.037
		(0.89)	(-0.38)	(2.90)	(2.39)	(0.70)
Δ*E* × *POST*	**β_2**	**0.110**	**0.319**	**−0.052**	**−0.676*****	**0.066**
		(0.91)	**(1.62)**	**(-0.40)**	**(-4.57)**	**(0.62)**
Δ*E* × *POST* × *High* Δ*FV*	**β_3**					**−0.584*****
						(-3.77)
Δ*E* × *High* Δ*FV*	β_4					0.298***
						(2.69)
RET		0.087***	0.015	0.028	0.003	0.076***
		(3.69)	(0.51)	(1.34)	(0.09)	(3.47)
RET × *POST*		−0.019	0.047	0.028	0.082	−0.004
		(-0.65)	(1.15)	(0.90)	(1.65)	(-0.16)
RET × *POST* × *High* Δ*FV*						0.037
						(0.99)
RET × *High* Δ*FV*						−0.031
						(-1.14)
POST × *High* Δ*FV*						−0.020
						(-1.08)
POST		0.022	0.029	0.031**	−0.019	0.016
		(1.56)	(1.58)	(2.38)	(-0.79)	(1.23)
High Δ*FV*						0.406**
						(2.17)
Δ*E* × *POST* × *High* Δ*NFV*	β_5					0.427***
						(2.70)
Δ*E* × *High* Δ*NFV*	β_6					−0.081
						(-0.71)
RET × *POST* × *High* Δ*NFV*						0.012
						(0.33)
RET × *High* Δ*NFV*						−0.031
						(-1.14)
POST × *High* Δ*NFV*						0.029
						(1.63)
High Δ*NFV*						0.154
						(0.78)
Test Diff. in β_2		(4) vs. (1)	(4) vs. (2)	(4) vs. (3)		
(p-value)		*<0.01*	*<0.01*	*<0.01*		
Controls		Yes	Yes	Yes	Yes	Yes
Country and Industry FE		Yes	Yes	Yes	Yes	Yes
Interactions of *High* Δ*FV* with Controls & FEs		No	No	No	No	Yes
Interactions of *High* Δ*NFV* with Controls & FEs		No	No	No	No	Yes

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Table 9 (*continued*)

Panel B: Analyses Using Alternative Regression Specifications					
Dep var. = Δ*CashPay*	Low Δ*FV* & Low Δ*NFV*	Low Δ*FV* & High Δ*NFV*	High Δ*FV* & High Δ*NFV*	High Δ*FV* & Low Δ*NFV*	Full sample
	(1)	(2)	(3)	(4)	(5)
OBS.	8,072	2,850	7,952	2,588	21,462
Adjusted R^2	0.078	0.072	0.061	0.076	0.069

Panel C: The Effect of Fair Value Accounting on CEO Turnover-to-Earnings Sensitivity		
Dep var = Prob.(CEO Turnover$_{t+1}$)	Low FV firms	High FV firms
	(1)	(2)
Δ*ROA*	−0.033	−0.395
	(-0.13)	(-0.82)
Δ*ROA* × *POST*	**−0.548***	**−0.252**
	(-1.70)	**(-0.43)**
RET	−0.461**	−0.470**
	(-2.09)	(-2.49)
RET × *POST*	−0.065	−0.005
	(-0.23)	(-0.02)
BM	−0.113	0.008
	(-1.23)	(0.08)
SIZE	−0.002	0.041
	(-0.07)	(1.04)
LEV	0.143	−0.102
	(0.35)	(-0.29)
LnAge	0.675	1.509*
	(1.33)	(1.86)
Avg. marginal effects of Δ*ROA* × *POST*	−0.063**	−0.024
(Avg. *z-stats*)	(-2.00)	(-0.39)
Year FE	Yes	Yes
Country and Industry FE	Yes	Yes
OBS.	3,856	3,694
Pseudo R^2	0.079	0.077

Table 9 reports the results of robustness checks. Panel A presents results of the sensitivity tests for our main result in column (1) of Table 4. Panel B presents results on the effect of IFRS's fair value provisions on the association between net income and cash pay based on alternative regression specifications. Columns (1) through (4) present results of the four-cell analysis. In column (5), we re-estimate our main regression after additionally controlling for the interaction effects of *High* Δ*FV* and *High* Δ*NFV* with controls and fixed effects. Panel C presents logit regression results on CEO turnover-to-earnings sensitivity. The dependent variable is CEO turnover, a variable indicating that a firm's CEO in the year is different from the previous year's CEO. Δ*ROA* is the change in earnings before interest and tax expenses divided by total assets. Following Ai and Norton (2003), we compute the average marginal effects of the interaction terms and the average z-statistic. See Appendix A for variable definitions. *z-stats*, reported in parentheses, are calculated based on robust standard errors clustered by firm. ***, **, and * indicate significance at the 1%, 5%, and 10% two-tailed levels, respectively.

6.2. Analyses using alternative regression specifications

Our main regression model in Table 4 does not include variables that capture the interactions between our controls and *High* Δ*FV*, because such a model may suffer from high multicollinearity (Covrig et al., 2007). Instead, we run regressions for each of the four subsamples, based on whether the observations are classified as high/low Δ*FV*/Δ*NFV*. Columns (1)–(4) of Table 9, Panel B, show that the coefficient on Δ*E* × *POST* is significantly negative only in the subsample of *High* Δ*FV* & *Low* Δ*NFV* and that it is significantly different from the coefficient in each of the other three subsamples. For comparison, column (5) interacts all controls and fixed effects with the indicator variables for *High* Δ*FV* and *High* Δ*NFV* and shows robust results.

6.3. The effect of fair value accounting on the CEO turnover-to-earnings sensitivity

A potential alternative explanation for our findings is that firms use the same measure of non-GAAP earnings both before and after IFRS adoption, but that this measure requires more adjustments during the post-IFRS adoption. While we cannot find detailed disclosures in compensation plans, the interpretation of our findings is consistent with those in Voulgaris et al. (2014), who examine a hand-collected sample of U.K. compensation contracts and find that firms decrease the weight placed on EPS-based performance measures in CEO pay contracts after IFRS adoption.[26]

[26] In untabulated results, we find that, while the level and standard deviation of cash pay increase after IFRS adoption for both the high and low Δ*FV* firms, the difference between these two groups is insignificant. Thus we find no evidence of a differential change in the incentive intensity post-IFRS.

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To further corroborate our inference, we investigate the sensitivity of CEO turnover to changes in earnings.[27] Panel C of Table 9 reports the results of this analysis. For low Δ*FV* firms, we find a weak increase in the sensitivity of CEO turnover to the change in earnings following IFRS adoption. In contrast, for high Δ*FV* firms, we find no change in the sensitivity of CEO turnover to the change in earnings following IFRS adoption. These results are consistent with the inferences from our Hypothesis tests, and suggest that only the firms that are least affected by IFRS's fair value provisions exhibit an increase in the sensitivity of CEO turnover to changes in earnings.

7. Conclusion

We investigate the effects of fair value accounting on the performance evaluation role of accounting earnings. Using the 2005 worldwide mandatory adoption of IFRS, we find that IFRS's non-fair-value provisions increase the association between net income and cash pay, but its fair value provisions reduce this association. This result is robust to the potential influence of IFRS's non-fair-value provisions. We also find that increased earnings management and noise in earnings are the likely channels through which fair value accounting reduces the association between net income and cash pay.

Our results are subject to several caveats. One is that, due to data limitations, we use cash pay to proxy for total executive compensation. However, companies may have responded to IFRS adoption by increasing stock-based compensation, by shifting the incentive weight placed on net income to other performance measures, or both. Overall, subject to these caveats, our findings are consistent with the notion that fair value accounting may reduce the usefulness of earnings in executive performance evaluation by reducing the reliability of reported earnings.

Acknowledgments

We thank the following for their helpful comments: Mary Barth, Kevin Chen, John Core (editor), Yongtae Kim, Charles Shi, Haifeng You, Ivy Zhang (referee), participants at the 2019 *Journal of Accounting and Economics* Conference, and workshop participants at City University of Hong Kong, European Accounting Association 2018 Annual Congress, The Hong Kong Polytechnic University, Jinan University, National University of Singapore, Shanghai Jiao Tong University, University of Hong Kong, University of Macau, and Xiamen University. Hu acknowledges financial support from the National Natural Science Foundation of China (Project No. 71790602) and the National Social Science Foundation of China (Project No.14BJY207).

Appendix A

Variable Definitions.

CashPay	Total annual cash pay that an executive receives from a company in year t, in thousand U.S. dollars.
LnCashPay	Natural logarithm of total annual cash pay that an executive receives from a company in year t, in thousand U.S. dollars.
Δ*CashPay*	Change in the natural logarithm of annual cash pay for an executive of a firm from year $t-1$ to t.
POST	Indicator variable that takes the value of one for the post-IFRS adoption period and zero for the pre-IFRS adoption period.
E	Pre-tax income divided by total assets in year *t*.
Δ*E*	Change in pre-tax income divided by total assets for a firm from year $t-1$ to t (as in Murphy, 2001; Ozkan et al., 2012),
RET	Market-adjusted annual stock returns for a firm over fiscal year *t*.
LEV	Financial leverage, calculated as short-term debt plus long-term debt, divided by total assets in year *t*.
BM	The ratio of the book value of equity to the market value of equity for a firm in year *t*.
SIZE	Natural logarithm of the market value of equity in million US dollars for a firm in year *t*.
CEO	Indicator variable that takes the value of one for CEOs, and to zero otherwise.
AGE	Age of an executive in year *t*.
LnAGE	Natural logarithm of *AGE*.
TENURE	Number of years an executive serves in the position for a firm in year *t*.
LnTENURE	Natural logarithm of *TENURE*.
Δ*FV*	A firm-level measure of the extent to which a firm's financial statements are influenced by the application of fair value accounting under IFRS. It is calculated as the sum of the absolute values of the reconciled amounts (the difference between restated and original values, scaled by shareholders' equity) of eight financial statements accounts that are subject to the application of fair value accounting under IFRS. The eight accounts are property, plant & equipment, short- term investments, long-term investments, intangibles, provisions, post-retirement benefits, stock option compensation expenses, and discontinued operations.
Δ*NFV*	A firm-level measure of the extent to which a firm's financial statements are influenced by the application of non-fair-value-related provisions under IFRS. It is calculated as the absolute value of the reconciled amount of shareholders' equity, minus the reconciled amounts of property, plant & equipment, short-term investments, long-term investments, intangibles, discontinued operations, and plus the reconciled amounts of provisions, post-retirement benefits, and stock option compensation expenses, scaled by the original value of shareholders' equity.

[27] Following Wu and Zhang (2019), we use Δ*ROA*, measured as the change in earnings before interest and tax expenses divided by total assets as the performance measure. Our results are robust to using our performance measure of pre-tax income (Δ*E*).

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High ΔFV	Indicator variable that takes the value of one if Δ*FV* is greater than its sample median, and zero otherwise.
High ΔNFV	Indicator variable that takes the value of one if Δ*NFV* is greater than its sample median, and zero otherwise.
PRGL	Indicator variable that takes the value of one if a firm reports non-zero revaluation gains/losses of fair value changes that are recognized in the income statement in year t, and zero otherwise.
High ΔFV_SINV	Indicator variable that takes the value of one if a firm reports a non-zero reconciliation on the account of short-term investments, and zero otherwise.
High ΔFV_OTH	Indicator variable that takes the value of one if Δ*FV_OTH* is greater than its sample median, and zero otherwise. Δ*FV_OTH* is a firm-level measure of the extent to which a firm's financial statements are influenced by the application of fair value accounting under IFRS that are related to accounts other than short-term investments. It is calculated as the sum of the absolute values of the reconciled amounts (the difference between restated and original values, scaled by shareholders' equity) of seven non-short-term investment accounts that are subject to the application of fair value accounting under IFRS, including property, plant & equipment, long-term investments, intangibles, provisions, post-retirement benefits, stock option compensation expenses, and discontinued operations.
Consolid_Diff	The number of major different provisions between local GAAP and IFRS concerning changes in the scope of consolidation. Data source: Nobes (2001).
EBFRGL	Earnings before revaluation gains/losses scaled by total assets.
RGL_TOT	Total revaluation gains/losses of fair value changes that are recognized in the income statement, scaled by total assets. It is the sum of *RGL_INV*, *RGL_ INVP*, *RGL_HD*, and *RGL_OTH*.
RGL_INV	Revaluation gains/losses in investments scaled by total assets.
RGL_ INVP	Revaluation gains/losses in investment property scaled by total assets.
RGL_HD	Revaluation gains/losses in hedges and derivatives scaled by total assets.
RGL_OTH	Other revaluation gains/losses scaled by total assets.
JMBE	Indicator variable that takes the value of one if a firm's earnings per share just meet or beat analysts' forecast targets, and zero otherwise. Specifically, the variable equals one if earnings per share meet or beat analyst consensus forecasts by one cent or less, and zero otherwise.
VAR(E)/VAR(RET)	The ratio of the standard deviation of pre-tax earnings divided by total assets to the standard deviation of weekly stock returns. The variable in the pre- and post-IFRS periods is estimated over the four years before and after IFRS adoption, respectively.
TIMELINESS	Earnings timeliness proxy, measured as the R^2 from a firm-specific reverse regression of Basu (1997) that regresses annual earnings on stock returns. The variable in the pre- and post-IFRS adoption periods is estimated using quarterly or semi-annual statements over the five years before and after the firm adopts IFRS, respectively.
STDCF	The standard deviation of cash flows scaled by total assets. The variable is estimated over the four years before and after the firm adopts IFRS, or over a rolling four-year window during the post period of 2006−2016.
GROWTH	Ratio of market capitalization to book value of equity.
SIZETA	Natural logarithm of total assets in million US dollars.
ΔDPE	Earnings-based measures of relative performance evaluation, calculated as the mean change in pre-tax income divided by total assets from year *t-1* to *t* for a firm's *domestic* peers.
ΔFPE	Earnings-based measures of relative performance evaluation, calculated as the mean change in pre-tax income divided by total assets from year *t-1* to *t* for a firm's *foreign* peers.
IFRS-LGAAP Diff.	The number of accounting rules that differ between IFRS and local GAAP, as reported in Bae et al. (2008, Table 1).

Appendix B. Procedure to Develop the Propensity-Score-Matched (PSM) Sample

Our PSM analysis begins by estimating a *firm-level* logistic model to predict the probability of being a high FV firm (i.e., *High* $\Delta FV = 1$), using data in year *t-1* (the year before the IFRS adoption). By matching firms in year *t-1*, we ensure that our sample firms appear during both in the pre- and post-periods. We include the following variables in our prediction model: (1) Δ*E* and *RET*, the two performance measures; (2) *LEV*, because the fair value option under IFRS is associated with debt financing (Christensen and Nikolaev, 2013); and (3) *BM* and *SIZE*, two additional firm-level control variables.[28] We then match high FV firms with low FV firms without replacement.[29] This procedure results in a PSM sample of 7,740 executive-year observations for 388 non-financial firms.

Panel A of Appendix B reports the estimation results of the logistic regressions. The explanatory power of logistic model decreases from 6.6% to 0.6% after the match. Panel B presents the covariate balance metrics of the PSM sample in the year of matching, year *t-1*. The mean differences between the high FV firms and the low FV firms are insignificant across all of the covariates. In addition, the *L1* statistics, calculated as the difference between the histograms of the covariates (DeFond et al., 2017; Iacus et al., 2011), is closer to zero than to one for all the characteristics, consistent with the high FV firms and low FV firms having similar univariate distributions.

[28] We also perform two additional matching procedures: (1) we add two-digit-SIC industry and country fixed effects in the PSM prediction model; and (2) we match the high and low FV samples by industry and country, then select a low FV firm with the closest total assets for each high FV firm. We find robust results in both analyses (untabulated).

[29] The sample size used in the PSM prediction model is larger than the number of sample firms in the pre-adoption years reported in Table 1 because we do not require the sample for the PSM prediction model to have compensation data. We use a larger sample in the PSM prediction model in order to increase the precision of the estimated coefficients. Following prior studies (Rosenbaum and Rubin, 1984; Austin, 2011), we start with a caliper width equal to 30% of the standard deviation of the propensity score (yielding a caliper width of approximately 0.05). We then narrow the width until we find a high quality match between the high and low FV firms, which we define as (1) insignificant differences between the mean and median covariates, and (2) comparable levels of the pre-period association between net income and cash pay, as indicated by an insignificant coefficient on $\Delta E \times$ *High* Δ*FV* in Table 4. This procedure generates caliper widths of 0.001.

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Dep var. = *High* Δ*FV*	Pre-match	Post-match
Panel A: Logit Regression Used to Compute the Propensity Score		
Δ*E*	0.838	−0.032
	(2.12)	(0.00)
RET	−0.137	−0.034
	(0.84)	(0.03)
LEV	2.378***	−1.008
	(21.95)	(1.89)
BM	0.298	0.071
	(1.76)	(0.05)
SIZE	0.316***	0.078
	(34.00)	(1.06)
OBS. (#firms)	800	388
Pseudo R^2	0.066	0.006

Variable	High FV (N = 194 firms)	Low FV (N = 194 firms)	Diff.	*t-stat.*	*L1*
Panel B: Statistics for the PSM Sample					
Δ*E*	0.035	0.036	−0.001	0.10	0.095
RET	0.089	0.092	−0.003	0.07	0.069
LEV	0.165	0.185	−0.020	1.39	0.106
BM	0.563	0.575	−0.012	0.32	0.095
SIZE	5.614	5.450	0.165	−1.08	0.132

Panel A reports the results of the Logit regressions used to compute the propensity scores and logistic regression results after the matching. Panels B presents the covariate balance metrics of the PSM sample of firms. See Appendix A for variable definitions. *chi-squares* are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% two-tailed levels, respectively.

Appendix C. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jacceco.2020.101341.

References

Adut, D., Cready, W.H., Lopez, T.J., 2003. Restructuring charges and CEO cash compensation: a reexamination. Account. Rev. 78, 169–192.
Ai, C., Norton, E., 2003. Interaction terms in logit and probit models. Econ. Lett. 80, 123–129.
Armstrong, C., Barth, M.E., Jagolinzer, A., Riedl, E., 2010. Market reaction to the adoption of IFRS in Europe. Account. Rev. 85, 31–61.
Atanasov, V., Black, B., 2016. Shock-based causal inference in corporate finance and accounting research. Crit. Finan. Rev. 5, 207–304.
Austin, P., 2011. Optimal caliper widths for propensity-score matching when estimating differences in means and differences in proportions in observational studies. Pharmaceut. Stat. 10, 150–161.
Baber, W., Kang, S., Kumar, K., 1998. Accounting earnings and executive compensation: the role of earnings persistence. J. Account. Econ. 25, 169–193.
Bae, K.H., Tan, H., Welker, M., 2008. International GAAP differences: the impact on foreign analysts. Account. Rev. 83, 593–628.
Ball, R., Kothari, S.P., Robin, A., 2000. The effect of international institutional factors on properties of accounting earnings. J. Account. Econ. 29, 1–51.
Ball, R., Li, X., Shivakumar, L., 2015. Contractibility and transparency of financial statement information prepared under IFRS: evidence from debt contracts around IFRS adoption. J. Account. Res. 53, 915–963.
Banker, R., Datar, S., 1989. Sensitivity, precision, and linear aggregation of signals for performance evaluation. J. Account. Res. 27, 21–39.
Barth, M., Landsman, W., Young, D., Zhuang, Z., 2014. Relevance of differences between net income based on IFRS and domestic standards for European firms. J. Bus. Finance Account. 41, 297–327.
Bettis, J.C., Bizjak, J., Coles, J.L., Kalpathy, S., 2018. Performance-vesting provisions in executive compensation. J. Account. Econ. 66, 194–221.
Black, D., Black, E., Christensen, T., Gee, K., 2017. The use of non-GAAP performance measures in executive compensation contracting and financial reporting. University of Nebraska at Lincoln, University of Georgia, and Penn State University. Working Paper.
Bushman, R., Engel, E., Smith, A., 2006. An analysis of the relation between the stewardship and valuation roles of earnings. J. Account. Res. 44, 53–83.
Carter, M.E., Ittner, C.D., Zechman, S.L., 2009. Explicit relative performance evaluation in performance-vested equity grants. Rev. Account. Stud. 14, 269–306.
Cascino, S., Gassen, J., 2015. What drives the comparability effect of mandatory IFRS adoption? Rev. Account. Stud. 20, 242–282.
Chen, K., Tang, F., 2017. Post-IFRS revaluation adjustments and executive compensation. Contemp. Account. Res. 34, 1210–1231.
Christensen, H.B., Lee, E., Walker, M., 2009. Do IFRS reconciliations convey information? The effect of debt contracting. J. Account. Res. 47, 1167–1199.
Christensen, H.B., Nikolaev, V.V., 2013. Does fair value accounting for non-financial assets pass the market test? Rev. Account. Stud. 18, 734–775.
Core, J., Guay, W., Verrecchia, R.E., 2003. Price versus non-price performance measures in optimal CEO compensation contracts. Account. Rev. 79, 957–981.
Covrig, V., DeFond, M.L., Hung, M., 2007. Home bias, foreign mutual fund holdings, and the voluntary adoption of International Accounting Standards. J. Account. Res. 45, 41–70.
Curtis, A., Li, V., Patrick, P.H., 2018. The Use of Adjusted Earnings in Performance Evaluation. University of Washington and University of Washington, Bothell. Working paper.
Dechow, P.M., Huson, M.R., Sloan, R.G., 1994. The effect of restructuring charges on executives' cash compensation. Account. Rev. 61, 138–156.
Dechow, P., Myers, L., Shakespeare, C., 2010. Fair value accounting and gains from asset securitizations: a convenient earnings management tool with compensation side-benefits. J. Account. Econ. 49, 2–25.
DeFond, M.L., Erkens, D.H., Zhang, J., 2017. Does PSM really eliminate the Big N audit quality effect? Manag. Sci. 63, 3531–3997.
DeFond, M.L., Hung, M., Li, S., Li, Y., 2015. Does mandatory IFRS adoption affect crash risk? Account. Rev. 90, 265–299.
De George, E.T., Li, X., Shivakumar, L., 2016. A review of the IFRS adoption literature. Rev. Account. Stud. 21, 898–1004.
Fernandes, N., Ferreira, M., Matos, P., Murphy, K.J., 2013. Are U.S. CEOs paid more? New international evidence. Rev. Financ. Stud. 26, 323–367.
Gibbons, R., Murphy, K.J., 1990. Relative performance evaluation for chief executive officers. Ind. Labor Relat. Rev. 43, 30–51.
Gipper, B., 2017. The Economic Effects of Mandating Expanded Compensation Disclosures. Stanford University. Working paper.
Hargreaves, D., 2005. Standard's Rules May Obscure the True Picture. 19 January 2005. FT.com.
Hawkins, D., Dessain, V., Barron, A., 2008. Silic (A). Choosing Cost or Fair Value on Adoption of IFRS. Harvard Business School, pp. 108–130. Case 9.

Please cite this article as: DeFond, M et al., The effect of fair value accounting on the performance evaluation role of earnings, Journal of Accounting and Economics, https://doi.org/10.1016/j.jacceco.2020.101341

He, X., Wong, T.J., Young, D., 2012. Challenges for implementation of fair value accounting in emerging markets: evidence from China. Contemp. Account. Res. 29, 538–562.
Holmstrom, B., 1979. Moral hazard and observability. Bell J. Econ. 10, 74–91.
Hung, M., Li, X., Wang, S., 2015. Post-earnings-announcement drift in global markets: evidence from an information shock. Rev. Financ. Stud. 28, 1242–1283.
Hung, M., Subramanyam, K.R., 2007. Financial statement effects of adopting International Accounting Standards: the case of Germany. Rev. Account. Stud. 12, 623–657.
Iacus, S., King, G., Porro, G., 2011. Multivariate matching methods that are monotonic imbalance bounding. J. Am. Stat. Asso. 106, 345–361.
IASB, 2006. Fair Value Measurements. Part 2, SFAS 157 Fair Value Measurements. International Accounting Standards Board Discussion paper. November 2006.
Kaufmann, D., Kraay, A., Mastruzzi, M., 2010. The Worldwide Governance Indicators: Methodology and Analytical Issues. The World Bank. Working paper.
Ke, B., Li, Y., Yuan, H., 2016. The substantial convergence of Chinese accounting standards with IFRS and the managerial pay-for-accounting performance sensitivity of publicly listed Chinese firms. J. Account. Publ. Pol. 35, 567–591.
Kothari, S.P., Ramanna, K., Skinner, D.J., 2010. Implications for GAAP from an analysis of positive research in accounting. J. Account. Econ. 50, 246–286.
Lambert, R., Larcker, D., 1987. An analysis of the use of accounting and market measures of performance in executive compensation contracts. J. Account. Res. 25, 85–125.
Lel, U., Miller, D., 2019. The labor market for directors and externalities in corporate governance: evidence from the international labor market. J. Account. Econ. 68, 101222.
Li, S., 2010. Does mandatory adoption of International Financial Reporting Standards in the European Union reduce the cost of equity capital? Account. Rev. 85, 607–636.
Livne, G., Markarian, G., Milne, A., 2011. Bankers' compensation and fair value accounting. J. Corp. Finance 17, 1096–1115.
Manchiraju, H., Hamlin, S., Kross, W., Suk, I., 2016. Fair value gains and losses in derivatives and CEO compensation. J. Account. Audit Finance 31, 311–338.
Murphy, K.J., 2001. Performance standards in incentive contracts. J. Account. Econ. 30, 245–278.
Natarajan, R., 1996. Stewardship value of earnings components, Additional evidence on the determinants of executive compensation. Account. Rev. 71, 1–22.
Nobes, C., 2001. GAAP 2001: A Survey of National Accounting Rules Benchmarked against International Accounting Standards. International Forum on Accounting Development (IFAD).
Ozkan, N., Singer, Z., You, H., 2012. Mandatory IFRS adoption and the contractual usefulness of accounting information in executive compensation. J. Account. Res. 50, 1077–1107.
Rosenbaum, P., Rubin, D., 1984. Reducing bias in observational studies using subclassification on the propensity score. J. Am. Stat. Assoc. 79, 516–524.
Shalev, R., Zhang, I.X., Zhang, Y., 2013. CEO compensation and fair value accounting: evidence from purchase price allocation. J. Account. Res. 51, 819–854.
Shipman, J., Swanquist, Q., Whited, R., 2017. Propensity score matching in accounting research. Account. Rev. 92, 213–244.
Sloan, R.G., 1993. Accounting earnings and top executive compensation. J. Account. Econ. 16, 55–100.
Tan, H., Wang, S., Welker, M., 2011. Analyst following and forecast accuracy after mandated IFRS adoptions. J. Account. Res. 49, 1307–1357.
Voulgaris, G., Stathopoulos, K., Walker, M., 2014. IFRS and the use of accounting-based performance measures in executive pay. Int. J. Account. 49, 479–514.
Wu, J., Zhang, I., 2009. The voluntary adoption of internationally recognized accounting standards and firm internal performance evaluation. Account. Rev. 84, 1281–1310.
Wu, J., Zhang, I., 2019. Mandatory IFRS adoption and the role of accounting earnings in CEO turnover. Contemp. Account. Res. 36, 168–197.

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