J. Account. Public Policy 39 (2020) 106766

Contents lists available at ScienceDirect

J. Account. Public Policy

journal homepage: www.elsevier.com/locate/jaccpubpol

Full length article

Understanding accounting discretion in China: An analysis of fair value reporting for investment property

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ARTICLE INFO

Keywords:
Accounting discretion
Chinese market
Fair value reporting
Investment property

ABSTRACT

This study sheds light on the discretionary accounting practices in China, the largest emerging market in the world. In particular, we focus on whether Chinese firms use discretion in investment property fair values to manage reported performance. We examine whether firms' ex ante needs for accounting discretion affect their decisions to adopt fair value reporting for investment property and the ex post performance management by these fair value adopters. Our findings show that the voluntary adoption of fair value reporting for investment property in China remains low. However, the fair value option for investment property is significantly more likely to be chosen by firms with greater needs for accounting discretion. Consistent with the conjecture that firms choose the fair value model to manipulate reported earnings, we show that fair value adopters use the unrealized gains and losses associated with investment properties to smooth earnings and that these firms are also more likely to meet or beat earnings benchmarks after adoption. Overall, our findings indicate that the use of fair value reporting for investment property in the emerging Chinese market is driven by managerial opportunism.

1. Introduction

This study sheds light on the discretionary accounting practices in China, the largest emerging market in the world. In particular, we focus on whether Chinese firms use discretion in the fair value reporting of investment property to manage performance.[1] An analysis of fair value reporting of investment property in China is important for several reasons. First, China is the largest of the developing countries that have adopted International Accounting Standard 40 (IAS 40) or its equivalent.[2] In 2006, the China Accounting Standards Committee issued Accounting Standards for Business Enterprises 3 (ASBE 3) on accounting for investment property, effective January 1, 2007. The standard is very similar to IAS 40, giving firms the option of reporting investment property at fair value instead of historical cost. Second, the Chinese real estate market has been rapidly expanding with an increasing number of firms investing in property assets (Quek and Ong, 2008). Hence, accounting for investment

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[1] For financial reporting, investment property is classified as real estate held for the purpose of earning rent or capital appreciation.

[2] Under the International Financial Reporting Standards (IFRS), IAS 40 allows firms the option to adopt the fair value model to account for their investment properties. To the best of our knowledge, China is one of the few developing countries that also allows the fair value model for investment properties. Other large developing countries, such as India, have so far not developed standards similar to IAS 40 (Kaaya and Noorbasha, 2017).

https://doi.org/10.1016/j.jaccpubpol.2020.106766
0278-4254/

property is an increasingly important issue for Chinese firms. Third, Ball et al. (2003) argue that financial reporting quality is more strongly influenced by local preparers' incentives than by the quality of accounting standards. The dominance of incentives over standards could be particularly strong because high-quality fair value reporting for investment property requires an efficient, transparent real estate market and a reputable appraisal industry with good governance and regulation. However, real estate markets in developing economies, such as China, are typically less efficient, and real estate transactions tend to have lower transparency and are subject to less governance.[3]

Unlike financial assets reported at fair values, investment properties cannot be traded on exchanges. Therefore, fair values for investment properties are less verifiable and can be subject to more managerial discretion. Anecdotally, since the adoption of fair value reporting for investment property in China, several firms have been named and criticized for questionable accounting choices with regard to their investment properties.[4] The very first Chinese company that chose to adopt fair value reporting for investment property, ST Bai-Hua Inc., had losses in consecutive years. Its "ST" status stands for "Special Treatment," which is a designation in the Chinese security market for a firm in danger of being delisted and requires administrative review. After its adoption of fair value for investment property, however, the firm reported positive net income and subsequently had the "ST" label dropped. Concern over the abuse of discretion allowed in fair value reporting for investment property is also shared by practitioners in the Chinese financial press (e.g., Li, 2010) as well as academic scholars (e.g., Liu and Yuan, 2013). Moreover, recent survey findings by Xiao and Hu (2017) show that auditors perceive the main reason for using fair value accounting for investment property by Chinese firms was to manage earnings. This qualitative evidence suggests that the adoption of fair value reporting for investment property in China could well be driven by managerial opportunism. If this is the case, then we expect Chinese firms' ex ante needs for accounting discretion to affect their decisions to adopt fair value reporting for investment property, and we also expect to observe the adoption of fair value reporting to affect the ex post performance management of these fair value adopters. Our study empirically examines these issues.

Our sample includes all publicly traded Chinese firms with investment properties from 2007 to 2015. We hand-collect information related to their fair-value-adoption decisions and the subsequent fair value measurements of the adopters. We find that a very small fraction of firms (4.34%; 54 of 1,245 firms) switched to fair value accounting for their investment properties. The lukewarm reception of the fair value model is common across many sectors, including even the real estate industry (1.56%; 4 of 258 firms). This is a marked difference from the much higher adoption rates documented in developed markets.[5] This low adoption rate could be the result of the perceived costs of preparation exceeding perceived benefits to financial statement users, as it is known to be more difficult and more costly to obtain reliable fair value appraisals in China (Peng and Bewley, 2010). The difficulties of fair value reporting in China can also be attributed to the lack of accurate property sales transaction data and the lack of statistics on housing demand and supply in some regions (Deloitte 2013) and the lack of professional accountants and appraisers with competence and adequate technical knowledge for fair value estimation (Xiao and Hu, 2017). Another possible reason for the low adoption rate is that, unlike IAS 40, firms that choose to report historical costs under the Chinese Accounting Standards (CAS) are not required to disclose investment properties' fair values in the notes to the financial statements, thereby making fair value reporting relatively costlier.[6]

These environmental factors suggest that the Chinese market is unfavorable to the fair value model for investment property, so it is intriguing that 54 Chinese firms still elected to adopt the fair value model. We hypothesize that these firms needed to improve their reported performance and adopted fair value reporting to exploit the discretion provided by the fair value estimates for investment properties. We conduct a preliminary analysis to examine the ex ante performance of fair-value-adopting firms in the five years leading up to the adoption decisions. We observe that the adopters have consistently higher leverage, lower return on assets (*ROA*), lower operating cash flows and lower revenue than non-adopting firms. Moreover, most adopting firms (61%; 33 of 54) state in their annual reports that their core business activities face significant challenges.[7] Hence, we conjecture that adopting firms use fair value reporting as a tool to manage performance.

To formally investigate the reason behind the fair value adoption by Chinese firms, we empirically examine whether the decision to adopt fair value is associated with their needs for accounting discretion. We first use the firms' prior earnings management activities (measured by their discretionary accruals in the previous three years) to proxy for their need for

[3] For example, see the Global Real Estate Transparency Index Report (2010) by Jones Lang LaSalle.

[4] For example, Zou et al. (2013) look into the case of Jinbin Development Co. and provide evidence that since its adoption of fair value reporting, it has significantly increased its profit compared to its industry peers. Moreover, fair value gains were strategically matched to offset the decline in company performance. Min (2015) examines the fair value disclosure of Shanghai Shimao Co. The author noted it needs significant improvement. Although he did not make claims that its fair value measures were off their true market values, he raised serious concerns over the company's incomplete, inadequate fair value information disclosure and the questionable dates of its fair value transfers and measurements.

[5] For instance, Christensen and Nikolaev (2013) show that, in their sample of United Kingdom (U.K.) and German firms, firms are equally likely to use historical cost and fair value models for investment property. In the real estate sector, Edelstein et al. (2012) show that 75% of real estate firms in their sample (all from developed markets) adopted the fair value model to account for investment properties. Israeli (2015) shows that 46 of 86 real estate firms (53%) in his sample from France, Germany, Italy, and Spain recognized the fair value amounts on their income statements.

[6] One may argue that the tax factor also plays a role in the unenthusiastic response to the adoption of fair value accounting for investment properties in China, especially given that the Chinese real estate market has experienced unprecedented growth in the last decade. However, the tax policy in China forbids the inclusion of unrealized fair value gains and losses of investment properties in taxable income, thus ruling out tax being the contributing factor to the unpopularity of the fair value accounting rule.

[7] We also read the notes disclosure of these fair value adopters to understand the reasons behind the adoption. However, all 54 adopters use similar language to describe their adoption of fair value model for investment property. For those that disclosed the reason for fair value adoption, they all state, in similar vein, that fair value reporting is used to improve the transparency or accuracy of financial reporting.

accounting discretion. Alternatively, we use whether a firm was designated "ST," as these firms show histories of poor performance and are under pressure to turn things around. In our regression analysis, we find consistent evidence that firms with prior earnings management activities and firms with "ST" status are more likely to adopt fair value reporting for investment property. Our findings show that fair value adoption in China is concentrated among firms with greater needs for accounting discretion.

Next, we examine the ex post performance management of the fair value adopters. Executives who manage earnings or performance must have motives, such as misleading investors or altering contractual outcomes (Lo, 2008). In this study, we focus on whether firms use their fair value reporting decisions to achieve two earnings goals commonly documented in prior literature: smoothing earnings (Trueman and Titman, 1988) and meeting earnings benchmarks (Burgstahler and Dichev, 1997; DeGeorge et al., 1999). We find that in post-adoption periods, fair value adopters use the unrealized fair value gains and losses associated with investment properties to reduce earnings volatility. Using a difference-in-difference research design, we also find that fair value adopters are more likely to meet or beat earnings benchmarks than matched firms that use the cost model in the post-adoption period. These findings imply that fair-value–adopting firms use the discretion in fair value estimates of investment properties to manage performance. Overall, the results provide evidence that fair value reporting in China is driven by managerial opportunism.

Our study contributes to three important streams of literature. First and foremost, our paper adds to the growing literature that specifically examines China, the largest emerging market and the second largest economy in the world. In particular, we add to the literature focusing on understanding discretionary accounting practices in China. The quality and credibility of financial reporting in China remain one of the most debated issues (e.g., Piotroski and Wong, 2012). While some studies show improvement in the quality of financial reporting in China (e.g., Liu et al., 2011; Chen et al., 2019), many others show that China's weak institutional environment continues to drive Chinese firms' discretionary accounting practices, weakening its accounting and audit quality (e.g., Chen and Yuan, 2004; Haw et al., 2005; Chen et al., 2008; Wang et al., 2008; Jiang et al., 2010; Ke et al., 2015; Piotroski et al., 2015; Defond et al., 2019). Specifically, on fair value reporting, Chen and Yu (2018) highlight that weak rule of law, the inadequacy of effective monitoring, and a less-than-efficient asset market in China are likely to offer managers considerable discretion and manipulative opportunities in their fair value estimates. A related paper by He et al. (2012) studies the *mandatory* adoption of fair value accounting for trading securities and debt restructuring in the Chinese market, and they find that many Chinese firms use the new fair value rules to manage earnings. We differ from He et al. (2012), however, as we examine the *voluntary* adoption of fair value accounting for investment property. Under CAS, ASBE 3 is the *only* accounting rule that allows voluntary fair value adoption (Xiao and Hu 2017, Table 1), and this voluntary setting enables us to explore the motivation behind the fair value adoption decisions of Chinese firms. We show that firms with greater tendencies to manage performance are more likely to *self-select* to become fair value adopters and are more likely to subsequently exercise their discretion in their fair value estimates to manage earnings.

Second, our paper is related to the broader literature evaluating the effectiveness of IFRS. Our findings support the argument made in prior studies (e.g., Ball et al., 2003; Ball, 2006; Barlev and Haddad, 2007; Penman, 2007; Leuz and Wysocki, 2008; Daske et al., 2013) that cross-country convergence to IFRS cannot be effective without the support of a well-developed financial reporting environment. Although we make the caveat that our findings may not be generalizable to other emerging markets, as many of these markets are also unique and differ significantly from the Chinese setting, our results bear important policy implications for standard-setters and regulators: When and how they converge local accounting standards to IFRS must consider the institutional, legal, and economic characteristics of their countries.

Table 1
Industry Distribution of Firms Adopting Fair Value. This table presents the industry distribution of the 54 firms that adopted fair value model for investment properties.

Industry	Observations	Percentage
Food	3	5.56%
Textiles and Clothing	3	5.56%
Pharmaceutics	3	5.56%
Printing and Publishing	5	9.26%
Chemicals	1	1.85%
Metallurgy	3	5.56%
Mechanical	1	1.85%
Medical	1	1.85%
Gas and Water	1	1.85%
Construction	1	1.85%
Transportation	5	9.26%
Information Technology	2	3.70%
Retail	4	7.40%
Real Estate	4	7.40%
Service	12	22.22%
Others	5	9.26%
Total	54	100%

Third, our paper is related to the fair value literature that studies the *determinants* of the reporting decision for nonfinancial assets (e.g., Quagli and Avallone, 2010; Muller et al., 2011; Cairns et al., 2011; Christensen and Nikolaev, 2013). We also add to the few studies concerning the *subsequent* measurement and reliability of fair value estimates for nonfinancial assets (e.g., Aboody et al., 1999; Dietrich et al., 2000; Israeli, 2015). Importantly, these prior studies were mostly conducted in the pre-IFRS era *or* for developed markets. In contrast, we offer contemporary comprehensive evidence on fair value reporting of investment property in the IFRS era for an emerging market. We show that fair value accounting continues to raise concerns, especially in emerging-market settings, as it has been abused by some Chinese firms as a tool to exercise their accounting discretion.

The rest of the paper is organized as follows. The next section provides background information on the development of fair value accounting in China. Section 3 develops the hypotheses from related literature. Section 4 outlines our research design. Section 5 describes the sample-selection process and sample statistics. Section 6 reports the empirical results. We discuss our robustness analysis in Section 7 and offer concluding remarks in the final section.

2. Fair value accounting in China

The concept of fair value was first introduced into CAS in 1998 for debt restructuring (CAS 12). However, the Ministry of Finance (MOF) revised the standards in 2001, disallowing the fair value model due to concerns over the objectivity of fair values in an environment of low market efficiency and prevalent earnings management in China (Chen and Yu, 2018). As the Chinese market witnessed significant improvement, however, the MOF decided to converge CAS to IFRS-equivalent standards and thereby reintroduce fair value reporting in China in 2007.

Under the new standards, ASBE, effective January 1, 2007, fair value reporting applies to investment properties, debt restructuring, financial instruments, and certain non-monetary transactions. However, firms are allowed the *option* of choosing the fair value model versus the historical cost model *only* for investment properties (ASBE 3). It is also the first time that investment properties have been defined in Chinese Generally Accepted Accounting Principles, and the China Securities Regulatory Commission (CASC) proclaims that all buildings and land held for rental or capital appreciation must be classified as investment properties. The fair value model entails reporting investment properties at fair values on the balance sheet with changes in fair values flowing through income (i.e., not other comprehensive income). Under the historical cost model, investment properties appear at depreciated costs on the balance sheet and depreciation expenses flow through income. Compared to IAS 40, ASBE 3 has stricter requirements, at least nominally. In particular, ASBE 3.10 does not allow a firm to choose the fair value model unless it meets two conditions: (a) an active property market in the location of the investment property and (b) the ability to obtain the prices of identical or similar property and other relevant information from the property market to make a reasonable estimate of the fair value of the investment property. These additional requirements highlight standard-setters' concerns about the reliability of fair value estimates for investment properties in China.[8]

3. Related literature and hypothesis development

3.1. Related literature

A long line of literature shows that managerial opportunism is an important motivation for accounting choices. Positive accounting theory (Watts and Zimmerman, 1978, 1979) posits that contractual arrangements, such as management compensation contracts and bond covenants, influence managers' financial reporting decisions, which they make to maximize their compensation (e.g., Healy, 1985; Holthausen et al., 1995; Guidry et al., 1999; Cheng and Lo, 2006) or to avoid debt covenant violations (e.g., Defond and Jiambalvo, 1994). Research also shows that managers make opportunistic reporting choices for capital market reasons (e.g., Perry and Williams, 1994; Kasznik, 1999; Graham et al., 2005).

Historically, there was little choice in the accounting for investment property before the introduction of IFRS, as fair value accounting for (or revaluation of) nonfinancial assets was only allowed in a few countries (e.g., the United Kingdom and Australia). Academic studies that examine fair value issues in these markets generally find that fair values are used to better present economic reality (e.g., Easton et al., 1993) and are value-relevant (e.g., Aboody et al., 1999). However, value relevance is a low hurdle that simply measures whether fair values are significantly associated with the market value of equity (i.e., direction, not magnitude). Dietrich et al. (2000) are the first to show that fair value appraisals of investment properties are reliable estimates for the properties' selling prices but nonetheless involve managerial discretion; managers can select the estimates that help the company report increased earnings or smooth earning.

On January 1, 2005, the European Union (EU) required all publicly traded firms in the EU to adopt IFRS. For investment properties, IAS 40 under IFRS allows firms to use either the cost model or the fair value model. Prior academic studies have looked into firms' rationales for choosing the fair value model. Muller et al. (2011) show that firms with higher information asymmetry measured by bid-ask spreads are more likely to use the fair value model to report investment properties. They argue it is investors' demand for transparency that drives this choice. Christensen and Nikolaev

[8] For an extensive examination of the usage of fair value accounting in China, please see the literature review conducted by Chen and Yu (2018).

(2013) associate the choice of fair value reporting for nonfinancial assets with debt-contracting theory. They show that firms choosing fair value reporting rely more on debt financing than companies using historical costs. They interpret these findings as indicating that fair value reporting reduces agency costs by revealing asset exit values to creditors. Contrary to these two studies, Quagli and Avallone (2010) examine a comprehensive set of factors driving firms' fair value reporting choices under IAS 40 and found that leverage and information asymmetry do not play important roles.[9] Instead, their results indicate that firm size, a proxy for political cost, is the most significant factor in the fair value choice. Moreover, the fair value decision is negatively related to the proxy of managerial opportunism. Cairns et al. (2011) investigate the use of fair values for various assets (e.g., financial instruments, property, plant and equipment, and investment properties) in the United Kingdom and Australia under IFRS. They document that most companies holding investment properties adopt the fair value model and that fair value reporting enhances comparability. Edelstein et al. (2012) analyze the financial statement disclosure of fair-value-adopting firms and find that they make extensive disclosures with regard to their investment properties, as IAS 40 requires. Israeli (2015) examines the decision of real estate firms to recognize or disclose fair value information under IAS 40 and finds that firms are likely to adopt fair value reporting for contractual borrowing and asset pricing reasons. However, recognized and disclosed fair value amounts are equally predictive of future financial outcomes. Overall, the extant research indicates that, in developed countries, managerial opportunism is not the driving factor behind firms' adoptions of fair value reporting of investment properties.

3.2. Hypothesis development

Despite the evidence in developed countries, we consider whether fair value adoption in the emerging market of China is motivated by managerial opportunism. First, the Chinese capital market has lower transparency, less developed governance and legal structures, and higher information asymmetry between corporate insiders and outside investors than developed markets (e.g., Chen and Chan, 2009). Such a market lacks adequate oversight of financial reporting by capital-market regulators. Second, the determination of fair values for investment properties relies on appraisals of real estate experts due to the absence of exchange-quoted prices. Unfortunately, real estate transactions in China are not very transparent (Wang and Wang, 2012; Deloitte, 2013), and real estate appraisals are low quality (Chinese CA Network, 2011). Moreover, China lacks enough qualified professionals with technical knowledge on fair value estimation (Xiao and Hu, 2017). Third, the Chinese property-tax system is not based on fair values but on original prices minus specified amounts of depreciation or simply 15% of actual rental incomes of properties (Man, 2012). In comparison, many developed countries' property tax bases are the market or fair values of the real estate.[10] In the United States (U.S.), for example, government assessors determine the fair value of properties annually, extrapolating from actual property sales and other data (Wallis, 2000; Fisher, 2002), thereby providing an independent source of fair value information.

We posit that, if Chinese firms' adoption decisions of the fair value model is driven by managerial opportunism, then firms with greater needs for accounting discretion are more likely to adopt it.[11] Alternatively, if the objective of managers who adopt the fair value model is to provide more value-relevant information to investors and improve transparency, then the choice for investment property would be unrelated to managerial opportunism and we would observe no relationship between the adoption of the fair value model and firms' needs for accounting discretion. We present our first hypothesis as follows (stated in alternative form):

H_1: The likelihood of reporting fair values for investment properties in China is positively associated with firms' needs for accounting discretion.

We next consider the consequences of fair value adoption. If management abuses the discretion allowed by fair value accounting, we expect companies that adopt the fair value method to use its estimates to manage reported performance after the adoption. Alternatively, if the fair value method is not adopted to create room for opportunistic accounting discretion, then we do not expect to observe adopters behaving much differently from non-adopters in post-adoption periods. We present our second hypothesis as follows (stated in alternative form):

H_2: Firms that have adopted fair value reporting for investment properties are more likely to manage performance post-ASBE 3.

[9] The different results of these studies could be due to sampling differences. Quagli and Avallone (2010) examine their hypothesis using a small sample of 73 observations from a subset of real estate companies in seven EU countries (Finland, France, Germany, Greece, Italy, Spain, and Sweden), while the other studies use broader samples.

[10] Bird and Slack (2004) review the property tax policies of 25 countries and show that most, including all the OECD countries as well as Indonesia, the Philippines, South Africa, Latvia, Argentina, and Mexico, determine their property taxes based on market-value assessments.

[11] Though firms can also manage earnings by manipulating depreciation accruals in the cost model, Marquardt and Wiedman (2004) show that these accruals are not the primary accounts being managed.

4. Research design

4.1. Managerial opportunism and decision to adopt fair value

We use the following two measures as proxies for firms' needs for accounting discretion. The first is firms' prior earnings management activities measured by average discretionary accruals in the prior three years. Managerial behavior tends to persist over time, so past earnings management activities indicate managers' needs for accounting discretion in the future. In addition, Barton and Simko (2002) show that firms that managed earnings to a greater extent in the past face tighter constraints on further earnings management in the future and thus have greater needs for new strategies to continue meeting earnings goals.[12] We calculate each firm-year's past earnings management activity using the discretionary accruals model of Dechow and Dichev (2002), which maps accounting accruals onto operating cash flows in contemporaneous and adjacent periods, that has been documented to have the best fraud-detection power (Jones et al. 2010). The model is as follows:

$$ACCR_{it} = b_0 + b_1 Cashflow_{i,t-1} + b_2 Cashflow_{i,t} + b_3 Cashflow_{i,t+1} + b_4 \Delta Revenue_{it} + b_5 PPE_{it} + \varepsilon \quad (1)$$

$ACCR_{it}$ is total accruals for firm i in year t, calculated as earnings less operating cash flow. $Cashflow_{i,t}$ represents operating cash flows for firm i in year t. $\Delta Revenue_{it}$ is the change in total revenues for firm i between year t and t-1. PPE_{it} is the gross value of property, plant and equipment at the end of year t. All variables are scaled by total assets at the end of year t. The model is estimated separately for each industry in which there are at least 10 firms. Discretionary accruals are the residuals from Eq. (1) and for each firm-year, we calculate the mean value of absolute discretionary accruals using the previous three years. The mean discretionary accrual, labeled as $PastEarnMgmt_{it}$, measures a firm's prior earnings management activities.

Our second measure of firms' needs for accounting discretion, which we label $SpecialTreatment_{it}$, is an indicator variable that equals 1 if the firm had "ST" status in the prior three years and 0 otherwise. The regulations of the Shenzhen and Shanghai Stock Exchanges assign companies "ST" status if they report net losses for two or more consecutive years or have negative equity. The purpose of the "ST" status is to protect investors by highlighting companies with greater risk. These companies also face various unfavorable trading and financial restrictions. For example, their share prices cannot swing by more than 5% in a day, and they are not allowed to raise capital through equity financing. Most importantly, "ST" companies are temporarily suspended from trading after their third consecutive annual loss and are subsequently delisted if they remain unprofitable for four consecutive years. In summary, "ST" firms in China generally face greater risk of financial distress after a series of poor earnings performance and desperate need to reverse their fortunes. Most importantly, prior studies have found that "ST" firms in China exhibit strong motives to boost earnings (Jiang and Wang, 2003, 2008; Ding et al., 2007).

We test H_1, where $PastEarnMgmt_{it}$ or $SpecialTreatment_{it}$ is the key variable of interest, by estimating the following logistic models:

$$FV_{it} + b_0 + b_1 PastEarnMgmt_{it} + b_2 Location_{it} + b_3 State_{it} + b_4 Size_{it} + b_5 Leverage_{it} + b_6 PPE_{it-1} + b_7 ROA_{it-1} + b_8 Return_{it} + b_9 Cashflow_{it} + b_{10} MB_{it} + b_{11} Big4_{it} + b_{12} ChairCEO_{it} + b_{13} Dominant_{it} + \varepsilon \quad (2)$$

$$FV_{it} + b_0 + b_1 SpecialTreatment_{it} + b_2 Location_{it} + b_3 State_{it} + b_4 Size_{it} + b_5 Leverage_{it} + b_6 PPE_{it-1} + b_7 ROA_{it-1} + b_8 Return_{it} + b_9 Cashflow_{it} + b_{10} MB_{it} + b_{11} Big4_{it} + b_{12} ChairCEO_{it} + b_{13} Dominant_{it} + \varepsilon \quad (3)$$

The dependent variable, FV_{it}, is an indicator variable that equals 1 if firm i switches to fair value reporting for its investment property in year t, and 0 otherwise. If the choice of the fair value model is driven by managerial opportunism, we expect b_1 to be significantly positive.

We include a group of control variables that may be associated with the decision to adopt the fair value method for investment properties. Firm location is an important factor because the quality of the estimates of investment property fair value depends on the liquidity of real estate markets and the quality of appraisals. As fair value estimates should be more available in urban areas where there are active, transparent real estate markets, we create a location index $Location_{it}$ for each of the 35 provinces based on seven economic factors:[13] (1) per capita gross domestic product (GDP); (2) percentage of stock-trading volume for firms in the province relative to the whole country; (3) geographic distance of the province to the closer of

[12] Other motives for accounting discretion include managerial compensation and debt covenants. Due to the limited availability of Chinese data, information on managerial compensation and debt contracts is not readily available for many of our sample firms, and excluding firms for which we lack data would significantly reduce our sample for empirical analysis.

[13] Considering the distinct Chinese setting, we elect to construct our own measures of urban and real estate development. In prior U.S. literature (e.g., Loughran and Schulz, 2006), researchers define urban (or better-developed) regions as the largest 10 metropolitan areas in the U.S. according to census data and rural (or less-developed) regions as areas 100 miles away from any of the 49 largest metropolitan areas in the U.S. We cannot follow the same method because, in the case of China, almost every province has a large city. To further validate our location measure, we conduct additional tests in which we replace the measure with per capita GDP, and we obtain similar results. We also construct another location index, an indicator variable that equals 1 if a firm's headquarters are located in one of the three most-developed economic areas in China: the Yangtze River Delta, Pearl River Delta, or Beijing-Tian Jing District (Hanink et al., 2012). In unreported results, we find that the impact of location remains qualitatively similar.

the two Chinese financial exchanges (i.e., Shanghai and Shenzhen);[14] (4) level of residential consumption level; (5) percentage of urban population relative to the country; (6) number of financial experts as a percentage of population; and (7) number of real estate experts as a percentage of population. We use the mean value of each factor as the cutoff and assign one point to a province that is above the mean for that factor (0 otherwise). Hence, the most-developed province can report a maximum index value of 7, and the least-developed province can report a minimum index value of 0.

Another important feature that characterizes the Chinese setting is the dominance of state ownership in the Chinese capital market (He et al., 2012). State ownership can affect the fair value decision for the following reasons. First, given their substantial state ownership, such enterprises tend to be subject to less demand from external capital market stakeholders to provide value-relevant information (e.g., Chen and Yu, 2018). Second, state-owned enterprises can seek assistance from the government, so they tend to have less incentive to manage performance reported to capital market participants (Chen et al., 2008). Third, state-owned enterprises tend to underperform other firms (e.g., Lin et al., 1998; Fan et al., 2007; Chen et al., 2011), so they tend to need fair value reporting as a tool of accounting discretion more. We include state-owned, $State_{it}$, an indicator variable equal to 1 if firm *i*'s ultimate controlling shareholder is the government (0 otherwise).

Following prior studies (e.g., Quagli and Avallone, 2010; Muller et al., 2011), we include other firm fundamentals as control variables: $Size_{it}$, measured as the log of firm *i*'s total assets, is a proxy of political costs as well as costs to implement fair value reporting; $Leverage_{it}$, measured as firm *i*'s total liability divided by total assets, is a control for leverage; PPE_{it-1}, measured as firm *i*'s property, plant, and equipment divided by total assets in the previous year, proxies for the magnitude of other existing fixed assets; ROA_{it-1} is firm *i*'s return on assets in the previous year; $Return_{it}$ is firm *i*'s annual stock return; $Cashflow_{it}$ is measured as firm *i*'s cash flows from operations divided by total assets. *ROA, Return,* and *Cashflow* respectively represent a firm's accounting returns, stock returns, and cash inflows, and together they serve as controls for firm performance. MB_{it} is the market-to-book ratio measured as firm *i*'s market value of equity divided by the book value of its equity. Firms with higher market-to-book ratios are expected to be under greater pressure to manage earnings to meet investors' expectations. $Big4_{it}$, an indicator variable equal to 1 if firm *i* is audited by one of the "Big 4" auditors (0 otherwise), is a control for audit quality. We also include corporate governance factors, as they can affect firms' financial reporting discretion. We use two governance variables: board chair and chief executive officer (CEO) duality ($ChairCEO_{it}$), which equals 1 if the CEO is also the chair of the board (0 otherwise), and dominant shareholdings ($Dominant_{it}$), which measures the fraction of shares held by the largest five shareholders and equals 1 if the fraction is greater than 5% (0 otherwise). Finally, we include industry and year fixed-effects in the regressions. The Data Appendix A lists detailed definitions of all variables.

4.2. Post-adoption earnings management

Trueman and Titman (1988) demonstrate that reducing the volatility of earnings can result in lower estimated bankruptcy costs. If managers adopt the fair value model to enable earnings smoothing, then we expect managers to report unrealized gains and losses from investment properties in a manner that reduces the volatility of earnings. Hence, when the reported net income (excluding fair value gains and losses) is more positive (negative), we expect fair value gains and losses to be more negative (positive). We use the following model to investigate the earnings smoothing behaviors of fair-value–adopting firms:

$$\begin{aligned} FVGain/Loss_{it} = {} & b_0 + b_1 PreFVGain/LossEarnings_{it} + b_2 InvestmentProperty_{it} + b_3 Location_{it} + b_4 State_{it} + b_5 Size_{it} \\ & + b_6 Leverage_{it} + b_7 Return_{it} + b_8 Cashflow_{it} + b_9 MB_{it} + b_{10} Big4_{it} + b_{11} ChairCEO_{it} + b_{12} Dominant_{it} + \varepsilon \end{aligned} \quad (4)$$

$FVGain/Loss_{it}$ represents the fair value gains and losses recognized from changes in investment property values scaled by the market value of equity;[15] $PreFVGain/Loss\ Earnings_{it}$ is the reported net income excluding fair value gains and losses from investment properties scaled by the market value of equity; and $InvestmentProperty_{it}$ is the value of investment properties scaled by the market value of equity. The other variables included are defined in previous models. We predict b_1 to be negative if fair-value-adopting firms use unrealized fair value gains and losses to smooth earnings.

Another common earnings goal is to meet or beat earnings benchmarks (e.g., positive earnings or increases in earnings).[16] We expect that firms using the fair value model are more likely to meet or beat earnings targets than firms that use the cost model. To empirically test this, we use a difference-in-difference research design. For each fair-value–adopting firm, we match it with control firms that use the cost model in the same industry (by 2-digit industry code), with the same state ownership

[14] For geographic distance, the distribution is highly skewed because both exchanges are located on the coast and are far from the inland provinces. Hence, we set an arbitrary number (i.e., 500 km) as the threshold.

[15] Alternatively, we use the discretionary component of fair value gains and losses, calculated as fair value gains and losses minus the industry average gains and losses in the same year. In our unreported analysis, we find that using discretionary fair value gains and losses instead of actual fair value gains and losses does not qualitatively change our findings.

[16] We do not consider beating analysts' forecast because analyst data are mainly from brokers and financial websites in China and many firms do not yet analyst-following. Moreover, some studies show that Chinese analyst forecasts are unreliable because of the lack of oversight (Zhang, 2011; Hu et al., 2003; Liang, 2013; Wu, 2013).

status (*State*), for the same year, and with firm size within 10% of the treatment firm.[17] We then compare the change in the likelihood of meeting or beating earnings benchmarks between the fair-value-adopting firms and the matched firms five years before and after adoption. We estimate the following regression:

$$Suspect_{it} = b_0 + b_1 Post_{it} + b_2 Adoption_i + b_3 Post_{it} \times Adoption_i + b_4 Location_{it} + b_5 State_{it} + b_6 Size_{it} + b_7 Leverage_{it} + b_8 Return_{it} + b_9 Cashflow_{it} + b_{10} MB_{it} + b_{11} Big4_{it} + b_{12} ChairCEO_{it} + b_{13} Dominant_{it} + \varepsilon \quad (5)$$

$Suspect_{it}$ is an indicator variable that equals 1 for firms whose earnings (or change of earnings) scaled by total assets at the beginning of the year are between 0 and 0.005 (0 otherwise), $Post_{it}$ is an indicator that equals 1 for years after the adoption of fair value model (0 otherwise), and $Adoption_i$ is an indicator that equals 1 for fair-value-adopting firms and 0 for control firms. The other variables included are defined in previous models. We hypothesize that the adoption of the fair value model for investment property increases the likelihood of meeting or beating earnings benchmarks post-adoption compared to control firms, so we predict b_3 to be positive on the interaction term $Post_{it} \times Adoption_i$.

5. Sample selection and descriptive statistics

5.1. Sample selection

We obtain our sample from the Peking University's China Center for Economic Research (CCER) database over the period 2007–2015, and we begin our sample period in 2007 because ASBE 3 became effective in that year. We hand-collect from firms' annual reports the accounting choices for investment properties (i.e., fair value or cost model) and the changes in the fair values of investment properties. Geographic and demographic macro-data are obtained from China's statistics yearbook. Our sample initially starts with 19,466 firm-year observations of all listed A-share companies that are not financial firms. We then exclude 12,103 observations with no investment properties.[18] We also exclude 187 firm-years observations that follow the firm-year of fair value adoption so that each fair-value–adopting firm is counted only once.[19] This results in 7176 firm-year observations from 1245 sample firms. After eliminating firm-year observations for initial public offerings (IPOs) due to insufficient information to calculate our *PastEarnMgmt* variable and observations with missing control variables, our numbers of observations for the empirical test using model (2) and model (3) on fair value adoption are 5134 and 6309, respectively. Of the 1245 unique sample firms, 54 (4.34%) had switched to the fair value model following the implementation of ASBE 3 in China, a rate consistent with prior evidence (Peng and Bewley, 2010; Chinese CA Network, 2011; Xiao and Hu, 2017). Table 1 shows the industry distribution of these 54 fair-value–adopting firms. We find that they are well-distributed across 16 different industries, with higher representation from the service industry at 22.22%.

5.2. Descriptive statistics

Table 2, Panel A reports descriptive statistics for the variables used in the regression analysis for fair value adoption (H_1). Based on the number of firm-years, *FV* has a mean of 0.65% in the sample, which is lower than the 4.34% noted above because we only include a fair-value-adopting firm in the year of adoption, whereas other firms are included for multiple years. *PastEarnMgmt* has a mean of 0.038. *SpecialTreatment* has a mean of 0.079, indicating that about 8% of the Chinese firms in our sample had the "ST" status in their previous three years. The measure of economic development of the firm headquarters, *Location*, has an average of 4.169 (where the theoretical and actual range is 0–7). Consistent with prior literature (Chen et al., 2011; He et al., 2012; Li et al., 2012), a substantial proportion of Chinese firms (59.9% of our sample) are state-owned enterprises. The sample of firms has a mean size of 22.05 measured in logs, or about RMB 13 billion, mean leverage ratio of 53.5% liabilities to assets, and average *PPE* of 22.4% of total assets. Mean *ROA* and stock returns are 3.5% and 11.6%, respectively, and average cash flows from operations are 3.8% of total assets. The market-to-book ratio (*MB*) has a mean of 3.467. *BIG4* has a mean of only about 8%, indicating that the Big 4 auditors are not used by most firms in our sample. This low percentage of Big 4 auditor use is also documented by Gul et al. (2010). The corporate governance variables *ChairCEO* and *Dominant* have average values of 0.131 and 0.497, respectively.

In Table 2, Panel B, we report the univariate comparison between fair-value-adopting firms and non-adopting firms for the total sample. Firms that adopt the fair value model have modestly larger discretionary accruals in the prior three years than firms that use the cost model, albeit the difference is not statistically significant in this univariate comparison. Notably, we find that 22% of the fair-value-adopting firms were designated "ST" in the prior three years, while only 7.8% of the non-adopting firms were "ST" firms, with the difference being highly significant at the 0.1% level. This difference in "ST" status provides preliminary evidence that fair-value-adopting firms have stronger needs to use accounting discretion to improve

[17] The results are similar if we use a 5% or 15% threshold.

[18] Xiao and Hu (2017) survey Chinese firms and find that 35% of their sample firms own investment property. Our 38% (7363 of 19,466) is consistent with their survey results.

[19] Similar to IAS 40, ASBE 3 imposes strict restrictions on firms switching back from the fair value model to the cost model. As a consequence, we find that none of our sample firms switched back after they adopted the fair value model. To avoid counting the fair-value-adopting decision of the same firm multiple times from 2007 to 2015, we only include observations of the fair-value-adopting firms in the year when they *first* adopted the fair value model in the panel regression.

Table 2

Descriptive Statistics and Pearson Correlations. This table provides descriptive statistics for the sample observations. Panel A reports the variables used in the test of hypothesis H_1, whereas Panel B provides a comparison between fair-value-adopting firms and non-adopting firms. Panel C presents a correlation matrix of the variables used in models (2) and (3). Variable definitions are provided in the Appendix A. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Descriptive Statistics for Sample Observations of Fair Value Adoption

Variables	N	Mean	Median	P25	P75	Std. Dev
FV	6309	0.650%	0.000%	0.000%	0.000%	8.036%
PastEarnMgmt	5134	0.038	0.027	0.016	0.045	0.045
SpecialTreatment	6309	0.079	0.000	0.000	0.000	0.270
Location	6309	4.169	6.000	0.000	7.000	2.973
State	6309	0.599	1.000	0.000	1.000	0.522
Size	6309	22.050	21.888	21.172	22.802	1.322
Leverage	6309	0.535	0.526	0.369	0.669	0.409
PPE	6309	0.224	0.191	0.085	0.323	0.175
ROA	6309	0.035	0.032	0.012	0.058	0.053
Return	6309	0.116	0.180	−0.173	0.561	0.746
Cashflow	6309	0.038	0.040	−0.004	0.087	0.104
MB	6309	3.467	2.693	1.750	4.369	2.412
Big4	6309	0.079	0.000	0.000	0.000	0.269
ChairCEO	6309	0.131	0.000	0.000	0.000	0.338
Dominant	6309	0.497	0.000	0.000	1.000	0.500

Panel B: Comparison between Fair-Value-Adopting Firms and Non-Adopting Firms

	Adopters (*FV=1*)			Non-adopters (*FV=0*)				
Variables	N	Mean	Median	N	Mean	Median	Difference	P-value
PastEarnMgmt	32	0.043	0.029	5102	0.038	0.027	0.005	(0.256)
SpecialTreatment	41	0.220	0.000	6268	0.078	0.000	**0.141*** **	**(<0.001)**
Location	41	3.951	5.000	6268	4.171	6.000	−0.220	(0.319)
State	41	0.341	0.000	6268	0.601	1.000	**−0.259*** **	**(<0.001)**
Size	41	21.94	21.83	6268	22.05	21.89	−0.113	(0.292)
Leverage	41	0.659	0.691	6268	0.534	0.525	**0.126** **	**(0.025)**
PPE	41	0.227	0.153	6268	0.224	0.191	0.004	(0.448)
ROA	41	0.013	0.015	6268	0.035	0.032	**−0.022*** **	**(0.004)**
Return	41	0.177	0.529	6268	0.116	0.178	0.062	(0.299)
Cashflow	41	−0.004	0.009	6268	0.039	0.040	**−0.043*** **	**(0.004)**
MB	41	3.381	2.509	6268	3.468	2.694	−0.087	(0.409)
Big4	41	0.098	0.000	6268	0.078	0.000	0.019	(0.326)
ChairCEO	41	0.146	0.000	6268	0.131	0.000	0.015	(0.388)
Dominant	41	0.439	0.000	6268	0.498	0.000	−0.059	(0.227)

Panel C: Pearson Correlations

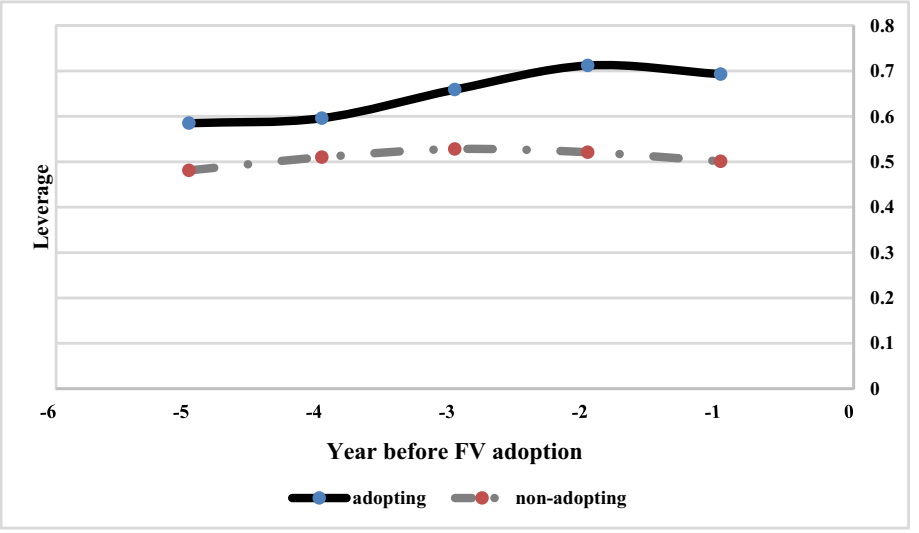
	FV	*PastEarnMgmt*	*SpecialTreatment*	*State*	*Location*	*Size*	*Leverage*	*PPE*	*ROA*	*Return*	*Cashflow*	*MB*	*Big4*	*ChairCEO*	*Dominant*
FV	1														
PastEarnMgmt	0.001	1													
SpecialTreatment	0.042***	0.398***	1												
State	−0.039***	−0.041***	−0.037***	1											
Location	−0.006	−0.026*	−0.064***	−0.052***	1										
Size	−0.007	−0.241***	−0.237***	0.175***	0.031**	1									
Leverage	0.025*	0.179***	0.213***	0.003	−0.014	0.087***	1								
PPE	0.002	0.002	0.036***	0.088***	−0.230***	0.006	−0.006	1							
ROA	−0.033***	−0.089***	−0.258***	−0.023*	0.083***	0.118***	−0.171***	−0.102***	1						
Return	0.007	−0.009**	−0.018	−0.107***	0.026**	−0.013	−0.020	−0.016	−0.066***	1					
Cashflow	−0.033***	−0.059***	−0.107***	0.030**	−0.030**	0.032**	−0.102***	0.206***	0.176***	0.061***	1				
MB	−0.003	0.181***	0.173***	−0.113***	−0.003	−0.413***	−0.047***	−0.053***	−0.064***	0.387***	0.019	1			
Big4	0.006	−0.065***	−0.051***	0.091***	0.119***	0.386***	0.012	0.031**	0.059***	−0.025**	0.054***	−0.152***	1		
ChairCEO	0.004	0.058***	0.059***	−0.113***	0.076***	−0.141***	−0.025***	−0.021	0.024*	−0.012	−0.010	0.036***	−0.065***	1	
Dominant	−0.009	−0.043***	−0.051***	0.078	0.031***	0.250***	−0.017	0.013	0.143***	0.006	0.046***	−0.039***	0.157***	−0.041***	1

*p < 0.10, **p < 0.05, and ***p < 0.01. See Data Appendix A for variable definitions.

performance than non-adopting ones. We also observe that fair-value-adopting firms are significantly less likely to be state-owned enterprises, have significantly higher leverage, and are less profitable with lower *ROA* and lower cash flows from operations.

In Table 2, Panel C, we report Pearson correlation coefficients between the main variables. We find that *FV* and *PastEarnMgmt* are positively correlated but statistically insignificant. However, *FV* and *SpecialTreatment* are positively significantly correlated at the 1% level. We also find that *PastEarnMgmt*, our first proxy of firms' needs for accounting discretion, is significantly correlated with *SpecialTreatment,* our second proxy of firms' needs for accounting discretion. Interestingly, we find that *PastEarnMgmt* and *SpecialTreatment* are both negatively and significantly correlated with *Location* and *State*. Consistent with traditional earnings management literature, *PastEarnMgmt* is higher in smaller firms, firms with higher leverage, poor operating and stock performance, lower cash flow from operating activities, higher *MB*, lower audit quality, and less effective corporate governance.

Panel A: Leverage



Panel B: ROA

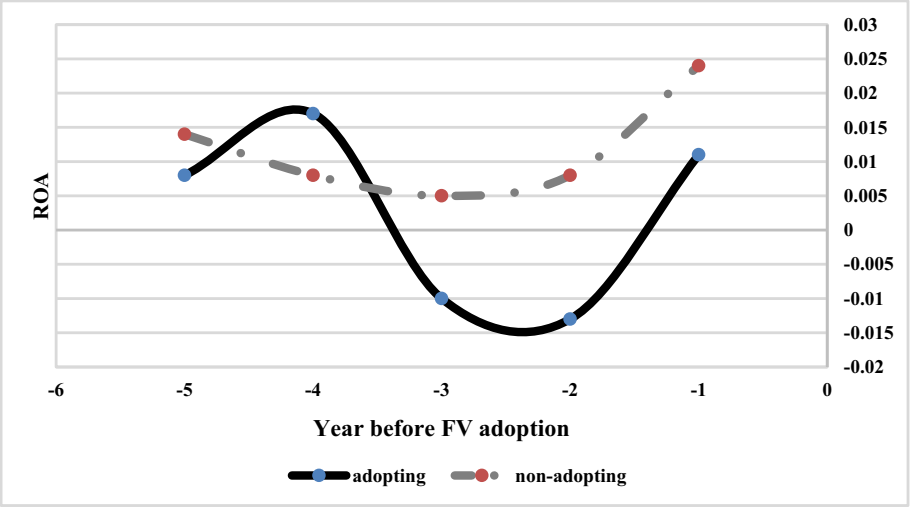
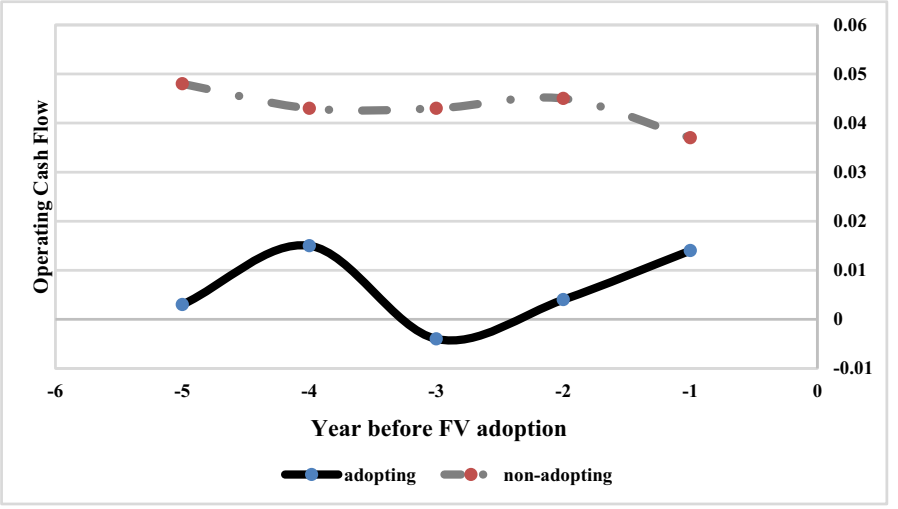


Fig. 1. Fair Value Adoption and Firm Performance. This figure provides a univariate comparison of firm performance between fair-value-adopting firms and non-adopting firms in the five years prior to adoption on a year-by-year basis. Each fair-value-adopting firm is matched with a control firm that uses the cost model in the same year, in the same industry (by 2-digit industry code), with the same state ownership status (*State*), and with the closest firm size. Variable definitions are provided in the Appendix A.

Panel C: Operating Cash Flow



Panel D: Revenue

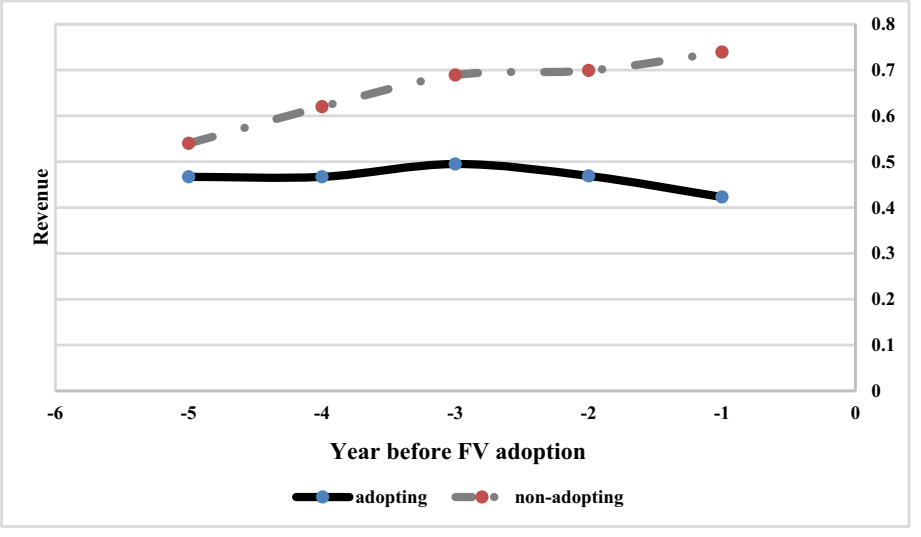


Fig. 1 (*continued*)

6. Empirical results

6.1. Preliminary analysis

We conduct a preliminary analysis to examine the firm fundamentals that determine fair value adoption for investment property in China. Given that the unrealized fair value gains and losses from investment properties are recognized in net income, the adoption of fair value reporting could improve firm performance due to the burgeoning of the Chinese real estate market (Wang and Wang, 2012). Descriptive statistics presented in Table 2, Panel B already show some evidence that fair-value-adopting firms differ in their levels of leverage and operating performances (i.e., *ROA* and *Cashflow*) in the adoption year. We further examine the performance of fair-value-adopting firms in the years leading up to the adoption decision. As a benchmark, we compare the fair-value-adopting firms with the matched control firms. Table 3 reports the findings. Panel A (Panel B) compares the performance of the fair-value-adopting firms with control firms in the five years (two years) leading up to adoption. Both panels show that fair value adopters have higher leverage, lower *ROA*, lower *Cashflow*, and lower revenue than the control firms. Fig. 1 further compares the adopting firms with the non-adopting control firms on a year-by-

Table 3
Univariate Analysis of Fair Value Adoption and Firm Performance. This table provides univariate comparisons of firm performance between fair-value-adopting firms and non-adopting firms in the years prior to adoption. Each fair-value-adopting firm is matched with control firms that use the cost model in the same industry (by 2-digit industry code), with the same state ownership status (*State*), for the same year, and with firm size within 10% of the treatment firm. Panel A reports results for five years prior to adoption and Panel B reports results for two years prior to adoption. Variable definitions are provided in the Appendix A. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Five Years Prior to Adoption					
	N	Adopting firms		Non-adopting firms	Difference
Leverage	165	0.656	1165	0.507	0.155***
ROA	165	0.002	1165	0.013	−0.011**
Cashflow	165	0.007	1165	0.043	−0.036***
Revenue	165	0.462	1165	0.662	−0.200***
Panel B: Two Years Prior to Adoption					
	N	Adopting firms		Non-adopting firms	Difference
Leverage	76	0.702	529	0.509	0.193***
ROA	76	0.000	529	0.018	−0.018**
Cashflow	76	0.009	529	0.041	−0.032***
Revenue	76	0.444	529	0.722	−0.278***

year basis. Fig. 1, Panel A shows that the adopting firms have consistently higher levels of leverage in all five years leading up to their adoption decisions. The difference in leverage between adopting firms and non-adopting firms grows in the two years before adoption decisions. Panels B and C show adopting firms reporting lower *ROA* and *Cashflow* in the pre-adoption periods, especially in the three years preceding adoption decisions. In Panel D, we also report adopting firms' versus non-adopting firms' revenues scaled by total assets. Adopting firms report consistently lower revenues for all years with deteriorating trends in the two years leading up to their adoption decisions.

We supplement our empirical tests with qualitative analysis of the note disclosures of the fair value adopters. Most adopting firms (61%, 33 of 54 firms) noted in their disclosures that their core business activities were facing significant challenges. Overall, the findings in this section indicate that fair-value-adopting firms did not perform well in the pre-adoption periods. However, it remains an empirical question whether these firms actually adopt fair value reporting with the objectives of increasing and using accounting discretion.

6.2. Tests of hypothesis 1

For the formal tests of H_1, we estimate Eqs. (2) and (3) using logistic regressions. In all regressions, we control for potential cross-correlations within firms and years by reporting robust standard errors clustered at the firm and year levels. In columns 1 and 2 of Table 4, we report the logistic regression estimation results of *FV* on *PastEarnMgmt* and *SpecialTreatment*, respectively. The results show that the coefficients on *PastEarnMgmt* and *SpecialTreatment* are both significantly positive (coeff. = 2.255 and 0.999, p = 0.001 and 0.034 respectively), meaning that firms with greater needs for accounting discretion are more likely to adopt fair value reporting for investment properties, supporting our first hypothesis. Among the control variables, the coefficient on *Location* is significantly negative (coeff. = -0.083, p = 0.022) in the first column, indicating that the fair value option is more likely to be chosen by firms with headquarters located in less-developed regions. We also observe significantly negative coefficients for the state-owned indicator (*State*) in both columns (coeff. = −1.615 and −1.326, p = 0.000 for both), showing that state-owned enterprises are less likely to choose fair value reporting. Lastly, we find significant and negative coefficients for cash flows from operations (*Cashflow*) (coeff. = −1.852 and −1.310, p = 0.000 and 0.001, respectively), indicating that firms are more likely to adopt fair value reporting when they have poor performance.

6.3. Tests of hypothesis 2

Our results so far indicate that fair value adopters are firms that tend to have greater needs for accounting discretion. However, this finding does not imply that these firms subsequently used the additional accounting discretion stemming from fair value estimates after adoption to achieve their earnings goals. We examine this question next.

We first look at earnings smoothing. To investigate whether these fair value adopters actually use unrealized fair value gains and losses from investment properties to smooth earnings, we examine the association of *FVGain/Loss* and *Pre-FVGain/Loss Earnings*. We hand-collect fair value information about the 54 adopters over the sample period of 2007–2015 and obtain 250 firm-year observations with reported unrealized fair value gains and losses on investment property. On average, unrealized fair value gains and losses significantly impact income statements, accounting for about 23.6% of these firms' total revenues (un-tabulated). In Table 5, we report the results of estimating Eq. (4) with *FVGain/Loss* as the dependent variable. The results show that *FVGain/Loss* is negatively associated with *Pre-FVGain/Loss Earnings*, which is consistent with earnings smoothing (coeff. = –0.137, p = 0.005). As expected, *FVGain/Loss* is positively and significantly associated with the size of the

Table 4
Test of H_1 – Logistic Regression Analysis of Fair Value Adoption and Need for Accounting Discretion. This table presents the estimation results of hypothesis H_1 using the total sample. For testing the association between firms' needs for accounting discretion and their decisions to choose fair value for investment property, we use a logit model. The dependent variable is an indicator variable, *FV*, which equals 1 if the firm has adopted fair value for investment property in the year and is 0 otherwise. The independent variables of interest are *PastEarnMgmt,* the mean absolute discretionary accruals from the Dechow and Dichev (2002) model from the previous three years, and *SpecialTreatment,* an indicator variable equal to 1 if firms have had "ST" status in the past three years and 0 otherwise. All other independent variables are described in the Appendix A. The t-statistics are reported in parentheses. ***, **, and * denote significance at the <1%, 5%, and 10% levels, respectively.

Variables	(1) *FV*	(2) *FV*
PastEarnMgmt	2.255***	
	(0.001)	
SpecialTreatment		0.999**
		(0.034)
Location	−0.083**	−0.039
	(0.022)	(0.236)
State	−1.615***	−1.326***
	(0.000)	(0.000)
Size	0.088	0.151
	(0.660)	(0.358)
Leverage	0.068	0.012
	(0.654)	(0.957)
PPE	−0.954	0.501
	(0.423)	(0.627)
ROA	−1.345	−3.399
	(0.465)	(0.292)
Return	0.508	0.037
	(0.394)	(0.920)
Cashflow	−1.852***	−1.310***
	(0.000)	(0.001)
MB	−0.232	−0.100
	(0.133)	(0.224)
Big4	0.196	0.273
	(0.567)	(0.316)
ChairCEO	0.018	−0.158
	(0.963)	(0.562)
Dominant	−0.040	−0.064
	(0.925)	(0.856)
Constant	−20.327***	−21.615***
	(0.000)	(0.000)
Industry Fixed Effect	Yes	Yes
Year Fixed Effect	Yes	Yes
Pseudo R^2	0.196	0.152
Observations	5134	6309

investment property portfolio *(InvestmentProperty)* (coeff. = 0.030, p = 0.002). We also find a significantly positive coefficient for *Return* (coeff. = 0.013, p = 0.037). Fig. 2 also shows that the *FVGain/Loss* reported by firms is substantially larger when *Pre-FVGain/Loss Earnings* is negative. Overall, the evidence shows that fair value adopters use unrealized fair value gains and losses from investment properties to reduce earnings volatility.

A second common earnings goal is meeting earnings benchmarks. We examine the change in firms' likelihood of meeting earnings benchmarks before and after fair value adoption and test whether this change is significantly different between fair-value-adopting firms and non-adopting firms. For this analysis, we look into adopting firms' meeting and beating behavior five years before and five years after adoption. In Table 6, we report the results of the difference-in-difference model testing whether fair-value-adopting firms are more likely to meet or beat earnings benchmarks after adoption compared to matched control firms that retained the cost model. Column 1 shows the logistic regression results of meeting or beating the benchmark of *zero earnings*. The coefficient on *Post* is insignificant, suggesting no change in the likelihood of meeting or beating earnings benchmarks for non-adopting firms. The interaction term, *Post* × *Adoption*, is positive and significant (coefficient = 0.324, p = 0.027), showing that, compared to firms that use the cost model, firms that use the fair value model significantly increase their likelihoods of meeting or beating the zero earnings threshold post-adoption. Column 2 shows the logistic regression results of meeting or beating the benchmark of *zero change in earnings*. We again find a positive and significant coefficient on the interaction between *Post* and *Adoption* (coefficient = 0.829, p = 0.026). Fig. 3, Panels A and B show that the likelihood of adopting firms meeting or beating both benchmarks increases post-adoption relative to non-adopting

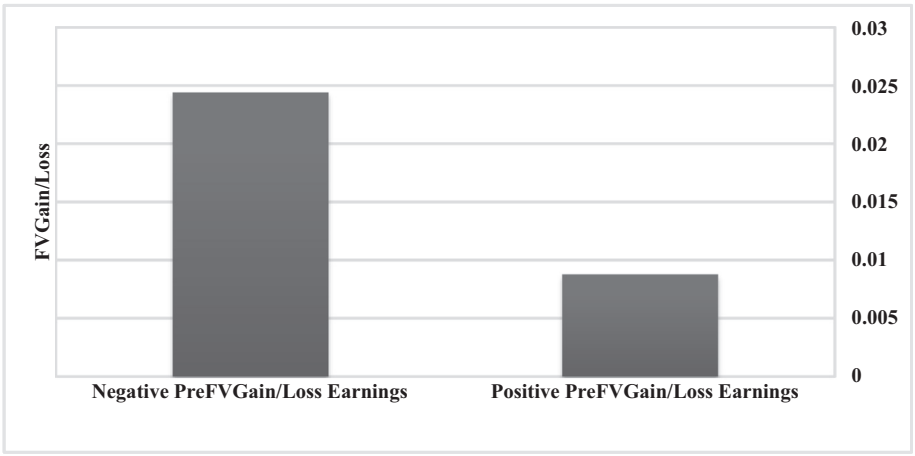


Fig. 2. Earnings Smoothing. This figure presents the summary statistics of *FVGain/Loss* for subsamples of firms that report positive and negative *PreFVGain/Loss earnings*, net income exclusive of unrealized fair value gains, and losses from investment properties scaled by equity market capitalization.

Table 5
Test of H_2 – Post-Adoption Earnings Smoothing using Fair Value Gains and Losses. This table presents the estimation results of hypothesis H_2 for firms that adopted fair value reporting for investment properties. The dependent variable is *FVGain/Loss*, the unrealized fair value gains and losses from investment properties scaled by equity market capitalization. The independent variable of interest is *PreFVGain/Loss Earnings*, the net income exclusive of unrealized fair value gains and losses from investment properties scaled by equity market capitalization. All other independent variables are described in the Appendix A. The t-statistics are reported in parentheses. ***, **, and * denote significance at the <1%, 5%, and 10% levels, respectively.

Variables	*FVGain/Loss*
PreFVGain/Loss Earnings	−0.137***
	(0.005)
InvestmentProperty	0.030***
	(0.002)
Location	0.000
	(0.528)
State	0.002
	(0.548)
Size	0.003
	(0.288)
Leverage	0.013
	(0.269)
Return	0.013**
	(0.037)
Cashflow	−0.030
	(0.135)
MB	0.015
	(0.138)
Big4	0.001
	(0.915)
ChairCEO	0.005
	(0.286)
Dominant	0.001
	(0.830)
Constant	−0.062
	(0.255)
Industry Fixed Effect	Yes
Year Fixed Effect	Yes
Adjusted R^2	0.410
Observations	250

firms. Overall, the results from this difference-in-difference test provide strong evidence that fair-value-adopting firms increase their frequency of beating earnings benchmarks from before to after adopting the fair value model compared to matched control firms that use the cost model.

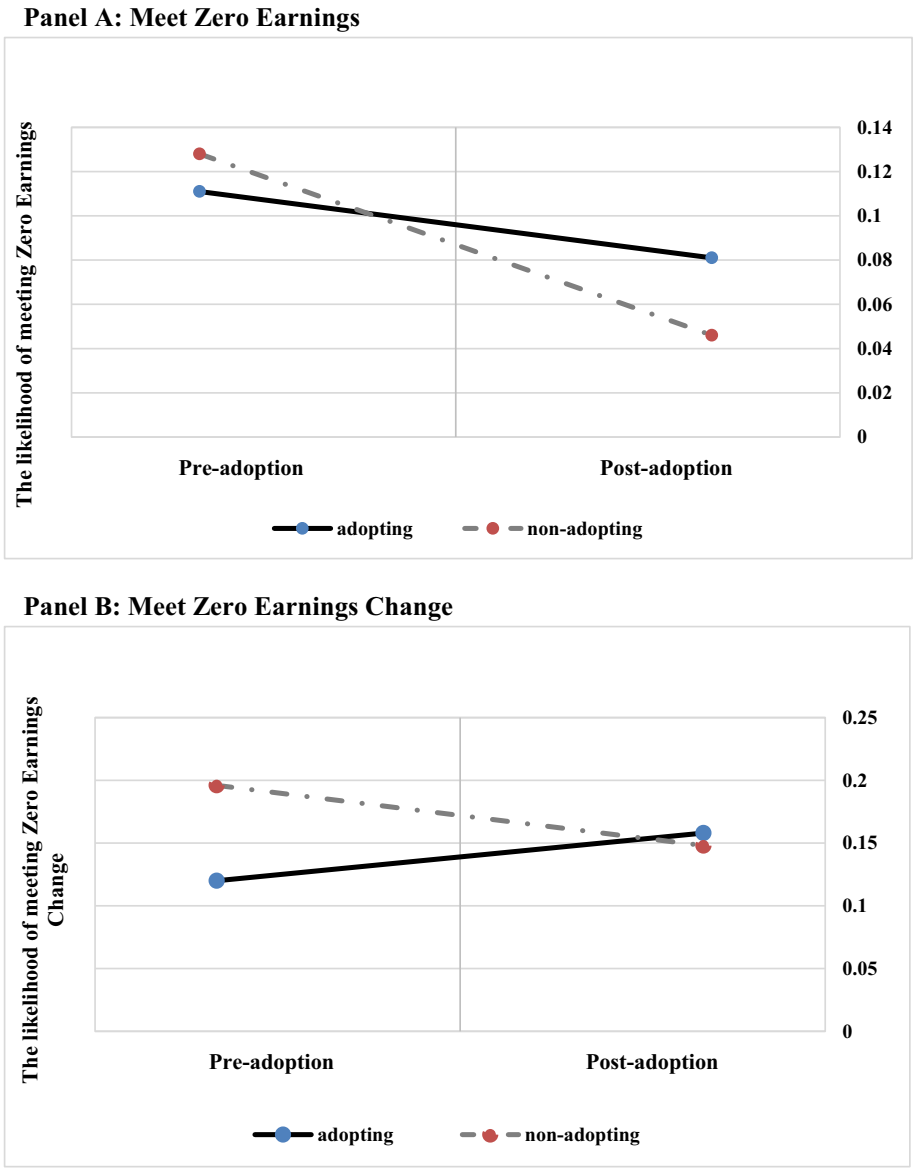


Fig. 3. Beat/Meet Earnings Benchmarks. This figure presents the likelihood of firms whose earnings (or change of earnings) scaled by total assets at the beginning of the year are between 0 and 0.005, before and after the adoption for adopting and non-adopting firms.

7. Robustness analysis

We conduct several sensitivity tests to ensure the robustness of our results. To conserve space, we discuss these untabulated results briefly in this section. First, an issue in our estimation of Eqs. (2) and (3) with our total sample is the low number of fair value firms, which may lead to econometric issues in estimation of a rare event (Tomz et al., 2001). To alleviate this concern, we construct a matched sample by pairing each fair value firm with 10 non-adopting firms with the closest firm size in the same year, the same industry (by 2-digit industry code), and the same state ownership status (*State*). We obtain 352 firm-year observations for Eq. (2) and 451 firm-year observations for Eq. (3), respectively. Our results find that the coefficients for *PastEarnMgmt* and *SpecialTreatment* remain positive and significant.

We also re-estimate the same model with the total sample using the penalized likelihood method (the Firth method, 1993). Additionally, we adopt the zero-inflated Poisson regression analysis. Both methods are designed to correct for the rare-event bias. We obtain similar results under both robustness analyses with their alternative empirical methods.

Table 6
Test of H_2 – Post-Adoption Beating or Meeting Earnings Benchmarks. This table presents the estimation results testing hypothesis H_2. To examine earnings benchmark-beating behavior in firms that adopted fair value for investment property, we apply a difference-in-difference model. The dependent variable is *Suspect,* an indicator variable that equals 1 for firms whose earnings (or change of earnings) scaled by total assets at the beginning of the year are between 0 and 0.005 and is 0 otherwise. The independent variables of interest are *Post,* an indicator variable equal to 1 for years after the adoption of fair value model and is 0 otherwise; *Adoption*, an indicator variable equal to 1 for fair-value-adopting firms and 0 for non-adopting firms; and *Post* × *Adoption*. All other independent variables are described in the Appendix A. The t-statistics are reported in parentheses. ***, **, and * denote significance at the <1%, 5%, and 10% levels, respectively.

Variables	(1) *Suspect* Meet Zero Earnings	(2) *Suspect* Meet Zero Change in Earnings
Post	−0.006	−0.297
	(0.978)	(0.420)
Adoption	−0.143	−0.387
	(0.574)	(0.281)
Post × *Adoption*	0.324**	0.829**
	(0.027)	(0.026)
Location	−0.018	0.005
	(0.589)	(0.812)
State	0.191	0.265*
	(0.127)	(0.095)
Size	−0.107	−0.009
	(0.452)	(0.939)
Leverage	0.677*	−0.593
	(0.076)	(0.132)
Return	−0.111	0.420**
	(0.631)	(0.048)
Cashflow	−1.224**	−0.223
	(0.010)	(0.806)
MB	−0.099**	−0.188***
	(0.031)	(0.000)
Big4	−0.112	0.210
	(0.747)	(0.190)
ChairCEO	−0.023	0.043
	(0.917)	(0.867)
Dominant	−0.338	−0.011
	(0.117)	(0.922)
Constant	−0.335	−0.765
	(0.919)	(0.743)
Industry Fixed Effect	Yes	Yes
Year Fixed Effect	Yes	Yes
Pseudo R^2	0.061	0.064
Observations	3273	2888

In our main regression analysis, we measure discretionary accruals for *PastEarnMgmt* using Dechow and Dichev's (2002) model. We check the robustness of our results using the modified Jones model with Larcker and Richardson's (2004) method to calculate discretionary accruals, and we obtain similar results under the alternative measure.

Lastly, firms with highly volatile earnings or cash flows tend to have larger absolute discretionary accruals. Therefore, an alternative explanation for our findings is that firms with volatile earnings or cash flows are more likely to choose the fair value option because they are less concerned about the added net-income volatility from the fair value model (Israeli, 2015). Thus, we re-estimate Eq. (2) by including three additional control variables: earnings volatility, measured as the standard deviations of earnings over the previous three years; operating cash flow volatility, measured as the standard deviation of cash flows from operations over the previous three years; and earnings smoothing activities, measured as the ratio of earnings volatility to cash flow volatility. We continue to find positive associations between *PastEarnMgmt*, *SpecialTreatment* and the decision to adopt the fair value model.

8. Conclusion

The issues of neutrality and reliability have been the main concerns of fair value reporting in China, and fair value estimates for nonfinancial assets are especially susceptible to managerial manipulation. Given the opportunity, managers could abuse the flexibility allowed in the fair value model to report unrealistic, unreliable fair value estimates. In this study, we

empirically examine two questions: (1) Does the need for accounting discretion drive the adoption of fair value reporting for investment property? (2) What are the ex post earnings outcomes for fair-value-adopting firms? We find strong, robust evidence that the fair value model for investment property is more often chosen by firms with greater needs for accounting discretion. Post-adoption, we find that fair-value-adopting firms engage in earnings smoothing using unrealized gains and losses from investment properties. Utilizing a difference-in-difference research design, we also find that fair-value-adopting firms increase their likelihood of meeting or beating earnings benchmarks (zero earnings and zero earnings change) from pre- to post-adoption compared to matched control firms. In summary, these results indicate that the new accounting standards on fair value reporting for investment property (i.e., ASBE 3 or, more broadly, IAS 40) should cause concern when implemented in China, as Chinese firms appear to adopt fair values for discretionary purposes.

Our study bears important policy implications for regulators. We find evidence that Chinese firms have motivations for their implementation of fair value that differ from firms in many developed economies. Contrary to the belief that the adoption of fair value for investment property would improve financial reporting quality, we show that allowing fair value reporting for investment property in China could in fact invite firms with histories of need for accounting discretion to adopt fair value reporting and consequently use the flexibility within the new standards to meet their earnings goals. We offer interesting evidence on the debate over fair value accounting, as we show that fair value reporting for investment property is motivated by managerial opportunism in China.

Appendix A. Variables definition

FV	Indicator variable, equal to 1 if firms choose fair value model; 0 otherwise.
PastEarnMgmt	Mean absolute discretionary accruals from the Dechow and Dichev (2002) model from the previous three years.
SpecialTreatment	Indicator variable, equal to 1 if firms are under the "ST" status in the past three years; 0 otherwise.
Location	Index from 0 to 7 representing the development level of a region.
State	Indicator variable, equal to 1 if firms' ultimate controlling shareholder is the government; 0 otherwise.
Size	Natural logarithm of firm's total assets.
Leverage	Total liabilities divided by firm's total assets.
PPE	Total property, plant, and equipment divided by firm's total assets.
ROA	Net income divided by firm's total assets.
Return	Total annual stock return.
Cashflow	Cash flows from operations divided by firm's total assets.
MB	Market value of equity over book value of equity.
Big4	Indicator variable, equal to 1 if firms hire a "Big 4" firm as auditors; 0 otherwise.
ChairCEO	Indicator variable, equal to 1 if CEO is also the chair of the board; 0 otherwise.
Dominant	Indicator variable, equal to 1 if firm's largest five shareholders' total shareholdings are equal or larger than 5%; 0 otherwise.
FVGain/Loss	Unrealized fair value gains and losses from investment properties divided by firm's equity market capitalization.
PreFVGain/Loss Earnings	Net income exclusive of unrealized fair value gains and losses from investment properties divided by firm's equity market capitalization.
InvestmentProperty	Value of investment properties divided by firm's equity market capitalization.
Suspect	Indicator variable, equal to 1 for firms whose earnings (or change of earnings) scaled by total assets at the beginning of the year are between 0 and 0.005; 0 otherwise.
Post	Indicator variable, equal to 1 for years after the adoption of fair value model; 0 otherwise.
Adoption	Indicator variable, equal to 1 for firms that have adopted the fair value model; 0 otherwise.
Revenue	Revenue divided by firms' total assets.

Appendix B. Supplementary material

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jaccpubpol.2020.106766.

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