Does the Fair Value Model Enhance Earnings Quality Compared to the Cost Model? - Evidence from the Investment Property Industry

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Abstract

This study addresses one of the most fundamental accounting questions: Should the valuation of financial statements be based on the fair value or cost model? We address this question in the investment property industry wherein the fair value model can be applied under the IFRS standards but not under the US GAAP. Following Krishnan and Zhang (2019), we test earnings quality with earnings predictability, persistence, value relevance, discretionary accruals, and conditional conservatism measures using 2014–2019 data obtained from archival databases. Our empirical findings suggest that the cost model yields better earnings quality than the fair value model in two out of six tests: higher discretionary accruals quality, and not overstated asset in (price-level) value-relevance tests. The other four tests do not provide statistically significant differences. We propose three contributions to the prior literature.

Keywords:

investment properties, fair value, historical cost, quality of financial statement, earnings management, conservatism, US GAAP, IFRS

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1. Introduction

This study examines whether there are differences in earnings quality under the fair value model compared to the cost model in the investment property industry. The prior literature argues that the choice between fair value and cost is a central topic in the current debate on accounting (Quagli & Avallone, 2010). Cross-industry studies suggest that fair value accounting provides some benefits, whereas the cost model can provide others (Watts, 2003; Francis, 2004; Qiang, 2007). Francis et al. (2004) argue that the fair value model is more value-relevant and provides more predictable and timely earnings numbers because of its future orientation. On the other hand, the cost model is better from the contractual perspective because it reduces agency costs and improves stewardship functioning (Watts, 2003; Qiang, 2007).

Dietrich et al. (2001) find that increased managerial discretion in reporting fair values of investment properties (in the disclosures of financial statements) improves the accuracy of selling prices and finds indications of earnings management using fair values of investment properties. Using investment property sector data, Owusu-Ansah & Yeoh (2006) find that the value relevance of recognising unrealized gains in the income statement is not superior to or significantly different from recognising unrealized gains in revaluation reserve. Overall, there is mixed evidence on how recognising unrealized gains and losses of the investment property industry affect earnings quality. Also, the prior evidence does not incorporate the current reporting environment where extensive adoption of IFRS standards took place in 2005 and afterwards. The data in the most closely related studies have been collected before 2005, or the data represent the U.S. only (Francis 2004; Owusu-Ansah & Yeoh, 2006) or data are collected from one country (Krishnan and Zhang, 2019).

Using the regulatory difference between the U.S. (applying the US GAAP) compared to other British legal origin countries, which all apply IFRS with the fair value model as their primary valuation approach in the investment property industry, we examine how the inclusion of fair value changes in the income statement (under the IFRS but not under the US GAAP) affects earnings quality. We use data from the U.S. and countries applying the IFRS standards (Australia, Canada, Great Britain, Hong Kong, Ireland, Singapore, South Africa, and New Zealand). Our sample consists of companies in countries with a British legal origin to alleviate comparability problems with varying institutional quality. Using a subset of countries with a similar legal system and the use of IFRS standards one can cut down measurement noise (cf. Burgstahler et al., 2006).

To the best of our knowledge, no prior study has addressed our research question: *Does the use of the fair value model of the investment properties under IAS 40 improve the quality of the earnings compared to the cost model under* ASC 360. We adopt the earnings quality measures from Krishnan and Zhang (2019): earnings predictability, persistence, value relevance, discretionary accruals, and conditional conservatism tests. However, we use them using a larger set of countries and longer time period, years 2014–2019, obtained from archival databases.

Our empirical findings suggest that the cost model's valuation yields better earnings quality in two of our six tests measures compared to the fair value model: (i) accruals have higher quality, and (ii) asset values are non-inflated according to the price-level value-relevance tests. Other measures show insignificant differences between the two reporting models.

Our first contribution relates to Francis et al. (2004) study. They argue that fair value accounting is more value relevant and provides more predictable and timely earnings numbers because of its future orientation. However, unlike Francis et al. (2004) (with data period ending in 2001, using only U.S. data), who used the operation cycle as a control variable, we focus

on just one business model (investment property sector) to obtain more accurate information on the effects of fair value accounting on earnings quality in the investment property sector. We find that, in our context, the cost model is superior to the fair value model in two of the measures that we use, while other measures provide statistically insignificant differences.

Second, we contribute to Krishnan and Zhang (2019) study on the earnings quality between IFRS and Canadian GAAP that is similar to US GAAP. Their results using data from the year 2011 support the notion that higher earnings quality is associated with CGAAP. Different to Krishan and Zhang (2019), we use observations from many countries applying IFRS (including Canada), from years 2014–2019. We focus on the use of fair value in the investment property sector only. Compared to Krishnan and Zhang (2019) our findings do not support higher earnings quality of the Canadian GAAP type of cost model (that was abandoned by Canadian listed firms in 2011) to the same extent as in their study.

Third, we contribute to Dietrich et al. (2011), who collected the fair value estimates from the annual reports' footnotes that enabled to study the role that fair value estimates as additional information to the financial statements. Using U.K. listed investment properties companies from the years 1988-1996, Dietrich et al. (2000) found indications of earnings management. In our sample, the IFRS subsample's fair values affect net income directly, and thereby earnings per share. We find that earnings management (and managerial opportunism) is present in the IFRS sample because investors predict approximately 15% lower values for the long-term assets than what the firm management reporting is in their financial statements.

The rest of the paper is organized as follows. Section 2 provides a brief description of the contexts (the investment property industry) for the study. It also reviews the regulations relating to the accounting for investment properties under the fair value model (IFRS) and the cost model (US GAAP). We provide a literature review and develop the research question in Section 3. In Section 4, we discuss the data and our empirical models. We describe our empirical findings in Section 5 and draw our conclusions in Section 6.

2. Investment property reporting under the IFRS and US GAAP

Addressing financial reporting of investment properties is relevant due to the large size and specific reporting requirements of the industry, as defined in the IAS 40 *Investment Properties* under the IFRS. In Europe alone, the fair value of investment properties in a listed real estate investment trust (REIT) in Q3/2019 is estimated to be €453 billion, with a total market cap of USD216 billion (EPRA June 2019). In the investment property sector, the investment properties stand for an average of 80% of the company's total assets (Sangchan et al., 2020). The commercial real estate value in the global markets covered by the FTSE EPRA Nareit is estimated at USD30.2 trillion, with the total listed real estate sector valued at USD3.6 trillion (12.0% of CRE). The full index market cap is USD 2.4 trillion, representing 65.2% of the listed real estate sector's total market cap across the globe (EPRA 9/2019).

IFRS in IAS 40 *Investment Properties* favors the fair value accounting of investment properties (Cairns et al., 2011). It does so because presenting fair values is mandatory, while there is an option to either present fair values only in the disclosures or in the balance sheet. If the fair values of investment properties are recognized in the balance sheet assets, the change in fair value (unrealized gain or loss) must be allocated into the income statement (IAS 40.35).

Not permitting the inclusion of unrealized gains of investment properties in net income is consistent with the more conservative philosophy of the US GAAP. Under US GAAP, the historical acquisition price less depreciation constitutes the balance sheet's asset value, and the

fair value model is not allowed (ARB 43, CH 98.1), and thereby the cost model will be used (ASC 360). Thus, different reporting models of investment properties under the IFRS and US GAAP provide a setting where earnings quality reflects the outcome of the two financial reporting models: cost and fair value.

3. Development of the research question

The current study focuses on the intersection of a separately regulated (investment property) industry and the earnings quality outcomes of recognizing unrealized gains or losses in the income statement. According to Dietrich et al. (2000), appraisers rarely observe contemporaneous transactions for an identical property, and appraisers rely on subjective assumptions and exercise considerable judgment. Slavko (2015) suggests that unobservable markets allow managers to manipulate the results using the estimation values, leading to lower quality of reported earnings.

Valuations based on cash flow projections provide helpful information to investors even though they require management estimations (Kolev, 2019). Fair value measurement also enables the prediction of future accounting earnings (Evans et al., 2014). One can also argue that the fair value model fulfills the need for more decision-useful financial information given the increasing complexity of a globalized and innovation-based economy (Barth, 2006; Ball, 2006; Zyla, 2012; Marra, 2016). A precise, fair valuation can provide investors inside information about the management's expectations regarding the investment properties (Danbolt & Rees, 2008), and accurate information about the expected cash flows in the future (Liang & Riedl, 2014). In contrast to the above, some scholars see the use of fair values on the balance sheet as controversial because fair values require estimates using management's expectations and projections as inputs (Penman, 2007; Hughes & Tett, 2008; McCreevy, 2008; Ball, 2016; Marra, 2016). Some even characterize fair value accounting as unreliable (Penman, 2007; Benston, 2008; McCreevy, 2008), and others argue that fair values do not contain information about future earnings (Dichec & Tang, 2008; Bezold, 2008). Maybe negative views about management estimates can be explained by findings of prior studies suggesting that management can impact valuation models' choices (Shalev et al., 2013) and influence the valuation process's outcome (Singleton & Green, 2007). Singleton and Green (2007) point out that fair value accounting is costly, and its outcomes are volatile and unpredictable (So & Smith, 2009).

Our interest in *earnings quality* is related to the consequences of the cost and fair value models on the financial statement information and share market measures provided by the firms in the investment property industry. Dechow et al. (2010, p. 344) define "earnings quality" as follows: "higher quality earnings provide more information about the features of a firm's financial performance that are relevant to a specific decision made by a specific decision-maker."

Following Dechow et al. (2010), we recognize the three features of earnings quality: (i) earnings quality is conditional on the decision-relevance of information, (ii) the quality of a reported earnings number depends on whether it provides su cient information about a firm's financial performance, and (iii) earnings quality is jointly determined by the relevance of the underlying financial performance to the decision and by the ability of the accounting system to measure performance.

Prior studies use various measures for earnings quality. A detailed description of how earnings quality constructs can be derived from the relations among income, accruals, and cash is provided by Schipper and Vincent (2003). Some use the time-series properties of earnings,

including earnings persistence[1] (Francis et al., 2004; Atwood et al., 2011; Chen & Wu 2013; Yao, 2013; Kamarudin & Ismail, 2014), predictability (Doyle, Lundholm, & Soliman, 2003; Francis et al., 2004; Barragato & Markelevich, 2008; Dichev & Tang, 2008; Hussainey, 2009; Kamarudin & Ismail, 2014), and timeliness (Francis et al., 2004; Abdullah, 2006; Kamarudin & Ismail, 2014). Earnings quality is also measured by using volatility concerning accruals to future cash flows (Francis et al. 2004; Kamarudin, 2014) in which earnings are associated with share market metrics, such as share prices (Richardson et al., 2005) and returns, and the level of discretionary accruals (McInnis & Collins, 2011; Kamarudin & Ismail, 2014; Darjezi, 2015).

Earnings quality and audit quality have been linked in different studies (Becker et al., 1998; Raynolds and Francis, 2000; Balsam et al., 2003). There is empirical evidence that audit quality improves the investor's ability to anticipate future earnings (Hussainey, 2009). Krishnan and Zhang (2019) use the following measures - predictability of earnings for future cash flows, earnings persistence, value-relevance of earnings, discretionary accruals, and the asymmetric timeliness of earnings - when comparing the IFRS-earnings and the Canadian GAAP (a close substitute to the US GAAP) of all listed Canadian firms in the year when the listed Canadian companies started to use IFRS. They report that the Canadian GAAP outperformed the IFRS in earnings quality. Moreover, the IFRS numbers of Canadian firms were less value-relevant and less persistent.

Firms' contracts are determinants of earnings quality (Dechow et al., 2010). Contracts, such as compensation contracts and debt contracts, affect financial statements' reporting (Scott, 2015). Conservatism is one of the critical earnings quality measures that are affected by contracts. Basu (1997, p. 7) describes the traditional conservatism rule, "anticipate no profits but anticipate all losses," as denoting accountants' tendency to require a higher degree of verification to recognize good news as gains than to recognize bad news as losses. If the conservatism is news dependent, it is called "conditional conservatism," and if it is not news dependent, it is called "unconditional conservatism" (Beaver & Ryan, 2005). A frequently used example of conditional conservatism is the expensing rule of inventories: lower of cost or market value (Hartfield, 1909; Esquerre, 1914; Basu, 2005; Krishnan & Zhang, 2019). According to Bever and Ryan (2005, p. 269), unconditional conservatism is "an average understatement of the book value of net assets relative to their market value." The essence of unconditional conservatism means that asset decrease (or liability increase) is presented without an economic loss event.

Conditional conservatism is vital for lenders (Ball et al., 2008). Investors demand conditional conservatism to restrict managers' ability to exploit unverifiable accounting estimates based on opportunistic motives. If market prices are unavailable, the fair value estimation process is susceptible to managerial discretion (Black et al., 2018).

According to Healy and Wahlen (1999, p. 368), *earnings management* "occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers." Lo (2008, p. 350) summarises the above idea of earnings management by stating that, "someone is doing something that harms someone else." Earnings management and earnings quality have joint properties, and highly managed earnings have a low quality (Lo, 2008). However, the lack of earnings management does not guarantee high-quality earnings. For example, a poor set of standards can generate low-quality financial reports (Lo, 2008). Prior studies dis-

[1] However arguably, the use of the cost model is likely to result higher predictability because of less variation in changes in depreciation compared to changes of fair value.

cuss alternative ways to manage earnings (Jackson & Liu 2010; Keung et al., 2010; Barton & Mercer, 2005; Christensen et al., 2012; Hsu & Lin, 2016).

According to agency theory assumptions, the managers pursue maximizing their compensation (cf. Healy, 1985). The latitude of IAS 40 seems to introduce managerial opportunism. Namely, Quagli and Avallone (2010) examine the drivers of choice for IAS 40 in the real estate industry and show that information asymmetry, contractual efficiency, and managerial opportunism could account for the fair value choice. Dietrich et al. (2000) find that appraisal estimates of investment properties understate actual selling prices and are considerably less biased and more accurate in selling prices than historical costs. These findings are perhaps not unsurprising as fair values intend to reflect exit prices of the assets. Pinto and Pais (2015) find evidence suggesting that some real estate managers react to market pressure to meet financial reporting objectives by smoothing book value returns. Using all Canadian listed firms, Krishnan and Zhang (2019) report that accrual quality is lower under the IFRS, suggesting greater earnings management. In contrast, Ball (2013) argues that earnings management is a myth and no real evidence to support this fact. Based on the above discussion, we set the following research question.

Does the use of the fair value model of the investment properties under IAS 40 improve the quality of the earnings compared to the cost model under ASC 360?

4. Empirical tests and data

4.1 Data

As our research question addresses companies in the investment property industry, we start the sample development by identifying all listed companies from the real estate industry corresponding to the SIC two-digit industry number 65 ("Real estate"). Our sample includes companies from the USA, Australia, Canada, Great Britain, Hong Kong, Ireland, Singapore, South Africa, and New Zealand. The number of observations by country is described in Table 1. The data covers years 2014-2019, and we require data from at least two successive years for variables of interest to satisfy the requirement of including a lagged variable in the cash flow predictability, earnings persistence, value relevance, and discretionary accruals tests. We use all firm-year observations with data available in databases that are needed for our tests, and winsorize the distributions of our variables in 1% and 99% to mitigate problems with outliers. From Table 1, we can see that our sample includes 399 companies (150 from the U.S. and 249 from the IFRS countries) and 2,394 (900 US and 1,494 IFRS) firm-year observations. The number of observations used in the actual tests is lower than the above when data on variables are not available from public sources identified in the study. The data availability by variable has been presented in the first and second columns of Table 2.

Table 1. The number of observations by country

COUNTRY	FIRMS	FIRM-YEARS	PERCENT
Australia	37	222	9.27
Canada	51	306	12.78
Great Britain	63	378	15.79
Hong Kong	41	246	10.28
Ireland	1	6	0.25
Singapore	43	258	10.78
South Africa	13	78	3.26
United States	150	900	37.59
Total	399	2,394	100.00

We use two sources of data. Our primary data source is Orbis (provided by Bureau van Dijk), from which we gather all financial statement and valuation information. The USGAAP cash flows are taken from the Compustat database. The variable definitions are presented in Appendix 1.

4.2 Models

To compare the earnings quality between the U.S. and IFRS companies, we recognize that "there is no measure of earnings quality that is superior for all decision models" (Detchow et al., 2010, 345). We follow Krishnan and Zhang (2019) and use five different attributes for earnings quality: (1) predictability of earnings, (2) earnings persistence, (3) value-relevance of earnings, (4) discretionary accruals, and (5) asymmetric timeliness of earnings.

4.2.1 Predictability of earnings

We use the model from Dechow et al. (1998) to measure the predictability of earnings. Here, the cash flow is predicted by the previous year's earnings as follows:

$$CFO_t = \alpha + \beta_1 EPS_{t-1} + \varepsilon \quad (1)$$

where *CFO* is the cash flow from operations per share, and *EPS* is the earnings per share. A positive relationship between the cash flow and the previous year's EPS is expected, indicating the predictability of earnings (Dechow et al., 1998).

4.2.2. Earnings persistence

The persistence of earnings is analyzed similarly to Krishnan and Zhang (2019):

$$EPS_t = \alpha + \beta_1 EPS_{t-1} + \varepsilon \quad (2)$$

where *EPS* is earnings per share. The quality of persistence is evaluated by comparing the coefficients of models with subsamples using Chi²-test statistic and by comparing the explanatory power (R^2) of the models.

4.2.3. Value-relevance of earnings

The third attribute of earnings quality is value-relevance, based on the share price predictability one month and three months after the fiscal year-end (Barth et al., 2008). These are respectively calculated as follows:

$$PRICE\_LAG1 = \alpha + \beta_1 BVS + \beta_2 EPS\_LOSS + \beta_3 EPS + \beta_4 EPS\_LOSS \times EPS + \epsilon, \quad (3)$$

$$PRICE\_LAG3 = \alpha + \beta_1 BVS + \beta_2 EPS\_LOSS + \beta_3 EPS + \beta_4 EPS\_LOSS \times EPS + \epsilon, \quad (4)$$

where *PRICE_LAG1* and *PRICE_LAG3* are the share prices one month and three months after the fiscal year-end, respectively. In addition, *BVS* is the book value of equity per share, and *EPS* is the earnings per share. Based on Ohlson (1995), we expect positive coe cients on *BVS* and *EPS*. Furthermore, to capture the piece-wise linearity of earnings (Basu, 1997), we add the loss dummy indicating negative EPS and the interaction term *EPS_LOSS x EPS* to control for negative earnings.

We use also a value-relevance model where earnings and the change of earnings are the predictors of share returns (Ghosh & Moon, 2005).

$$RETURN = \alpha + \beta_1 EPS + \beta_2 CHEPS + \varepsilon \quad (5)$$

In equation (5), *RETURN* is a 12-month buy-and-hold share return starting nine months before the fiscal year-end and ending three months after the fiscal year-end. *EPS* is the earnings per share, and *CHEPS* is the annual change of EPS.

4.2.4. Discretionary accruals

We follow Dechow and Dichev (2002) and calculate the total accruals as the dependent variable of equation (6). Scaled cash flow from one year before, in the current year, and one year after are the predictor variables in the equation.

$$ACCRUALS_t = \alpha + \beta_1 CFO\_SCALED_{t-1} + \beta_2 CFO\_SCALED_t + \beta_3 CFO\_SCALED_{t+1} + \varepsilon \quad (6)$$

Total accruals (*ACCRUALS*) are calculated as earnings +depreciation less operating cash flows, divided by market capitalization. *CFO SCALED* is an operational cash flow scaled by market capitalization.

4.2.5. Asymmetric timeliness of earnings

Finally, we use the model proposed by Basu (1997) to evaluate the amount of conditional conservatism (the asymmetric timeliness of the recognition of gains and losses) of earnings.

$$EPS\_SCALED = \alpha + \beta_1 RET + \beta_2 RET\_NEG + \beta_3 RET\_NEG \times RET + \varepsilon \quad (7)$$

In equation (7), *EPS_SCALED* represents the earnings per share scaled by share price. *RET* is a 12-month buy-and-hold share return and *RET_NEG* is a dummy capturing negative return. Regression coe cient β_1 measures the conservatism for positive returns, whereas the sum of β_1 and β_3 measures the conservatism for the negative returns. A significant positive coe cient of β_3 indicates the asymmetric timeliness of earnings.

5. Results

5.1. Descriptive statistics

The descriptive statistics for the variables used in our tests are shown in Table 2. In the table, we present the mean values and standard deviations separately based on the subsets of firms that apply the IFRS and those that apply the US GAAP. The table also reports the *p*-values from the mean tests between the subsamples. Table 2 shows that the share of negative earnings is higher in the U.S. sample. In the IFRS sample, the share of negative stock return and the absolute value of total accruals are higher.

Table 2: Group statistics with t-test (IFRS compared the US GAAP)
Mean values, differences, standard deviations, t-values, and p-values.

	N (IFRS)	N (US)	MEAN (IFRS)	MEAN(US)	DIFF.	SD(IFRS)	SD(US)	T-VALUE	P-VALUE
BIG4	990	414	.687	.314	.373	.464	.465	13.70	.000
CFO	1187	341	.478	2.173	-1.694	1.580	2.928	-14.05	.000
EPS	1250	473	.458	.673	-.215	1.560	2.285	-2.25	.026
EPS LOSS	1494	900	.170	.205	-.035	.376	.404	-2.20	.025
CHEPS	1182	414	-.011	.359	-.370	1.186	2.221	-4.25	.000
PRICE	1257	478	6.301	22.407	-16.107	17.098	26.165	-15.00	.000
PRICE LAG1	1229	427	6.512	24.067	-17.555	17.773	28.958	-14.70	.000
PRICE LAG3	1243	440	6.677	24.424	-17.747	18.616	30.682	-14.30	.000
BVS	1250	478	6.470	11.279	-4.809	15.140	12.929	-6.15	.000
RET	1164	368	-.008	.001	-.009	.348	.540	-.35	.721
RET NEG	1494	900	.360	.185	.174	.480	.389	9.25	.000
ACCRUALS	1494	900	.022	.005	.017	.206	.082	2.35	.020
CFO SCALED	1153	341	.029	.121	-.092	.546	.414	-2.89	.004
EPS SCALED	1212	456	.030	-.073	.103	.597	1.762	1.78	.074

BIG4 is an indicator for BIG4-auditor; *CFO* cash flow from operations per share; *EPS* is earnings per share in a fiscal year; *EPS_LOSS* is a dummy for negative EPS; *CHEPS i*s an annual change in EPS*; PRICE_LAG_1* and *PRICE_LAG_3* are the stock prices one and three months after the fiscal year-end, respectively; *BVS* is book value per share; *RET* is a 12-month buy-and-hold stock return; *RET_NEG* is a dummy for negative return; *ACCRUALS* is the total accruals; *CFO_SCALED* is the cash flow scaled by market capital, and *EPS_SCALED* is the EPS scaled by market capital. Variable definitions are presented in the Appendix.

When we hand-collected additional data from a total of 100 random companies from our sample, non-tabulated descriptive statistics show that the mean investment properties to total assets of IFRS companies was 81.3 percent and of US companies 78.4 percent (standard deviations 16.4 and 21.2 per cents, respectively).

5.2 Predictability of earnings

Table 3 Panel A presents the results of the earnings predictability. We run equation (1) for the full sample and separately for IFRS and US GAAP subsamples. A positive coe cient for the previous year's EPS is expected; that is, *EPS* should be positively correlated with future cash flows. In both subsamples, the coe cient of EPS_{t-1} is significant and positive. In U.S. firms, the coe cient (0.846) is higher than in IFRS companies (0.574). The difference is not statistically significant. We also observe a higher R^2 for the US GAAP sample (0.409) than for the IFRS sample (0.363).

Table 3 Panel A. Regression results
The dependent variable is *CFO*. Coefficients, (std. errors), Chi2 and (p-values).

	(1) IFRS	(2) USGAAP	(3) ALL	(4) CHI²
EPSt_1	0.574***	0.846***	0.692***	1.67
	(0.149)	(0.150)	(0.123)	(0.197)
_cons	0.178**	1.484***	0.431***	
	(0.088)	(0.203)	(0.088)	
Obs.	1131	300	1431	
R-squared	0.363	0.409	0.358	

Standard errors are in parenthesis. *** p<0.01, ** p<0.05, * <0.1
CFO is cash flow from operations per share; *BIG4* is an indicator for BIG4-auditor; *EPS* is earnings per share. Variable definitions are presented in the Appendix.

Table 3 Panel B. Predictability of earnings
The dependent variable is *CFO*. Coefficients, (std. errors), Chi2 and (p-values)

	(1) IFRS	(2) US GAAP	(3) ALL	(4) CHI²
BIG4	0.313**	0.291	0.170	0.00
	(0.157)	(0.693)	(0.221)	(0.974)
EPSt_1	0.581***	0.954***	0.739***	1.76
	(0.152)	(0.242)	(0.166)	(0.184)
BIG4xEPSt_1	-0.001	-0.267	-0.052	0.73
	(0.062)	(0.313)	(0.083)	(0.392)
_cons	0.035	1.005	0.240*	
	(0.057)	(0.649)	(0.134)	
Obs.	750	133	883	
R-squared	0.381	0.540	0.426	

*** p<0.01, ** p<0.05, * p<0.1
CFO is cash flow from operations per share; Big4 is an indicator for Big4-auditor; EPS is earnings per share. Variable definitions are presented in the Appendix.CFO is cash flow from operations per share; BIG4 is an indicator for BIG4-auditor; EPS is earnings per share. Variable definitions are presented in the Appendix.

The absolute value of the coe cient of EPS in the US sample is higher than that of the IFRS sample. However, the observed difference between standards is not statistically significant (p-value of the Chi²-test is 0.197). Therefore we conclude that there is no difference in earnings predictability between IFRS and US GAAP.

5.3 Earnings persistence

The results for the regression equation (2) are presented in Table 4 Panel A. Similarly Chalmers et al. (2011), our interpretation is that an increase in earnings predictability reflects better incorporation of underlying economic circumstances that have continuing effects on the future earnings. Therefore, we interpret a higher positive coe cient as an indication of higher earnings quality. However, from Table 4 Panel A, we observe the coe cients of US GAAP (coe cient is 0.795) and IFRS samples (coe cient is 0.774) are not statistically different from each other (*p*-value of Chi²-test is 0.873).

Table 4 Panel A. Earnings persistence
The dependent variable is EPS. Coefficients, (std. errors), Chi² and (p-values).

	(1) IFRS	(2) USGAAP	(3) ALL	(4) CHI²
EPSt_1	0.774***	0.795***	0.784***	0.03
	(0.069)	(0.117)	(0.063)	(0.873)
_cons	0.082***	0.255***	0.125***	
	(0.031)	(0.063)	(0.028)	
Obs.	1182	414	1596	
R-squared	0.615	0.571	0.596	

Standard errors are in parenthesis. *** p<0.01, ** p<0.05, * p<0.1
CFO is cash flow from operations per share; *Big4* is an indicator for Big4-auditor; *EPS* is earnings per share. Variable definitions are presented in the Appendix.

Table 4 Panel B. Earnings persistence
The dependent variable is EPS. Coefficients, (std. errors), Chi² and (p-values)

	(1) IFRS	(2) US GAAP	(3) ALL	(4) CHI²
BIG4	0.029	-0.031	-0.019	0.13
	(0.068)	(0.152)	(0.072)	(0.714)
EPSt_1	0.814***	0.841***	0.831***	0.02
	(0.083)	(0.163)	(0.076)	(0.880)
BIG4xEPSt_1	0.003	0.018	-0.001	0.02
	(0.023)	(0.198)	(0.024)	0.01
_cons	0.052	0.246**	0.113**	(0.939)
	(0.035)	(0.120)	(0.047)	
Obs.	784	193	977	
R-squared	0.686	0.638	0.669	

*** p<0.01, ** p<0.05, * p<0.1
CFO is cash flow from operations per share; *Big4* is an indicator for Big4-auditor; *EPS* is earnings per share. Variable definitions are presented in the Appendix.

The explanatory power (R^2) in the models are 0.615 and 0.571 for the IFRS and the US GAAP subsamples, respectively.

5.4 Value-relevance

Tables 5–6 presents the results regarding equations (4) – (5). The difference of the coe cients between the U.S. and IFRS subsamples is analyzed using the Chi-square test. The dependent variables are *PRICE_LAG_3* (Table 5 Panel A) and *RETURN* (Table 6 Panel A). We control for negative EPS with the EPS loss dummy and let the latter interact with EPS. In Table 5 Panel A, the share price is lagged by three months. The coe cient of *BVS* is positive and statistically significant for both subsamples. For the IFRS firms (in Column 1), the coe cient is 0.846, suggesting that 84,6 % of the reported book value is capitalized in the share value. This coe cient is lower than the theoretical value of 1 (Ohlson, 1995). It can be seen from the test β(BVS)=1 because the regression coe cient of BVS of IFRS subsample differs from 1 (*p*-value is below 0.001). This is not true for the US GAAP sample where the *p*-value of the test β(BVS)=1 is 0.883 suggesting that the coe cient of *BVS* (0.986) does not differ from 1. However, the R^2 of the IFRS sample (0.764) is much higher than that of the USGAAP sample (0.374). We can also see that for the US firms the coe cients of *EPS_LOSSxEPS* differs at the 10 % confidence level between subsamples (*p*-value of Chi^2 test is 0.089). Other coe cients are not statistically different between the subsamples. Untabulated results using a lag of one month instead of three months remain qualitatively the same.

Table 5 Panel A. Value relevance
The dependent variable is *PRICE_LAG_3*. Coefficients, (std. errors), Chi^2 and (p-values)

	(1) IFRS	(2) US GAAP	(3) ALL	(4) CHI^2
BVS	0.846***	0.986***	0.891***	0.35
	(0.178)	(0.158)	(0.133)	(0.556)
EPS_LOSS	2.661***	6.905*	6.188***	1.18
	(0.949)	(3.820)	(1.823)	(0.278)
EPS	2.434**	4.657***	3.410**	1.18
	(1.118)	(1.733)	(1.347)	(0.277)
EPS_LOSSxEPS	-1.112*	-0.001***	-0.001***	2.89*
	(0.655)	(0.000)	(0.000)	(0.089)
_cons	-0.951*	7.191***	0.717	
	(0.545)	(2.634)	(0.627)	
Obs.	1347	458	1805	
R-squared	0.764	0.374	0.561	
β(BVS)=1 (p)	(0.000)	(0.883)		

*** p<0.01, ** p<0.05, * p<0.1
PRICE_LAG_3 is the stock price three months after the fiscal year-end, *BVS* is book value per share; *EPS* is earnings per share and *EPS_LOSS* is a dummy for negative EPS. Variable definitions are presented in the Appendix.

Table 5 Panel B. Value relevance
The dependent variable is *PRICE_LAG_3*. Coefficients, (std. errors), Chi² and (p-values)

	(1) IFRS	(2) USGAAP	(3) ALL	(4) CHI²
BVS	0.873***	0.978***	0.853***	0.17
	(0.189)	(0.177)	(0.125)	(0.684)
EPS_LOSS	3.068**	2.718	4.370***	0.01
	(1.369)	(2.855)	(1.380)	(0.910)
EPS	2.363*	4.564***	3.499***	1.96
	(1.317)	(0.889)	(0.954)	(0.162)
EPS_LOSSxEPS	-0.784	-0.238***	-0.351**	0.91
	(0.572)	(0.046)	(0.171)	(0.339)
BIG4	-0.038	3.704	-0.329	1.78
	(1.054)	(2.658)	(1.143)	(0.182)
_cons	-0.925	4.030	0.324	
	(0.841)	(3.137)	(1.084)	
Obs.	795	194	989	
R-squared	0.763	0.724	0.726	

Standard errors are in parenthesis. *** p<0.01, ** p<0.05, * p<0.1
PRICE_LAG_3 is the stock price three months after the fiscal year-end, *BVS* is book value per share; *EPS* is earnings per share and *EPS_LOSS* is a dummy for negative EPS. Variable definitions are presented in the Appendix.

Table 6 Panel A. Value relevance
The dependent variable is *RETURN*. Coefficients, (std. errors), Chi² and (p-values).

	(1) IFRS	(2) USGAAP	(3) ALL	(4) CHI²
EPS	0.029***	0.044**	0.035***	0.53
	(0.007)	(0.019)	(0.009)	(0.467)
CHEPS	0.005	-0.034	-0.014	2.28
	(0.013)	(0.022)	(0.013)	(0.131)
_cons	-0.018	0.021	-0.010	
	(0.012)	(0.033)	(0.013)	
Obs.	1112	380	1492	
R-squared	0.021	0.038	0.024	

*** p<0.01, ** p<0.05, * p<0.1
RET is a 12-month buy-and-hold stock return; *EPS* is earnings per share in a fiscal year; *CHEPS i*s an annual change in *EPS*. Variable definitions are presented in the Appendix.

Table 6 Panel B. Value relevance
The dependent variable is *RETURN*. Coefficients, (std. errors), Chi² and (p-values).

	(1) IFRS	(2) USGAAP	(3) ALL	(4) CHI²
EPS	0.023***	0.020*	0.024***	0.07
	(0.005)	(0.011)	(0.005)	(0.787)
CHEPS	-0.006	0.018	0.003	2.51
	(0.006)	(0.014)	(0.006)	(0.113)
BIG4	0.023	0.046	0.022	0.07
	(0.032)	(0.084)	(0.033)	(0.797)
_cons	-0.134***	-0.116	-0.128***	
	(0.030)	(0.089)	(0.032)	
Obs.	737	165	902	
R-squared	0.018	0.031	0.021	

Standard errors are in parenthesis. *** p<0.01, ** p<0.05, * p<0.1

RET is a 12-month buy-and-hold stock return; *EPS* is earnings per share in a fiscal year; *CHEPS i*s an annual change in *EPS*. Variable definitions are presented in the Appendix.

In Table 6 Panel A, the dependent variable is a 12-month buy-and-hold share return. For both subsamples, the only significant coe cient is the positive coe cient of *EPS*. The coe cient of 0.044 for US GAAP firms is higher than 0.029 for IFRS firms. The difference, however, is not statistically significant (the p-value of the Chi² test is 0.467).

5.5 Discretionary accruals

The results regarding equation (6) for discretionary accruals are presented in Table 7 Panel A. The starting point in Dechow and Dichev (2002) model is that the current year accruals can be estimated using the cash flows from the previous year, the current year, and the following year. First, from Table 2 (Group statistics with t-tests), we can see that the total accruals' mean value is greater in the IFRS subsample (0.022) than in the US GAAP subsample (0.005). The higher R^2 of the US GAAP sample of 0.328 than 0.135 of the IFRS sample suggests that the variation of accruals can be explained better with the cash flows in the US GAAP sample.

Table 7 Panel A. Discretionary accruals
The dependent variable is *ACCRUALS*. Coefficients, (std. errors), Chi² and (p-values).

	(1) IFRS	(2) USGAAP	(3) ALL	(4) CHI²
CFO_SCALEDt-1	0.156***	-0.201***	-0.036	22.86
	(0.023)	(0.072)	(0.069)	(0.000)
CFO_SCALED	-0.247**	-0.323**	-0.158*	0.20
	(0.111)	(0.128)	(0.089)	(0.651)
CFO_SCALEDt+1	-0.026	0.234**	0.064	4.93
	(0.062)	(0.101)	(0.076)	(0.026)
_cons	0.012	-0.111***	-0.012	
	(0.014)	(0.023)	(0.013)	
Obs.	1008	220	1228	
R-squared	0.135	0.328	0.086	

*** p<0.01, ** p<0.05, * p<0.1
ACCRUALS is the total accruals; *CFO_SCALED* is the cash flow scaled by market capitalization. Variable definitions are presented in the Appendix.

Table 7 Panel B. Discretionary accruals
The dependent variable is *ACCRUALS*. Coefficients, (std. errors), Chi² and (p-values).

	(1) IFRS	(2) USGAAP	(3) ALL	(4) CHI²
CFO_SCALEDt_1	0.069***	0.233***	0.077***	5.65**
	(0.015)	(0.070)	(0.017)	(0.018)
CFO_SCALED	-0.181*	-0.496***	-0.197**	6.93***
	(0.093)	(0.079)	(0.097)	(0.009)
CFO_SCALEDt1	0.021	0.209***	0.044	3.13*
	(0.081)	(0.071)	(0.089)	(0.077)
BIG4	0.029	-0.104	0.001	2.47
	(0.031)	(0.081)	(0.031)	(0.116)
_cons	0.023	0.134	0.049*	
	(0.028)	(0.083)	(0.028)	
Obs.	573	102	675	
R-squared	0.143	0.408	0.144	

Standard errors are in parenthesis. *** p<0.01, ** p<0.05, * p<0.1

ACCRUALS is the total accruals; *CFO_SCALED* is the cash flow scaled by market capitalization. Variable definitions are presented in the Appendix.

5.6 Asymmetric timeliness of earnings

Finally, we run the conditional conservatism tests (Equation 7). From Table 8 Panel A, we can see that similarly to Basu (1997) the coe cients for *RET_NEGxRET* are significant and positive, indicating the asymmetric timeliness of earnings (0.665 and 0.406 for IFRS and US GAAP samples, respectively). However, there are no significant differences between the IFRS and U.S. sub-

samples. Thus, we can only conclude that conservatism can be observed both in the U.S. and IFRS firms.

Table 8 Panel A. Asymmetric timeliness of earnings
The dependent variable is *EPS_SCALED*. Coefficients, (std. errors), Chi² and (p-values).

	(1) IFRS	(2) USGAAP	(3) ALL	(4) CHI²
RET	-0.155	-0.573	-0.236	0.71
	(0.103)	(0.487)	(0.163)	(0.398)
RET_NEG	-0.004	-0.362	-0.111	1.03
	(0.036)	(0.355)	(0.104)	(0.311)
RET_NEGxRET	0.665***	0.406**	0.406***	0.79
	(0.218)	(0.195)	(0.146)	(0.375)
_cons	0.116***	0.226	0.129***	
	(0.030)	(0.169)	(0.045)	
Obs.	1111	354	1465	
R-squared	0.049	0.009	0.011	

*** p<0.01, ** p<0.05, * p<0.1
EPS_SCALED is the EPS scaled by market capital; *RET* is a 12-month buy-and-hold stock return; *RET_NEG* is a dummy for a negative return. Variable definitions are presented in the Appendix.

Table 8 Panel B. Asymmetric timeliness of earnings
The dependent variable is *EPS_SCALED*. Coefficients, (std. errors), Chi² and (p-values).

	(1) IFRS	(2) USGAAP	(3) ALL	(4) CHI²
RET	0.072	-0.337*	0.021	3.08*
	(0.134)	(0.195)	(0.141)	(0.079)
RET_NEG	0.105**	-0.106	0.064	6.71***
	(0.051)	(0.066)	(0.048)	(0.010)
RET_NEGxRET	0.545*	0.702***	0.506***	0.19
	(0.281)	(0.231)	(0.171)	(0.662)
BIG4	0.270***	-0.141*	0.174**	10.59***
	(0.102)	(0.076)	(0.080)	(0.001)
_cons	-0.151	0.282***	-0.053	
	(0.112)	(0.099)	(0.098)	
Obs.	739	166	905	
R-squared	0.088	0.380	0.098	

Standard errors are in parenthesis. *** p<0.01, ** p<0.05, * p<0.1
EPS_SCALED is the EPS scaled by market capital; RET is a 12-month buy-and-hold stock return; RET_NEG is a dummy for a negative return. Variable definitions are presented in the Appendix.

5.7 Sensitivity tests

From prior literature, we know that larger audit firms provide a higher quality of audits (DeAngelo, 1981; Becker et al., 1998; Francis & Yu, 2009), and high-quality audits are related to higher earnings quality (e.g. Becker et al. 1998). Therefore, we test the sensitivity of all our empirical tests for the effect of higher earnings quality provided by BIG4 audits (Panel B of tables 3-8). Overall, the inclusion of the Big4 indicator variable does not qualitatively affect our findings. When we compare Panel A and B in Tables 3,4,5,6 and 8, our conclusion regarding the research question does not change. However, in the discretionary accrual test (Table 7), the inclusion of the Big4 indicator variable has a clear impact on the coe cient CFO_SCALED_{t-1} in the US GAAP sample, a finding that is challenging for us to interpret.

6 Discussion and conclusions

In the current study, we addressed a fundamental question in financial accounting: whether to use a fair value or cost model. We did so by examining how the incorporation of fair values into main financial statements affects earnings quality instead of using a cost model where fair value changes are not recognized in income statements. Due to the requirement of the IAS 40 to include the changes in investment properties' fair values into the income statement, we can perform our analysis in an industry sector where management opportunism is arguably accentuated. The potential magnitude of the effects of management opportunism is economical of interest because the proportion of real estate assets to total assets in the investment property sector is often material.

Our empirical findings suggest that the cost model yields better earnings quality in two out of six tests: (i) value-relevance tests suggest that under the cost model (applied in the U.S.) asset values are not under- or overvalued while under the fair value model (applied under the IFRS) asset values appear to be overvalued, and (ii) cash flows are better predictors of discretionary accruals using the cost model. In the other four earnings quality tests, fair value and cost models do not differ from each other. We perform sensitivity tests regarding high-quality audits (using Big 4 as a proxy) and find that the results remain qualitatively the same.

Our first contribution relates to Francis et al. (2004), who find (using all industries) that the fair value model is more value relevant than the cost model and offers more predictability and timely earnings numbers because of its future orientation. From Schipper and Vincent (2003), we know that there are idiosyncratic elements in earnings predictability and reporting entity's business model, economic factors, and reporting choices that affect earnings quality measures. That is why we take a different approach to Francis et al. (2004) and focus on one specific business model (investment properties) instead of including a cross-section of all industries. We expect that this decision improves the accuracy of our empirical findings regarding reporting choices in the investment property sector. We find that in the investment property sector the cost model yields better value relevance. In contrast to Francis et al. (2004), we find that in the real estate sector the cost model yields better cash flows predictability.

As our second contribution, we examine a longer time period and more extensive set of countries than Krishnan and Zhang (2019), comparing IFRS and Canadian GAAP (that is similar to US GAAP) using one-year data from 2011. Their results support the notion that higher earnings quality is associated with CGAAP. Different to Krishan and Zhang (2019), we use observations from many countries applying IFRS (including Canada), from years 2014–2019. Our findings from the investment property sector do not support the Canadian GAAP type of cost model as extensively as was the case in the research design of Krishnan and Zhang (2019).

Third, we extend Dietrich et al. (2011), who found indications of earnings management. In our research design with more countries and years included in the tests, we find that earnings management (and managerial opportunism) is present in the IFRS sample because investors predict approximately 15% lower values for the long-term assets than what the firm management reporting in their financial statements.

We recognize as a limitation of our study that fair values are likely to contain more variation than the depreciation of the cost model. This difference limits the comparability of the two valuation models. However, the measures that we use are those that are widely used to assess earnings quality.

References

Abdullah, S. N. (2006). Board composition, audit committee and timeliness of corporate financial reports in Malaysia. *Corporate Ownership & Control* 4(2), 33–45.

Ahmed, A. S., Billings, B. K., Morton, R. M., & Stanford-Harris, M. (2002). The role of accounting conservatism in mitigating bondholder-shareholder conflicts over dividend policy and in reducing debt costs. *The Accounting Review* 77(4), 867-890.

Al-Khadash, H. A., & Khasawneh, A. Y. (2014). The effects of the fair value Option under IAS 40 on the volatility of earnings. *Journal of Applied Finance and Banking* 4(5), 95.

Atwood, T.J; Drake, M.S, Myers, M.N, & Myers, L.A. (2011) Do earnings reported under IFRS tell us more about future earnings and cash flows? *Journal of Accounting and Public Policy* 30(2), 103-121.

Badia, M., Duro, M., Penalva, F., & Ryan, S. (2017). Conditionally conservative fair value measurements, *Journal of Accounting and Economics* 63(1), 75–98.

Ball, R. (2013). Accounting informs investors and earnings management is rife: Two questionable beliefs. *Accounting Horizons* 27(4), 847–853.

Ball, R. (2006). International Financial Reporting Standards (IFRS): Pros and cons for investors. *Accounting and Business Research* 36(1), 5–27.

Ball, R., Robin, A., & Sadka, G. (2008). Financial reporting shaped by equity markets or by debt markets? An international study of timeliness and conservatism. *Review of Accounting Studies* 13(2-3), 168–205.

Balsam, S., Krishnan, J., & Yang. J.S. (2003) Auditor Industry Specialization and Earnings Quality. *Auditing: A Journal of Practice & Theory* 22(2), 71-97.

Bandyopadhyaya, S.P., Chena, C., & Wolfe, M. (2018). The predictive ability of investment property fair value adjustments under IFRS and the role of accounting conservatism. *Advances in Accounting*, 38, 1–14.

Barth, M. E. (2006). Research, standard-setting, and global financial reporting. *Foundations and Trends in Accounting* 1, 71–165.

Barth, M., Landsman, W., & Lang, M. (2008). International accounting standards and accounting quality. *Journal of Accounting Research* 46(3), 467–498.

Barton, J. & Mercer M. (2005). To blame or not to blame: Analysts reaction to the external explanation for poor financial performance *Journal of Accounting and Economics* 39(3), 509–533.

Barragato, C. & Markelevich, A. (2008). Earnings quality following corporate acquisitions. *Managerial Finance* 34(5), 304–315.

Basu, S. (2005). Discussion of "Conditional and unconditional conservatism: Concepts and modeling". *Review of Accounting Studies* 10(2-3), 311–321.

Basu, S. (1997). The conservatism principle and the asymmetric timeliness of earnings. *Journal of Accounting & Economics* 24(1), 3–37.

Beaver, W.H. & Ryan, S.G. (2005). Conditional and unconditional conservatism: Concepts and modeling. *Review of Accounting Studies* 10(2), 269–309.

Becker, C..L., Defond, M.L, Jiambalvo, J., & Subramanyam, K.R. (1998). The effect of audit quality on earnings management. *Contemporary Accounting Research* 15(1), 1-24

Benston, G. J. (2008). The shortcomings of fair-value accounting described in SFAS 157. *Journal of Accounting and Public Policy* 27(2), 101–114.

Bezold, A. (2009). *The subject matter of financial reporting: The conflict between cash conversion cycles and fair value in the measurement of income* (Occasional Paper Series). New York, NY: Center for Excellence in Accounting and Security Analysis, Columbia University.

Botosan, C.A & Huffman, A.A. (2015). Decision-useful asset measurement from a business valuation perspective. *Accounting Horizon* 29(4), 757–776.

Cairns, D, Massoudi, D, Taplin, R., & Tarca, A. (2011). IFRS fair value measurement and accounting policy choice in the United Kingdom and Australia. *The British Accounting Review* 43(1), 1-21.

Chen, J.Z and Cussatt, M. (2018). The Association between SFAS No. 157 Fair Value Hierarchy Information and Conditional Accounting Conservatism. *The Accounting Review* 93(5), 119–144.

Burgstahler, D. C., Hail, L. and Leuz, C. (2006). The importance of reporting incentives: Earnings management in European private and public firms. *The Accounting Review* 81(5), 983–1016

Cairns, D., Massoudi, D., Taplin, R., & Tarca, A. (2011). IFRS fair value measurement and accounting policy choice in the United Kingdom and Australia. *The British Accounting Review* 43(1), 1-21.

Carroll, T.J., Linsmeier, T.J., & Petroni, K.R. (2003). The reliability of fair value versus historical cost information: Evidence from closed-end mutual funds. *Journal of Accounting, Auditing & Finance* 18(1), 1-24.

Chalmers, K., Clinch, G., & Godfrey, J. M. (2011). Changes in value relevance of accounting information upon IFRS adoption: Evidence from Australia. *Australian Journal of Management* 36(2), 151-173.

Christensen B. E., Glover S. M., & Wolfe C. J. (2014). Do critical audit matter paragraphs in the audit report change nonprofessional investors' decision to invest? *Auditing A Journal of Practice and Theory* 33(4), 71–93.

Cheng, C-E. & Wu, P-C. (2012). Nonlinear earnings persistence. *International Review of Economics & Finance* 25, 156–168.

Christensen B. E. & Nikolaev, V.V (2013). Does fair value accounting for non-financial assets pass the market test? *Review of Accounting Studies* 18(3), 734–775.

Christensen, J. A. & J. S. Demski (2003). *Accounting Theory: An Information Content Perspective:* McGraw-Hill/Irwin.

Cohen, D., Dey, A., & T. Lys. (2008). Real and accrual-based earnings management in the pre- and post Sarbanes-Oxley period. *The Accounting Review* 83(3), 757–787.

Cohen, D. & P. Zarowin (2010). Accrual-based and real earnings management activities around seasoned equity offerings. *Journal of Accounting and Economics* 50(1), 2–19.

Danbolt, J. & Rees, W. (2008). An experiment in fair value accounting: U.K. investment vehicles. *European Accounting Review* 17(2), 271–303.

Darjezi, J.I.Z. (2015). The role of accrual estimation errors to determine accrual and earnings quality. *International Journal of Accounting and Information Management* 24(2), 98–115.

Dechow, M. & Schrand, C. (2004). *Earnings Quality*. New York: The Research Foundation of CFA Institute.

Dechow, P. M. & Dichev, I. D. (2002). The quality of accruals and earnings: The role of accrual estimation errors. *The Accounting Review*, 77(s-1), 35–59.

Dechow, P. M., Kothari, S. P., & Watts, R. L. (1998). The relation between earnings and cash flows. *Journal of Accounting and Economics* 25(2), 133–168.

Dichev, I. & Tang, V. W. (2008). Matching and the changing properties of accounting earnings over the last 40 years. *The Accounting Review* 83(6), 1425–1460.

Dietrich, R.J., Harris M.S., & Muller III, K.A. (2000). The reliability of investment property fair value estimates. *Journal of Accounting and Economics* 30(2), 125–158.

Doyle, J., Lundholm, R., & Soliman, M. (2003). The predictive value of expenses excluded from pro forma earnings. *Review of Accounting Studies* 8(2), 145–174.

Erol, I. & Tyvimaa, T. (2019). Explaining the premium to NAV in publicly traded Australian REITs, 2008–2018. *Journal of Property Investment & Finance* 38(1), 3-40.

Esquerre, P. J. (1914). *Accounting*. New York: Ronald Press.

European Public Real Estate Association (EPRA) (2019. *Total market table Q3/2019 (9/2019).* https://prodapp.epra.com/media/EPRA_Total_Markets_Table_-_Q3-2019_1571313457840.pdf

Evans, M. E., Hodder, L., & Hopkins, P. E. (2014). The predictive ability of fair values for the future financial performance of commercial banks and the relation of predictive ability to banks' share prices. *Contemporary Accounting Research* 31(1), 13–44.

Francis, J., Lafond, R., Olsson, M., & Schipper, K. (2004). Costs of equity and earnings attributes. *The Accounting Review* 79, 967–1010.

Francis, J.R., Maydew E.L, & Sparks, H.C (1999). The role of BIG 6 auditors in the credible reporting of accruals. *Auditing: A Journal of Practice & Theory* 18(2), 17-34.

Francis, J. R. & Yu, M. D. (2009). Big 4 office size and audit quality. *The Accounting Review* 84(5), 1521-1552.

Fomina, O., Moshkovska, O., Prokopova, O., Nikolenko, N., & Slomchynska S. (2018). Methodological approaches to investment property valuation. *Investment Management and Financial Innovations* 15(4), 367-381.

Hatfield, H. R. (1909). *Modern Accounting*. New York: D. Appleton-Century.

Healy, P.M. (1985). The effect of bonus schemes on accounting decisions. *Journal of Accounting and Economics* 7(1-3), 85-107.

Healy, P. M. & Wahlen, J. M. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting Horizons* 13(4), 365–383.

Hsu, P-H. & Lin Y.R (2016). Fair value accounting and earnings management. *Eurasian Journal of Business and Management* 4(2), 41–54.

Hughes, J. & Tett, G. (2008). *An unforgiving eye: Bankers cry foul over fair value accounting*. Financial Times. Retrieved from http://www.ft.com/cms/s/0/19915bfc-f137-11dca91a-0000779fd2ac.html#axzz4I4bd73Xz

Hussainey, K. (2009). The impact of audit quality on earnings predictability. *Managerial Auditing Journal* 24(4), 340–351.

Ghosh, A. & Moon, D. (2005). Auditor tenure and perceptions of audit quality. *The Accounting Review* 80, 585–612.

International Financial Reporting Standard – conceptual framework (2015). IFRS Foundation.

International Financial Reporting Standard 13 – fair value. (2016). IFRS Foundation.

International Accounting Standard 40 – Investment properties. (2016). IFRS Foundation.

Jackson, S.B & Liu X.T. (2010). The allowance for uncollectible accounts, conservatism, and earnings management. *Journal of Accounting Research* 48(3), 565-601.

Kamarudin, K.A. & Ismail, W.A.Q (2014). The risk of earnings quality impairment. *Procedia - Social and Behavioral Sciences* 145, 226–236.

Keung, E., Lin Z-X., & Shih M. (2010). Does the stock market see a zero or a small positive earnings surprise as a red flag. *Journal of Accounting Research* 48(1), 105-136.

Kolev, K. S. (2019). Do investors perceive marking-to-model as marking-to-myth? Early evidence from FAS 157 disclosure. *Quarterly Journal of Finance* 9(2), 1950005.

KPMG (2017). Fair value measurement – Questions and Answers – USGAAP and IFRS https://assets.kpmg/content/dam/kpmg/xx/pdf/2017/12/fair-value-qa-2017.pdf

Krishnan, G. V. & Zhang, J. (2019). Does mandatory adoption of IFRS enhance earnings quality? Evidence form closer to home. *The International Journal of Accounting* 54(01), 1950003.

Levine, R. (1999). Law, finance, and economic growth. *Journal of Financial Intermediation* 8(1–2), 8–35.

Leuz, C. (2003). IAS versus U.S. GAAP: Information asymmetry-based evidence from Germany's new market. *Journal of Accounting Research* 41, 445–472.

Liang, L. & Riedl, E.J. (2014). The effect of fair value versus historical cost reporting model on analyst forecast accuracy. *The Accounting Review* 89, 1151–1177.

Lo, K. (2008). Earnings management and earnings quality. *Journal of Accounting and Economics* 45(2–3), 350–357.

Marra, A. (2016). The pros and cons of fair value accounting in a globalized economy: A never ending debate. *Journal of Accounting, Auditing & Finance* 31(4), 582–591.

McCreevy, C. (2008). *Testimony before the Economic and Monetary Affairs Committee of the European Parliament*. Retrieved from http://europa.eu/rapid/press-release_SPEECH-08-162_en.htm

McInnis, J. & Collins, D.W. (2011). The effect of cash flow forecasts on accrual quality and benchmark beating. *Journal of Accounting and Economics* 51, 219–239.

Morri, C. & Baccarin, A. (2016). European REITs NAV discount: Do investors believe in property appraisal? *Journal of Property Investment & Finance* 34(4), 347–374.

Muller III, K.A., Riedl, E.J., & Sellhorn T. (2011). Mandatory fair value accounting and information asymmetry: Evidence from the European real estate industry. *Management Science* 57(6), 1138–1153.

Penman, S. H. (2007). Financial reporting quality: Is fair value a plus or a minus? *Accounting and Business Research* 37(6), 33–44.

Pinto, I. & Pais, M, C. (2015). Fair value accounting choice Empirical evidence from Portuguese real estate investment funds. *Journal of European Real Estate Research* 8(2), 130–152.

Ohlson, J. (1995). Earnings, book values, and dividends in equity valuation. *Contemporary Accounting Research* 11(2), 661–87.

Owusu-Ansah, S., & Yeoh, J. (2006). Relative value relevance of alternative accounting treatments for unrealized gains: Implications for the IASB. *Journal of International Financial Management & Accounting* 17(3), 228-255.

Pro-Active Accounting Activities in Europe (2007). *Stewardship/Accountability as an Objective of Financial Reporting: A Comment on the IASB/FASB Conceptual Framework Project.* Accounting Standards Board, Foreningen af Statsautoriserede Revisor, Deutsches Rechnungslegungs Standards Committee, Komitet Standardów Rachunkowoci and EFRAG.

Reynolds, J. K. & Francis, J. R. (2000). Does size matter? The influence of large clients on office-level auditor reporting decisions. *Journal of Accounting and Economics* 30, 375 - 400.

Richardson, S., Sloan, R., Soliman, M., & Tuna, I. (2005). Accrual reliability, earnings persis-

tence, and stock prices. *Journal of Accounting and Economics* 39, 437–485.

Ronen, J. & Yaari, V. (2008). *Earnings Management: Emerging Insights in Theory, Practice, and Research*. Springer.

Shalev, R., Zhang, I. X., & Zhang, Y. (2013). CEO compensation and fair value accounting: Evidence from purchase price allocation. *Journal of Accounting Research* 51, 819–853.

Schipper, K. & Vincent, L. (2003). Earnings quality. *Accounting Horizons* 17, 97-110.

Singleton-Green, B. (2007). *Fair Value Accounting.* Practice Society Alert, (January): Institute of Chartered Accountants in English and Wales (ICAEW).

Slavko, S. (2015). The impact of fair value accounting on earnings quality in Eastern European countries. *Procedia Economics and Finance* 32, 1769–1786.

So, S. & Smith, M. (2009). Value-relevance of presenting changes in fair value of investment properties in the income statement: Evidence from Hong Kong. *Accounting and Business Research* 39(2), 103–118.

Song, C. J., Thomas, W. B., & Yi, H. (2010). Value relevance of FAS No. 157 fair value hierarchy information and the impact of corporate governance mechanisms. *The Accounting Review* 85(4), 1375-1410.

Qingyuan, L. & Li, X. (2018). Asset specificity and conditional accounting conservatism. *Journal of Business Finance and Accounting* 45(7–8), 839–870.

Quagli, A. & Avallone. F. (2010). Fair value or cost model? Drivers of choice for IAS 40 in the real estate industry. *European Accounting Review* 19(3), 461–493.

Véron, N. (2008). Fair value accounting is the wrong scapegoat for this crisis. *Accounting in Europe* 5, 63-69.

Watts, R.L 2003. Conservatism in accounting. Part I: Explanations and implications. *Accounting Horizons* 17, 207-221.

Yao, D.T. Percy, M, Steward, J., & Hu, F. (2018). Fair value accounting and earnings persistence: Evidence from international banks. *Journal of International Accounting Research* 17(19), 47-68

Zang, A.Y (2012). Evidence on the trade-off between real activities manipulation and accrual-based earnings management. *The Accounting Review* 87(2), 675–703.

Zyla, M. L. (2012). *Fair Value Measurement: Practical Guidance and Implementation*. Hoboken, NJ: John Wiley.

Appendix. Variable definitions

VAR	DEFINITION
BIG4	0/1 Indicator for BIG4-auditor
CFO	Operating cash flow per share. IFRS cash flow from Orbis database and US GAAP cash flow from Compustat.
EPS	Earnings (Net income) per share from Orbis database
EPS LOSS	0/1 Indicator for negative EPS
CHEPS	Annual change in EPS
PRICE	Stock price at the end of the fiscal year from Orbis database
PRICE_LAG_1	Stock price one month after fiscal year-end from Orbis database
PRICE_LAG_3	Stock price three months after fiscal year-end from Orbis database
BVS	Book value of equity per share from Orbis database
RET	The 12-month buy and hold stock return, from nine months prior to the fiscal year-end through three months after the fiscal year-end. Stock return is from Orbis database.
RET NEG	0/1 Indicator for negative stock return.
ACCRUALS	Total accruals. Calculated as (earnings + depreciation – operating cash flow) / market capitalization
CFO SCALED	Operating cash flow / market capitalization
EPS SCALED	EPS / market capitalization
US_D	Binary: Company reporting 1 = USGAAP; 0 = IFRS