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**Article**

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# Mandatory IFRS adoption and executive compensation: Evidence from China

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## ABSTRACT

This study investigates how the mandatory adoption of International Financial Reporting Standards (IFRS) affects the contractual benefits of using accounting information to determine executive compensation in China. After controlling for firm and corporate governance characteristics, we find strong evidence supporting the positive role of mandatory IFRS adoption on the accounting-based performance sensitivity of executive compensation. Subsample analysis suggests that improvements in accounting-based performance sensitivity after IFRS adoption differ across regions with various levels of institutional quality and across firms that are affected to a different extent by the adoption. Additional analysis supports the argument that the positive effects of IFRS adoption on the use of accounting performance in executive compensation are driven by the reduction in accounting conservatism associated with IFRS adoption.

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## 1. Introduction

A single set of high quality, globally accepted accounting standards is needed to support the growing globalization of markets. According to Deloitte and Touche, as of the end of 2010, 123 of the world's 154 juris-

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dictions where stock markets exist either permit or require domestic listed companies to report according to International Financial Reporting Standards (IFRS). Furthermore, 95 of the world's total of 173 jurisdictions either permit or require unlisted companies to report according to IFRS. A large body of academic studies has been devoted to examine the benefits of IFRS adoption for accounting quality in terms of conservatism, earnings management, value-relevance, market reaction, Tobin's  $Q$ , analyst forecast accuracy and foreign investments. Although the results of these studies are mixed, many researchers find the effects of IFRS adoption to be mainly positive (Lang et al., 2003; Covrig et al., 2007; Barth et al., 2008; Chen et al., 2010).

Recent studies have started paying attention to the contractual benefits of IFRS adoption for internal information users. As Gjesdal (1981), Watts and Zimmerman (1986), Ball (2001) and O'Connell (2007) point out, the contractual explanation or stewardship perspective is essential for accounting information. If managers' efforts are reflected in accounting performance, then accounting performance will be used more frequently in executive compensation contracts, and this in turn can mitigate agency problems between managers and shareholders (Holmstrom, 1979; Lambert and Larcker, 1987; Bushman and Smith, 2001). Wu and Zhang (2009) analyze the benefits of voluntary IFRS adoption for internal performance evaluation in terms of CEO turnover and employee layoffs. Using a sample of European Union (EU) companies, these authors find that the voluntary adoption of IFRS is associated with an increased sensitivity of CEO turnover and employee layoffs to accounting earnings. Ozkan et al. (2012) investigate how the mandatory adoption of IFRS in the EU affects the use of accounting information in executive compensation. Their results suggest that after mandatory IFRS adoption there are improvements in accounting-based performance sensitivity and the relative performance evaluation of executive compensation based on accounting earnings. We enrich these studies by investigating a single emerging country, China, as this focus allows us to examine factors and tensions that are missing in most EU-based studies. Given the diverse nature of China's economy, this country is also a good setting to explore the variation in incentives across both regions and firms.

As a milestone of international convergence for financial reporting, China formally announced the issuance of its new Chinese Accounting Standards on February 15, 2006. The new standards became effective from January 1, 2007 for all listed firms. Nearly all topics of IFRS are covered in the new standards, which are substantially in line with IFRS, except for a few modifications made for China's unique environment. For simplicity hereafter, we refer to the new standards as "IFRS" and the old standards as "Chinese GAAP". An essential characteristic differentiating IFRS as adopted in China from that adopted in the EU is the import of fair value (Deloitte Touche Tohmatsu, 2006). Fair value accounting involves a fundamental change and a severe challenge for China's accounting practices. Before mandatory IFRS adoption in 2007, accounting information in China was mainly based on historical cost instead of fair value. However, many countries in the EU had already applied fair value accounting even before their mandatory adoption of IFRS in 2005.<sup>1</sup> He et al. (2012) find that fair value accounting has been associated with significant earnings management since mandatory IFRS adoption in China. Further evidence documents a significant reduction in accounting conservatism after IFRS adoption.<sup>2</sup> However, these increases in earnings management and decreases in accounting conservatism can have opposite effects on the use of accounting performance for determining executive compensation. Earnings management can help in window-dressing or decorating managers' effort and conservatism can provide biased accounting information or increase estimation error. On the one hand, if the board of directors can detect earnings management activities when evaluating accounting performance, then increases in earnings management associated with the adoption of IFRS should reduce the role of accounting performance in determining executive compensation. On the other hand, the reduction in accounting conservatism after IFRS adoption should increase the weight of accounting performance in determining executive compensation, because timely recognition of both good news and bad news makes accounting information a better and more natural indicator of managers' effort. In this study, we aim to supply empirical evidence concerning these effects.

<sup>1</sup> Statistics in Muller et al. (2011) show that during the pre-IFRS adoption period in European countries, 111 observations contained fair values of investment properties and only 27 observations did not.

<sup>2</sup> Untabulated results based on both the Basu (1997) model and the Khan and Watts (2009) model suggest a significant reduction in accounting conservatism after IFRS adoption.

Using a sample of 6787 firm-year observations for A-share firms in China from the 2004–2009 period, we investigate the effect of mandatory IFRS adoption on the use of accounting performance in determining executive compensation. Using a change model, we document evidence supporting the following empirical questions: (1) whether mandatory IFRS adoption in China affects the accounting-based performance sensitivity of executive compensation; (2) if so, whether the effect of mandatory IFRS adoption on accounting-based performance sensitivity differs across regions with varying levels of institutional quality; and (3) if so, whether the effect of mandatory IFRS adoption on accounting-based performance sensitivity differs across firms that are affected by the adoption to different degrees.

After controlling for firm and corporate governance characteristics, we find strong evidence that IFRS adoption has a positive role in the accounting-based performance sensitivity of executive compensation. Specifically, compared with the pre-IFRS adoption period, firms have significantly increased the accounting-based performance sensitivity of executive compensation during the post-IFRS adoption period. To answer the second and third questions, we conduct the same analysis, but use subsamples based on cross-regional institutional quality (as measured by levels of marketization) and subsamples based on the influence of IFRS across firms (as measured by IFRS adjustments in 2006). The results suggest that the positive effect of IFRS adoption on accounting-based performance sensitivity occurs only in regions with higher institutional quality and in firms that are more affected by the adoption.

We also provide evidence on the possible channels through which IFRS affects the use of accounting performance in determining executive compensation. We perform additional subsample analyses based on the income from changes in fair value and on changes in accounting conservatism in China. The results indicate that the positive effects of IFRS adoption on the accounting-based performance sensitivity of executive compensation are driven by a reduction in accounting conservatism that is associated with IFRS adoption.

This study contributes to the literature on IFRS adoption in several ways, which distinguish our research from two closely related studies by [Wu and Zhang \(2009\)](#) and [Ozkan et al. \(2012\)](#). First, we comprehensively discuss the mechanism through which IFRS adoption affects the use of accounting performance in determining executive compensation. We also provide direct evidence of the reduction in accounting conservatism after IFRS adoption. Combined with evidence from prior studies indicating increases in earnings management associated with IFRS adoption, our research investigates whether the changes in earnings management and in accounting conservatism play different roles in the weighting of accounting performance in executive compensation. Additional analysis suggests that in China, the positive effect of IFRS adoption on the accounting-based performance sensitivity of executive compensation is driven by the associated reduction in accounting conservatism. The second contribution of this study is to extend the literature on the effect of IFRS adoption on executive compensation to the case of China, which is substantially different from mature markets. As an emerging market, China has relatively immature capital markets, weak legal enforcement, weak auditor independence and more concentrated ownership. All of these factors influence the incentives involved in financial reporting. The lack of efficiently functioning capital markets also means that the process of adopting and implementing fair value accounting is especially challenging, and this situation leads to considerable accounting information noise. So far, there is very little empirical evidence documenting the economic consequences of IFRS adoption in emerging economies. It is widely suggested, however, that emerging markets are substantially different from developed markets in many dimensions, including institutional, organizational and market aspects of the economy and society. Our findings suggest that accounting-based performance sensitivity in China is significantly improved after IFRS adoption. A third contribution of our study is that our exploration of a single country, China, allows us to enrich our understanding on a range of factors that are generally not considered in most EU-based studies. We provide empirical evidence on the significant variation in incentives across both regions and firms. In particular, we find that the positive effect of IFRS adoption on the use of accounting performance information in executive compensation occurs only in regions with higher institutional quality and in firms more affected by IFRS adoption.

The remainder of this paper is organized as follows. Section 2 presents a literature review and raises our research questions. Section 3 describes the data, variables and methodology. Section 4 provides empirical results and analysis. Section 5 applies additional tests. Section 6 conducts extensive robustness checks and Section 7 concludes the paper.

## 2. Literature review and research questions

### 2.1. Pay-performance sensitivity

A tremendous amount of research has been devoted to exploring the relationship between executive compensation and firm performance, which is known as pay-performance sensitivity. The essential theoretical linkage between firm performance and executive compensation is proposed in the principal-agent model as developed by Jensen and Meckling (1976), Holmstrom (1979), Shavell (1979) and Fama (1980). This model emphasizes that managers are self-serving and that formal mechanisms, such as monitoring and reward structures, are meant to align the incentives of top managers with the interests of shareholders. Prior studies have implied that accounting and finance regulation can influence pay-performance sensitivity. Perry and Zenner (2001) suggest that pay-performance sensitivity, as measured by total annual compensation or firm-related CEO wealth, has increased for firms that are likely to be affected by section 162(m) of the Internal Revenue Code. Consistent with the rent-extraction hypothesis, Paligorova (2008) shows that pay-performance sensitivity strengthened after the adoption of the Sarbanes–Oxley Act (SOX) in firms whose corporate boards were less independent prior to SOX.

Findings from several studies show that executive compensation in China is positively related to accounting performance (Groves et al., 1995; Mengistae and Xu, 2004), shareholder value (Buck et al., 2008) and sales growth (Kato and Long, 2006). Other studies suggest that a firm's ownership structure also has significant effects on the compensation schemes of Chinese executives (Ding et al., 2006; Firth et al., 2006).

### 2.2. Role of mandatory IFRS adoption in accounting quality<sup>3</sup>

Armstrong et al. (2010) document a positive market reaction to IFRS in firms with lower pre-adoption information quality and in firms that are domiciled in common law countries. Daske et al. (2008) find that mandatory IFRS adoption is associated with increases in market liquidity, but the effects on cost of capital and Tobin's  $Q$  are mixed. Chen et al. (2010) suggest that the majority of accounting quality indicators have improved after mandatory IFRS adoption. By investigating 1146 firm-year observations from Australia, France and the UK during 2005 and 2006, Jeanjean and Stolowy (2008) find that earnings management in these countries did not decline significantly after the mandatory adoption of IFRS, and that in France earnings management actually increased. Horton and Serafeim (2010) conduct an event study in the UK to investigate whether there is any market reaction to or value-relevance of the information contained in the transitional report required by IFRS 1, the *First Time Adoption of International Financial Reporting Standards*. Their results show that there are significant negative abnormal returns for firms reporting a negative reconciliation adjustment to UK GAAP earnings. These findings suggest that IFRS is changing investors' beliefs about stock prices.

In general, previous studies of developed market economies have generated mixed results. These diverse results could be due to the different samples, information environments or institutional settings. Results from developed economies, however, cannot be readily extended to the developing and transitional economy of China, because of its unique economic system and its weaker institutions.

By using the uniqueness of the financial reports from B-share companies in China, some studies have shown that the application IFRS has had mixed consequences for accounting quality even prior to 2007 (Zhou et al., 2010; Eccher and Healy, 2003; Chen and Zhang, 2010).<sup>4</sup> After the adoption of mandatory IFRS in 2007, studies of its effects in China have been extended to A-share firms. Xue et al. (2008), Luo et al. (2008) and Zhang

<sup>3</sup> For the effects of voluntary IFRS adoption, please refer to Barth et al. (2008), Hung and Subramanyam (2007), Bartov et al. (2005), Ashbaugh and Pincus (2001) and Covrig et al. (2007). Voluntary IFRS adoption is found to have a positive role in accounting quality and overall comparability according to the existing literature.

<sup>4</sup> In China, some public companies are allowed to issue two kinds of shares simultaneously—A-shares to domestic investors and B-shares to foreign investors. A-share companies are required to prepare financial reports based on Chinese GAAP and B-share companies are required to prepare financial reports based on IFRS. Hence, even before it became mandatory for all listed companies to adopt IFRS in 2007, B-share companies in China were already required to apply IFRS.

and Zhang (2008) find an improvement in the value-relevance of accounting information under IFRS compared to the situation under China GAAP. Zhang and Zhu (2010) suggest that there has been a reduction in accounting conservatism after mandatory IFRS adoption and that this reduction did not arise from increases in earnings management. Evidence of earnings management associated with IFRS adoption is shown by Zhang et al. (2007), Wang et al. (2009), Ye et al. (2009) and He et al. (2012). In general, there is no consistent conclusion about the economic consequences of mandatory IFRS adoption in China.

### 2.3. Development of research questions

Our study is related to the contractual role of accounting information, which has been recognized as important by researchers such as Gjesdal (1981), Watts and Zimmerman (1986), Ball (2001) and O'Connell (2007). We are interested in the contractual benefit of mandatory IFRS adoption for executive compensation in China, *i.e.*, the effect of mandatory IFRS adoption on the use of accounting performance in determining executive compensation. The two studies by Wu and Zhang (2009) and Ozkan et al. (2012) investigate similar research questions to ours in EU countries. However, Wu and Zhang (2009) emphasize the role of accounting conservatism in CEO turnover, and Ozkan et al. (2012) document the role of general accounting quality in executive compensation.

Wu and Zhang (2009) suggest that voluntary IFRS adoption has affected the role of accounting conservatism in CEO turnover and employee layoffs. These authors find an overall improvement in accounting conservatism following voluntary IFRS adoption in EU countries. IFRS adoption can be a particularly powerful tool in disciplining poor performing managers, because it speeds up the recognition of losses. IFRS adoption provides the board and shareholders with a reason to investigate losses and, if necessary, to dismiss the manager. CEO turnover reflects only the most extreme penalizing aspect of the compensation contract. Executive compensation, however, reflects both the reward and punishment sides of the compensation contract. Ozkan et al. (2012) argue that having high quality accounting information under IFRS increases the weight of accounting performance in executive compensation contracts. Examining executive compensation in EU countries, these authors conclude that there has been incremental use of accounting-based performance sensitivity and relative performance evaluation in executive compensation since mandatory IFRS adoption.

In China, the effect of mandatory IFRS adoption on accounting quality is quite different from that in EU countries. As an emerging market, China has relatively immature capital markets, weaker legal enforcement, less auditor independence and more concentrated ownership. All of these factors influence the incentives concerned in financial reporting. The lack of efficiently functioning capital markets also means that the process of adopting and implementing fair value accounting is especially challenging, which leads to a great deal of noise in accounting information. Fair value outcomes can serve as signals for managerial effort that are not fully captured by stock returns in the period when the effort is exerted. Fair value, therefore, can provide a more timely signal with respect to unobserved effort than traditional historic accounting measures of income and exposure. For example, it can be argued that changes in the market value of investment securities are due to luck. However, managers have some discretion over which securities to purchase, how long to hold them and the timing of trades. In making these choices, managers may be predicting changes in the market value of certain assets.

The recent study by He et al. (2012) examines earnings management activities that are induced by fair value accounting and associated with mandatory IFRS adoption in 2007. The evidence presented in this study suggests that firms are more likely to sell available for sale securities for gains if their fair value changes in trading securities are negative and that such earnings management is more pronounced among firms with extra incentives to avoid reporting losses. He et al. also find that firms take advantage of the new fair value accounting rules for debt restructuring by using the gains on restructuring to cover losses. Further analysis shows that all of these earnings management activities are more severe among firms with poorer corporate governance and among firms in regions with weaker institutions.

As there is still no direct evidence in the literature on the consequences of accounting conservatism after the mandatory IFRS adoption in China, we conduct such an exploration. In particular, we apply the Basu (1997) and Khan and Watts (2009) models. Unreported results from these models suggest that there is a significant decrease in accounting conservatism after IFRS adoption. Results from the Basu (1997) model further indicate

that the reduction in accounting conservatism arises from the increased sensitivity of earnings to good news following IFRS adoption. However, there is no significant change in the sensitivity of earnings to bad news following IFRS adoption. Such findings are consistent with the adoption of fair value accounting. The purpose of fair value accounting is to make accounting information more natural and more in line with market value. Unlike the historical cost rule under Chinese GAAP, the fair value rule is more relaxed toward the verification of good news and permits more recognition of gains. Muller et al. (2011) demonstrate that the mandatory adoption of fair value accounting in reporting values of investment property results in reduced information asymmetry among market participants. As suggested by Wier (2009), there is a potential trade-off between fair value accounting and conservatism in revenue recognition.<sup>5</sup>

However, the increases in earnings management and decreases in accounting conservatism can affect the use of accounting performance in executive compensation in either of two directions. The potentially negative role of earnings management is easy to understand. Managers dress up their performance such that the accounting information does not truly reflect their effort. Peng (2011) provides direct evidence for the effect of accruals quality on the usefulness of earnings in incentive contracting. Her evidence indicates that better accruals quality is associated with a higher weight on company earnings in compensation contracts. The increases in earnings management after IFRS adoption in China imply that accounting performance has greater deviation from manager's effort. All things being equal, performance tends to be noisier with regard to evaluation of the executive's effort choice. Therefore, compensation committees should place less reliance on earnings following IFRS adoption.

The reduction in accounting conservatism could play a positive role in the use of accounting performance in executive compensation. Timely recognition of both good news and bad news is helpful in reflecting managers' effort, and in mitigating the information asymmetry and agency contradiction between executives and shareholders. Watts (2003) argues that accounting conservatism is attributed to the use of accounting statements in compensation contracts. However this argument is based on the view that managers' incentives for overinvestment dominate their incentives for underinvestment, which seems problematic and does not fit well within the economics framework. The literature has documented a tendency of managers with short horizons to either underinvest or overinvest. If losses are not recognized in a timely manner, managers will not be able to discontinue poor performing projects in time (Ball and Shivakumar, 2005). If gains are not recognized in a timely manner, managers will miss opportunities to invest in profit-making projects (Leuz, 2001; Watts, 2003; Guay and Verrecchia, 2006). The recent study by Bushman et al. (2011) indicates that the speed with which managers increase investment flows in response to improved investment opportunities varies as much as the speed with which they decrease investment flows in response to deteriorating investment opportunities. This comparison suggests that providing incentives for managers to invest in positive net present value (NPV) projects is as important as providing incentives for managers to shut down negative NPV projects (Guay and Verrecchia, 2006).

Hence, the accounting information under fair value accounting could be more reflective of an executive's effort than that under historical cost accounting, even though fair value accounting is less conservative. Bandyopadhyay et al. (2010) provide empirical evidence that increasing accounting conservatism over the past 30 years in the U.S. has contributed to the decline in earnings usefulness, due to its divergent effects on the possibility of using current earnings to predict (1) future cash flows and (2) future earnings. More timely recognition of gains and losses could be helpful in reducing the degree of underestimation in firm value, in mitigating the estimation errors from conservatism and in verifying a manager's effort more accurately. Such recognition could in turn increase the use of accounting performance in determining executive compensation.

Considering the effects of IFRS adoption arising from the changes in earnings management and accounting conservatism, and considering the ways these factors influence the use of accounting performance in executive compensation, we now raise the first empirical question about the effect of mandatory IFRS adoption on executive compensation.

<sup>5</sup> Although evidence suggests an overall improvement in accounting conservatism due to voluntary IFRS adoption in European countries (Lang et al., 2003; Barth et al., 2008), recent studies have provided some evidence indicating a reduction in timely loss recognition due to mandatory IFRS adoption in European countries (Sánchez et al., 2009; Chen et al., 2010; Gebhardt and Novotny-Farkas, 2010).

**Question 1.** Does mandatory IFRS adoption affect the accounting-based performance sensitivity of executive compensation?

It is widely accepted that cross-country institutional factors significantly contribute to the economic consequences of IFRS adoption (Chen et al., 2010; Jeanjean and Stolowy, 2008; Daske et al., 2008; Armstrong et al., 2010). These institutional factors include legal enforcement, government regimes, business environments and regulation implementation. Ball (2006) mentions that “there inevitably will be substantial differences among countries in implementation of IFRS, which now risk being concealed by a veneer of uniformity. The notion that uniform standards alone will produce uniform financial reporting seems naive.”

As a large and emerging market, China has great variations in institutional quality compared with other regions, due to its complicated history and policy reasons. Such an uneven institutional development across regions of China allows us to examine the effects of institutions on IFRS implementation within a single country. For example, better investor protection and a stronger legal environment may increase the supply and demand for high quality financial reports. Well-established, market-oriented rules that are associated with better corporate governance practices tend to alleviate expropriation-related transactions and tunneling activities. Also, the development of private business tends to avert severe political burdens and to increase management orientation toward value maximization. We can sense intuitively that a better institutional environment makes performance statistics more important for the compensation and valuation assessment of executives.

If the mandatory IFRS adoption in China increases the accounting-based performance sensitivity of executive compensation, then we predict that such an effect differs across regions with different levels of institutional quality. In particular, the effect of mandatory IFRS adoption on accounting-based performance sensitivity should be greater in areas with higher marketization than in areas with lower marketization. We make use of the marketization index (*MIndex*) provided by Fan et al. (2007) to capture this effect. The *MIndex* is a comprehensive index that proxies for the institutional quality of each province in China. Higher values of this index indicate a better institutional environment.<sup>6</sup> The *MIndex* has been widely accepted as a measure of institutional heterogeneity in China by researchers such as Wang et al. (2009), Jiang et al. (2010) and He et al. (2012). Therefore, our second research question is as follows:

**Question 2.** Does the effect of mandatory IFRS adoption on accounting-based performance sensitivity differ across regions with different levels of institutional quality?

If IFRS adoption has any effect on accounting-based performance sensitivity, then we can sense intuitively that the degree of this effect will vary for different firms. In other words, firms themselves react differently to the adoption of IFRS due to the heterogeneous properties of their investments, operations or management. After the adoption of IFRS, there might be great changes in some firms’ accounting information, but only small changes in other firms’ information. Normally, it is difficult to measure such cross-firm differences in the effects of IFRS, because we do not have two sets of accounting information for the same fiscal year (with one set prepared under IFRS and another under local GAAP). However, the China Securities Regulatory Commission (CSRC) required all listed firms to disclose their adjustments in financial information based on IFRS for fiscal 2006. Therefore, for 2006, the year immediately prior to the mandatory adoption of IFRS, each firm did prepare one set of financial reports based on Chinese GAAP and another based on IFRS. The changes in the way each firm reports accounting information directly indicate the influence of IFRS on that firm. As such an influence reflects the internal characteristics of the firm and is external to the implementation of IFRS, we predict that such changes are consistent in the years following IFRS adoption. For each firm, we can measure the influence of IFRS by comparing the net income under Chinese GAAP and under IFRS in 2006.

<sup>6</sup> The index covers many institutional aspects, including (1) the relationship between government and market, such as the role of the market in allocating resources and a firm’s policy burden in addition to taxes; (2) development of non-state businesses in terms of the ratio of industrial output by the private sector to total industrial output; (3) development of product markets in terms of the scale of regional trade barriers; (4) development of factor markets captured by foreign direct investment and labor mobility; and (5) development of market intermediaries and the legal environment. Some specific aspects of the index also imply the variance of labor markets across regions in China, such as the levels of labor mobility.



If accounting-based performance sensitivity is affected by the mandatory adoption of IFRS, we predict that such an effect should be greater for the firms more affected by IFRS, as measured by the IFRS adjustments in 2006. Hence, our third research question is as follows:

**Question 3.** Does the effect of mandatory IFRS adoption on accounting-based performance sensitivity vary across firms that are affected differently by the adoption?

Questions 2 and 3 are based on the prediction of Question 1, and they should provide further evidence of a firm's use of its own accounting performance in executive compensation.

### 3. Research design

#### 3.1. Sample

Our primary sample consists of A-share companies listed on the Shanghai or Shenzhen stock exchanges from 2004 to 2009, excluding companies in the financial industry. For each firm-year observation, we collect information on executive compensation and corporate governance from the CCER database developed by Sinofin Financial Information Service, and information on financial accounting from the Wind database. Excluding special treatment (ST) companies and observations for which we do not have the data to calculate changes in executive compensation or other variables required in our regressions, we are left with 6787 firm-year observations. Panel A of Table 1 presents the sample selection process.

In Table 1, Panel B reports the sample distribution by year and by industry. The sample is distributed quite evenly across the six years from 2004 to 2009. The sample covers 12 industries based on CSRC's industry classification. The majority of our sample belongs to the manufacturing sector, which constitutes about 59% of firms in our sample. Only 44 observations for the communication and cultural industry are available, constituting about 0.65% of our sample. This industry distribution is quite similar to the population of listed companies in China.

Table 1  
Sample selection process and sample distribution.

Process				No. of observations	
<i>Panel A: Sample selection process</i>					
A-share companies, excluding those in the financial industry				8917	
Excluding special treatment (ST) companies				8122	
Excluding observations with no data available for calculating changes in executive compensation				7139	
Excluding observations with no data available on financial accounting, stock exchange or corporate governance				6787	
Year	Observations	Percentage (%)	Industry	Observations	Percentage (%)
<i>Panel B: Sample distribution by year and by industry</i>					
2004	971	14.3	Agriculture, Forestry, Livestock Farming, Fishery	167	2.5
2005	1117	16.5	Mining	122	1.8
2006	1099	16.2	Manufacturing	3972	58.5
2007	1012	14.9	Utilities	320	4.7
2008	1271	18.7	Construction	160	2.4
2009	1317	19.4	Transportation	291	4.3
Total	6787	100	Information Technology	397	5.8
			Wholesale and Retail Trade	448	6.6
			Real Estate	308	4.5
			Social Services	221	3.3
			Communication and Cultural Industry	44	0.6
			Comprehensive	337	5.0
			Total	6787	100

The sample consists of 6787 identifiable firm-year observations for A-share companies in China from 2004 to 2009, for which data are available in the databases. Panel A presents the sample selection process. Panel B presents the sample distribution by year and by industry. The number of observations and the corresponding percentages are given.

### 3.2. Methodology

We apply an OLS change model to analyze the influence of IFRS adoption on executive compensation.<sup>7</sup> Specifically, the regression model to examine accounting-based performance sensitivity can be stated as follows:

$$\Delta ExeComp_{it}(\Delta DirComp_{it}) = \alpha_0 + \alpha_1 IFRS + \alpha_2 \Delta ROA_{it} + \alpha_3 IFRS * \Delta ROA_{it} + \sum \beta_j Control_j + \varepsilon_{it} \quad (1)$$

The coefficient of interest is  $\alpha_3$ , which captures the change in the accounting-based performance sensitivity of executive compensation from the pre- to post-IFRS adoption periods.<sup>8</sup> To rule out the possible influence of outliers, we winsorize the top and bottom five percentiles for each continuous variable in all regression models.

As IFRS adoption affects all Chinese A-share firms, it is not possible to apply a “difference-in-difference” design to distinguish the pure effects of IFRS adoption from those of other general changes during the sample period. Hence, we provide an association analysis rather than a causality test. Even though such analysis is inherently a data problem and is used in many studies on the effects of IFRS on company behavior, we have tried many additional subsample analyses, which mitigate the concern that our findings are driven by contemporaneous changes.<sup>9</sup>

### 3.3. Variables

#### 3.3.1. Executive compensation, accounting performance and IFRS adoption

We apply an OLS change model to estimate the effect of mandatory IFRS adoption on executive compensation. Considering that many directors are actually executives in China and to be consistent with previous domestic research (Fang, 2009; Tan and Xin, 2009), we choose two alternative measures of executive compensation—the combined compensation of the top three executives ( $\Delta ExeComp$ ), and the combined compensation of the top three directors ( $\Delta DirComp$ ). We take logarithms to measure compensation, so that  $\Delta ExeComp$  ( $\Delta DirComp$ ) is the logarithm of the combined compensation of the top three executives (directors) in year  $t$ , minus the logarithm of the combined compensation of the top three executives (directors) in year  $t - 1$ . Accounting performance is measured by the change in ROA from the previous year ( $\Delta ROA$ ). We use an indicator variable, *IFRS*, to indicate whether IFRS is mandatorily adopted. This variable takes the value 1 for the post-IFRS adoption 2007–2009 period, and 0 for the pre-IFRS adoption 2004–2006 period. Hence, in our primary regression model, the dependent variable is  $\Delta ExeComp$  or  $\Delta DirComp$ , and the independent variables include  $\Delta ROA$ , *IFRS* and the interaction term *IFRS* \*  $\Delta ROA$ .

<sup>7</sup> Compared with the level model, the change model can better mitigate the influence of missing factors and self-selection concerns. Furthermore, as there are some differences in the influence of IFRS adoption on total assets and net income, the levels of accounting performance (ROA) from the pre- to post-IFRS adoption periods lack comparability. These differences should increase the estimation noise in the level model. The change model can mitigate such noise by using the two sets of financial information for 2006 based on Chinese GAAP and IFRS. Specifically, the change in ROA for 2006 is calculated as ROA in 2006 based on Chinese GAAP minus ROA in 2005 based on Chinese GAAP. Similarly, the change in ROA for 2007 is calculated as ROA in 2007 based on IFRS minus ROA in 2006 based on IFRS.

<sup>8</sup> Previous studies by Groves et al. (1995) and Mengistae and Xu (2004) have already provided some evidence that in China executive compensation and retention practices are shaped by accounting outcomes. To alleviate doubt that accounting performance is considered when deciding executive compensation in China, we further collect by hand the compensation contracts voluntarily disclosed by listed firms from the Shanghai Stock Exchange ([www.sse.com.cn](http://www.sse.com.cn)), the Shenzhen Stock Exchange ([www.szse.cn](http://www.szse.cn)) and the Wind database, among other sources. We obtain a total of 109 compensation contracts corresponding to 104 firms (about 6.5% of all listed companies) during the 2004–2009 period. By thoroughly investigating these 109 compensation contracts, we find that all of them take accounting earnings as a criterion for executive compensation. Some of them use additional accounting information such as sales growth or asset turnover. Yearly distribution and logistics analyses suggest that after the mandatory IFRS adoption, the number of disclosed compensation contracts has significantly increased. As for the compensation structure, most of these contracts (100 out of 109) are combinations of cash and bonus, and only 9 contracts include equity incentives that consist of cash, bonus and equity.

<sup>9</sup> For example, the subsample analysis based on IFRS adjustments (Table 5) suggests that the effects of IFRS adoption on pay-performance sensitivity are stronger among firms that are most likely to be affected by IFRS. Also, the examination of B- and H-share companies (Table 7) provides some evidence on the causality between IFRS adoption and executive compensation.

### 3.3.2. Control variables

To be consistent with prior research on executive compensation (Leone et al., 2006) and to take China's unique situation into account (Firth et al., 2006; Fang, 2009; Tan and Xin, 2009), we further control for firm and corporate governance characteristics.

- (1) *Firm characteristics.* We include nine variables to control for firm characteristics. Specifically, we include lagged year  $\Delta ROA$  ( $\Delta ROA\_1$ ) to control for previous accounting performance, market-adjusted stock return (*Return*) to control for market performance, the interaction term of *IFRS* and *Return* ( $IFRS * Return$ ) to control for changes in the sensitivity of executive compensation to a firm's market performance from the pre- to post-IFRS adoption periods, total assets (*Assets*) to control for firm size, the ratio of total debt to total assets (*Leverage*) to control for overall financial risk, the growth rate of sales (*Growth*) to control for growth opportunities, stock return volatility (*Volatility*) to control for risks associated with stocks, and other indicators showing whether a firm exhibits a loss in a year (*Loss*) and whether a firm is a SOE (*SOE*).
- (2) *Corporate governance.* It is widely suggested that the form of corporate governance has an influence on executive compensation. To account for this influence, we include the size of the board of directors (*BoardSize*) and the ratio of independent directors on the board of directors (*IndDir*) to control for board independence. We also include several variables indicating whether a firm has experienced a CEO turnover (*CEOTurnover*) or a board chairman turnover (*ChairTurnover*) in the given year, and whether a CEO is also the chairman of the board (*Duality*).

### 3.4. Summary statistics

Table 2 presents the summary statistics for all variables, including quartiles, means, standard deviations and the numbers of observations. As indicated,  $\Delta ExeComp$  and  $\Delta DirComp$  exhibit similar trends during

Table 2  
Summary statistics.

Variable	Obs.	Mean	Std.	0.25	0.50	0.75
$\Delta ExeComp$	6787	0.138	0.337	-0.030	0.090	0.307
$\Delta DirComp$	6787	0.116	0.402	-0.064	0.072	0.320
$\Delta ROA$	6787	-0.006	0.044	-0.020	-0.002	0.010
<i>Firm characteristics</i>						
$\Delta ROA\_1$	6787	-0.006	0.040	-0.019	-0.002	0.009
<i>Return</i>	6787	0.034	0.540	-0.245	-0.023	0.222
<i>Assets</i>	6787	21.496	0.959	20.782	21.417	22.135
<i>Leverage</i>	6787	0.504	0.175	0.375	0.514	0.634
<i>Growth</i>	6787	0.163	0.291	-0.013	0.136	0.311
<i>Volatility</i>	6787	0.147	0.053	0.104	0.139	0.183
<i>Loss</i>	6787	0.119	0.324	0	0	0
<i>SOE</i>	6787	0.663	0.473	0	1	1
<i>Corporate governance</i>						
<i>BoardSize</i>	6787	2.219	0.183	2.1972	2.197	2.398
<i>IndDir</i>	6787	0.354	0.038	0.333	0.333	0.364
<i>CEOTurnover</i>	6787	0.174	0.379	0	0	0
<i>ChairTurnover</i>	6787	0.170	0.376	0	0	0
<i>Duality</i>	6787	0.101	0.301	0	0	0

This table presents statistics on 6787 observations for A-share companies in China from 2004 to 2009 for which data are available in the databases, excluding those in the financial industry and ST firms. The number of observations, means, standard deviations and quartiles are reported.  $\Delta ExeComp$  ( $\Delta DirComp$ ) is defined as the change in the logarithm of the top three executives' (directors') combined compensation from the previous year.  $\Delta ROA$  is the change in ROA from the previous year. Variables representing firm characteristics include  $\Delta ROA\_1$ , *Assets*, *Leverage*, *Growth*, *Return*, *Volatility*, *Loss* and *SOE*. Corporate governance variables include *BoardSize*, *IndDir*, *CEOTurnover*, *ChairTurnover* and *Duality*.

the sample period. The mean of  $\Delta ExeComp$  ( $\Delta DirComp$ ) is 0.138 (0.116) with a standard deviation of 0.337 (0.402). On average, there is a 13.8% increase in the combined compensation of a firm's top three executives and an 11.6% increase in the combined compensation of a firm's top three directors over the previous year's compensation levels. The difference between the 0.75 quartile and the 0.25 quartile of  $\Delta ExeComp$  ( $\Delta DirComp$ ) is 0.337 (0.384). The means (medians) of  $\Delta ROA$  and  $\Delta ROA_I$  are  $-0.0061$  ( $-0.0016$ ) and  $-0.0060$  ( $-0.0024$ ), respectively, which suggest that the accounting performance of the sample firms decreased slightly during the 2004–2009 sample period.

Concerning the control variables, Table 2 shows that about 12% of the sample firms experienced a loss, 66% were SOEs, 17% (17%) experienced CEO (chairman of the board) turnover, and the CEOs of 10.1% of the sample firms were also the chairmen of the board. As reported in the table, the mean (median) of stock return (*Return*), assets (*Assets*), leverage ratio (*Leverage*), sales growth rate (*Growth*) and stock return volatility (*Volatility*) is 0.034 ( $-0.023$ ), 21.496 (21.417), 0.504 (0.514), 0.163 (0.136) and 0.147 (0.139), respectively. One third of the directors on the boards are independent, with very slight differences in the variable *IndDir*.

In general, the means and medians of the dependent, control and test variables are similar, and the standard deviations are within an acceptable range, which suggests that the distributions of these variables are not very skewed.

Unreported Pearson correlations among all of the variables show that neither the correlations among the control variables nor those between the test and control variables are strong. These correlations suggest that our regression model does not suffer from serious multicollinearity. Also, there is a positive correlation between  $\Delta ExeComp$  (or  $\Delta DirComp$ ) and  $\Delta ROA$ , which hints at the use of the firms' own accounting performance in their executive compensation contracts.

## 4. Empirical results and analysis

### 4.1. Accounting-based performance sensitivity in executive compensation

In this section, we investigate the effect of mandatory IFRS adoption on accounting-based performance sensitivity. Table 3 reports the OLS regression results of equation (1). All *t*-statistics (in parentheses) are adjusted for heteroskedasticity (White, 1980) and clustered by firm (Petersen, 2009) to account for time series correlations. We first relate  $\Delta ExeComp$  to  $\Delta ROA$ , *IFRS*,  $IFRS * \Delta ROA$ ,  $\Delta ROA_I$ , *Return* and  $IFRS * Return$  without controlling for other variables in Model 1. We then add all of the other control variables in Model 2. As shown, the coefficient of  $\Delta ROA$  is positive at a significance level of less than 1%, which suggests that accounting-based performance sensitivity is positive in the pre-IFRS adoption period. This finding is consistent with prior studies by Du and Wang (2007) and Fang (2009). We further find a positive and significant coefficient on the interaction term  $IFRS * \Delta ROA$ . Specifically, the results in Model 2 suggest that accounting-based performance sensitivity increases after IFRS adoption. In economic terms, a one standard deviation increase in  $\Delta ROA$  is associated with a 2.91% increase in the growth rate of the top three executives' combined compensation in the pre-IFRS adoption period. For the post-IFRS adoption period, a one standard deviation increase in  $\Delta ROA$  is associated with 5.21% increase in the growth rate of the top three executives' combined compensation.<sup>10</sup> We find similar results from Models 3–4, taking  $\Delta DirComp$  as the dependent variable. In particular, the growth rate of combined compensation for the top three directors that is associated with a one standard deviation increase in  $\Delta ROA$  improves from 2.76% in the pre-IFRS adoption period to 5.28% in the post-IFRS adoption period.

As expected, we find that a change in executive compensation ( $\Delta ExeComp$  or  $\Delta DirComp$ ) is positively associated with a lagged change in accounting performance ( $\Delta ROA_I$ ). That is, the higher the previous year's ROA improvement, the higher the rate of growth of executive or director compensation. The coefficient of stock return (*Return*) is very small in all models. When all control variables are included, the variable *Return* is only significant in Model 2, where  $\Delta ExeComp$  is the dependent variable, and *Return* is insignificant in Model

<sup>10</sup> The economic magnitudes are calculated as  $\exp(0.652 * 0.044) - 1 = 2.91\%$ ,  $\exp((0.652 + 0.502) * 0.044) - 1 = 5.21\%$ .

Table 3  
Analysis of accounting-based performance sensitivity in executive compensation.

Variable	1		2		3		4	
	Coeff.	t-Value	Coeff.	t-Value	Coeff.	t-Value	Coeff.	t-Value
Constant	0.147***	10.82	0.054	0.57	0.133***	7.90	0.228**	1.98
$\Delta ROA$	1.081***	6.86	0.652***	3.64	0.998***	5.21	0.619***	2.88
IFRS	0.016**	2.00	0.003	0.36	0.007	0.73	-0.004	-0.33
IFRS * $\Delta ROA$	0.389*	1.87	0.502**	2.40	0.472*	1.84	0.552**	2.15
<i>Firm characteristics</i>								
$\Delta ROA\_1$	1.008***	8.96	0.803***	6.88	1.032***	7.50	0.854***	6.11
Return	0.048***	3.62	0.030**	2.26	0.039**	2.44	0.018	1.11
IFRS * Return	-0.044***	-2.67	-0.031*	-1.91	-0.038**	-1.99	-0.026	-1.37
Assets			0.000	0.09			-0.017***	-3.42
Leverage			-0.050**	-2.28			-0.018	-0.71
Growth			0.086***	5.42			0.092***	4.97
Volatility			0.327***	3.46			0.457***	4.02
Loss			-0.041***	-2.72			-0.037**	-2.02
SOE			0.015**	2.09			-0.007	-0.86
<i>Corporate governance</i>								
BoardSize			0.027	1.35			0.136***	5.36
IndDir			0.018	0.18			-0.244**	-2.07
CEOTurnover			-0.071***	-6.63				
ChairTurnover							-0.055***	-3.90
Duality			0.025**	2.19			0.011	0.87
Industry fixed effects	Present		Present		Present		Present	
Observations	6787		6787		6787		6787	
R-squared	0.041		0.057		0.027		0.042	

The sample consists of 6787 observations for A-share companies in China from 2004 to 2009 for which data are available in the databases, excluding those in the financial industry and ST firms. The table presents OLS regression results based on equation (1). The dependent variable of Models 1–2 (3–4) is  $\Delta ExeComp$  ( $\Delta DirComp$ ), which is measured by the change in the logarithm of the top three executives' (directors') combined compensation from the previous year. The explanatory variables include the change in ROA from the previous year ( $\Delta ROA$ ), the IFRS adoption indicator (*IFRS*), and their interaction term (*IFRS* \*  $\Delta ROA$ ). Control variables include factors describing firm characteristics and corporate governance. Industry fixed effects are also included in all regressions (not reported). The *t*-values, adjusted for heteroskedasticity (White, 1980) and clustered by firm (Petersen, 2009), are given in parentheses.

\* Significance level at 10%.

\*\* Significance level at 5%.

\*\*\* Significance level at 1%.

4, where  $\Delta DirComp$  is the dependent variable.<sup>11</sup> This finding suggests that executives in China are paid much less for market performance than for accounting performance, which is consistent with the limited role of stock returns in executive compensation, as documented by Firth et al. (2006) and Du and Wang (2007). The coefficient of the interaction term (*IFRS* \* *Return*) is negative in Models 1–4. In Model 2, the coefficient is just shy of the 10% significance level. In Model 4, which includes all control variables, the coefficient is insignificant. The evidence suggests that after mandatory IFRS adoption there is even some reduction in the sensitivity of executive compensation to stock returns. If the increase in accounting-based performance sensitivity after IFRS adoption is due to a general trend of increasing efficiency in compensation contracts (instead of due to the IFRS adoption itself) we should see a similar increase in the sensitivity of executive compensation to stock returns. Accordingly, the negative coefficient of *IFRS* \* *Return* ensures the reliability of our findings. The coefficient of *IFRS* \* *Return* is also consistent with our expectation. On the one hand, IFRS adoption, as an accounting standard-based rule, is believed to have more direct influence on accounting performance

<sup>11</sup> In the 109 compensation contracts that we hand-collected, only 1 uses stock price as its reference criterion in addition to accounting earnings. The study by Wu and Wu (2010) also suggests that only 2 out of 82 equity incentive programs take stock price as the assessment indicator.

than on stock returns. On the other hand, stock performance in China moved away from firm fundamentals under the extremely volatile market environment during 2006–2008, so it makes sense to reduce the weight of stock returns in executive compensation.

As shown in Models 2 and 4, the sales growth rate (*Growth*) and stock return volatility (*Volatility*) are positively associated with executive compensation. The higher the sales growth rate and the greater the stock return risk, the higher the growth rate of executive or director compensation. There is a negative relationship between the change in executive compensation ( $\Delta ExeComp$  or  $\Delta DirComp$ ) and the loss-making firm indicator (*Loss*) or the CEO or chairman turnover indicator (*CEOTurnover* or *ChairTurnover*), which suggests a smaller increase in executive compensation for a firm experiencing a loss or an executive turnover in that year.

Firm size (*Assets*) is significantly negatively related to changes in the combined compensation of the top three directors, but *Assets* is insignificantly associated with changes in the combined compensation of the top three executives. SOEs generally see more increases in the top three executives' combined compensation than non-SOEs, but they show almost no corresponding change in the top three directors' combined compensation. The coefficients of board size (*BoardSize*) and board independence (*IndDir*) are significant only in Model 4, where  $\Delta DirComp$  is the dependent variable. When the CEO of a firm is also the chairman of the board, there is a significant increase in the top three executives' combined compensation, but no significant change in the top three directors' combined compensation.

In summary, our analysis on accounting-based performance sensitivity following the mandatory IFRS adoption in 2007 indicates that executives are increasingly being paid based on accounting performance. That is, accounting performance has become a more powerful predictor of executive compensation since the adoption.

#### 4.2. Subsample analysis based on cross-region institutional quality

In this subsection, we test whether IFRS adoption has different effects across regions of China in terms of the sensitivity of executive compensation to accounting-based performance. We measure differences in institutional quality by the level of marketization by partitioning our full sample into two subsamples, based on the marketization index (*MIndex*) of the region where a firm is registered as of 2006. Specifically, we calculate the median of *MIndex*, pooling all firms by region, and place firms with an *MIndex* less than or equal to the median in the *Low MIndex Sample*, and firms with an *MIndex* greater than the median in the *High MIndex Sample*.

Table 4 reports the subsample regression results using the *Low MIndex Sample* and the *High MIndex Sample*, based on Eq. (1). All of the control variables in Table 4 are included. As shown, the coefficient of  $IFRS * \Delta ROA$  has statistical significance only in the *High MIndex Sample*, which suggests that the increase in accounting-based performance sensitivity in the post-IFRS adoption period (compared to the pre-IFRS adoption period) occurs only in regions with higher institutional quality. This result is consistent with our expectation that high institutional quality increases the enforcement quality of IFRS. Hence, the influence of IFRS on the use of accounting-based performance in executive compensation is highest in regions with higher institutional quality. The coefficients of the control variables are quite similar to those in Table 3.

#### 4.3. Subsample analysis based on the influence of IFRS across firms

To analyze whether the effect of IFRS adoption on accounting-based performance sensitivity in executive compensation varies across firms that are affected to different degrees by the adoption itself, we make use of the IFRS adjustments in 2006. We define the variable *IFRS\_Adjustment* as the ratio of the absolute value of the difference between the net income based on IFRS and that based on Chinese GAAP in 2006 to the net income based on Chinese GAAP in 2006. Then we split the whole sample into two subsamples, with one subsample being the *Small IFRS\_Adjustment Sample* for firms with an *IFRS\_Adjustment* less than the industry median, and the other being the *Big IFRS\_Adjustment Sample* for firms with an *IFRS\_Adjustment* greater than the industry median. Table 5 reports the regression results using the *Small IFRS\_Adjustment Sample* and the *Big IFRS\_Adjustment Sample*, based on equation (1). As shown, the coefficient of  $IFRS * \Delta ROA$  is only significantly positive in the *High IFRS\_Adjustment Sample*, which suggests that the increase in accounting-based

Table 4  
Subsample regression results based on marketization.

Variable	1		2		3		4	
	Low MIndex sample		High MIndex sample		Low MIndex sample		High MIndex sample	
	Coeff.	t-Value	Coeff.	t-Value	Coeff.	t-Value	Coeff.	t-Value
Constant	-0.079	-0.57	0.155	1.17	0.077	0.46	0.357**	2.20
$\Delta ROA$	0.695***	2.94	0.565**	2.06	0.698**	2.49	0.479	1.42
IFRS	-0.002	-0.12	0.011	0.82	-0.016	-0.99	0.010	0.65
IFRS * $\Delta ROA$	0.373	1.33	0.678**	2.14	0.393	1.16	0.744*	1.87
<i>Firm characteristics</i>								
$\Delta ROA\_1$	0.747***	4.52	0.859***	5.21	0.869***	4.40	0.814***	4.14
Return	0.009	0.43	0.051***	3.00	-0.019	-0.79	0.056***	2.63
IFRS * Return	-0.010	-0.43	-0.053**	-2.37	0.005	0.17	-0.058**	-2.15
Assets	0.005	0.88	-0.002	-0.30	-0.011*	-1.67	-0.020***	-2.76
Leverage	-0.041	-1.26	-0.074**	-2.45	-0.036	-0.99	-0.011	-0.28
Growth	0.117***	5.08	0.053**	2.40	0.127***	4.74	0.058**	2.23
Volatility	0.309**	2.29	0.340**	2.55	0.642***	3.88	0.251	1.60
Loss	-0.048**	-2.30	-0.035	-1.56	-0.041	-1.61	-0.033	-1.15
SOE	0.015	1.48	0.011	1.13	-0.012	-0.93	-0.001	-0.08
<i>Corporate governance</i>								
BoardSize	0.019	0.70	0.035	1.20	0.116***	3.25	0.151***	4.19
IndDir	0.127	0.88	-0.140	-1.00	-0.163	-0.99	-0.390**	-2.26
CEOTurnover	-0.068***	-4.60	-0.078***	-4.95				
ChairTurnover					-0.054***	-2.78	-0.057***	-2.83
Duality	0.044**	2.51	0.010	0.66	0.015	0.77	0.009	0.54
Industry fixed effects	Present		Present		Present		Present	
Observations	3542		3245		3542		3245	
R-squared	0.064		0.054		0.053		0.038	

The whole sample is partitioned into two subsamples based on the marketization index (*MIndex*) provided by Fan et al. (2007). The firms registered in a province that has *MIndex* less than the median are placed in the *Low MIndex Sample*, and the firms registered in a province that has *MIndex* greater than the median are placed in the *High MIndex Sample*. The dependent variable of Models 1–2 (3–4) is  $\Delta ExeComp$  ( $\Delta DirComp$ ), which is measured by the change in the logarithm of the top three executives' (directors') combined compensation from the previous year. The explanatory variables include the change in ROA from the previous year ( $\Delta ROA$ ), the IFRS adoption indicator (*IFRS*), and their interaction term (*IFRS* \*  $\Delta ROA$ ). Control variables include factors describing firm characteristics and corporate governance. Industry fixed effects are also included in all regressions (not reported). The *t*-values, adjusted for heteroskedasticity (White, 1980) and clustered by firm (Petersen, 2009), are given in parentheses.

\* Significance level at 10%.

\*\* Significance level at 5%.

\*\*\* Significance level at 1%.

performance sensitivity in the post-IFRS adoption period (compared to the pre-IFRS adoption period) occurs only in firms that are more affected by the adoption. Again, the results for the control variables are very similar to those in Table 3.

## 5. Additional analysis

As argued in Section 2.3, the increase in earnings management and decrease in accounting conservatism after IFRS adoption should have opposite effects on the accounting-based performance sensitivity of executive compensation. We predict that the positive effect of IFRS adoption suggested in the prior section is driven by the reduction in accounting conservatism that is associated with IFRS adoption. In this section, we provide additional evidence for this prediction by conducting subsample analyses based on some key indicators. Table 6 presents the results from using Eq. (1).

First, we consider a fair value-related accounting item, namely income from changes in fair value. As mentioned earlier, the essential characteristic of mandatory IFRS adoption in China is the change from historical

Table 5  
Subsample regression results based on IFRS adjustments.

Variable	1		2		3		4	
	Small IFRS_Adjustment sample		Big IFRS_Adjustment sample		Small IFRS_Adjustment sample		Big IFRS_Adjustment sample	
	Coeff.	t-Value	Coeff.	t-Value	Coeff.	t-Value	Coeff.	t-Value
Constant	0.185	1.30	-0.177	-1.33	0.482***	2.88	-0.124	-0.75
$\Delta$ ROA	1.021***	3.32	0.402*	1.83	0.559	1.51	0.698***	2.63
IFRS	0.004	0.28	0.003	0.23	-0.001	-0.07	-0.007	-0.42
IFRS * $\Delta$ ROA	0.294	0.84	0.664**	2.47	0.672	1.57	0.633*	1.92
<i>Firm characteristics</i>								
$\Delta$ ROA_1	0.867***	4.98	0.741***	4.34	0.973***	4.50	0.833***	4.15
Return	0.023	1.22	0.026	1.33	0.011	0.46	0.020	0.84
IFRS * Return	-0.031	-1.30	-0.023	-0.95	-0.031	-1.10	-0.024	-0.89
Assets	-0.014**	-2.47	0.018***	3.20	-0.037***	-5.31	0.006	0.86
Leverage	-0.044	-1.30	-0.037	-1.23	0.027	0.70	-0.013	-0.37
Growth	0.114***	4.78	0.052**	2.40	0.132***	4.75	0.049*	1.89
Volatility	0.176	1.19	0.476***	3.65	0.357**	2.13	0.566***	3.46
Loss	-0.044*	-1.71	-0.045**	-2.26	-0.079**	-2.51	-0.012	-0.48
SOE	0.009	0.95	0.027**	2.53	0.000	0.04	-0.006	-0.48
<i>Corporate governance</i>								
BoardSize	3.36	-0.032	-1.14	0.181***	4.77	0.080**	2.37	0.094***
IndDir	1.08	-0.094	-0.66	-0.017	-0.10	-0.312*	-1.86	0.160
CEOTurnover	-3.51	-0.086***	-5.61					-0.055***
ChairTurnover				-0.029	-1.35	-0.079***	-4.14	
Duality	2.13	0.018	1.09	0.010	0.56	0.007	0.34	0.037**
Industry fixed effects	Present		Present		Present		Present	
Observations	3246		3283		3246		3283	
R-squared	0.087		0.060		0.053		0.043	

The whole sample is partitioned into two subsamples based on *IFRS\_Adjustment*, which is measured by the absolute value of the difference between the net income based on IFRS and that based on Chinese GAAP, divided by the net income based on Chinese GAAP in 2006. The firms with *IFRS\_Adjustment* less than the industry median are placed in the *Small IFRS\_Adjustment* sample, and the firms with *IFRS\_Adjustment* greater than the industry median are placed in the *Big IFRS\_Adjustment Sample*. The dependent variable of Models 1–2 (3–4) is  $\Delta$ ExeComp ( $\Delta$ DirComp), which is measured by the change in the logarithm of the top three executives' (directors') combined compensation from the previous year. The explanatory variables include the change in ROA from the previous year ( $\Delta$ ROA), the IFRS adoption indicator (*IFRS*), and their interaction term (*IFRS* \*  $\Delta$ ROA). Control variables include factors describing firm characteristics and corporate governance. Industry fixed effects are also included in all regressions (not reported). The *t*-values, adjusted for heteroskedasticity (White, 1980) and clustering by firm (Petersen, 2009), are given in parentheses.

\* Significance level at 10%.

\*\* Significance level at 5%.

\*\*\* Significance level at 1%.



cost basis to fair value basis. The import of fair value is expected to be closely associated with the change in earnings management and accounting conservatism after IFRS adoption. Since IFRS adoption, firms are required to report income from changes in fair value. We classify the whole sample into two subsamples, with one subsample being the *Fair Value Sample* (for firms with non-zero income from changes in fair value during the post-IFRS adoption period), and the other being the *Non-Fair Value Sample* (for firms with zero income from changes in fair value during the same period). If our primary results are driven by the reduction in accounting conservatism associated with IFRS adoption, the influence of accounting conservatism should be greater for the *Fair Value Sample* than for the *Non-Fair Value Sample*. As shown in Panel A of Table 6, the coefficient of  $IFRS * \Delta ROA$  is only significantly positive in the *Fair Value Sample*, which is consistent with our expectation.

We also consider a direct accounting conservatism-related indicator, the C-Score, based on the Khan and Watts (2009) model (*CSCORE*). We first calculate *CSCORE\_Change* for each firm as the average value of *CSCORE* during the post-IFRS adoption 2007–2009 period, minus the average value of *CSCORE* during the pre-IFRS adoption 2004–2006 period. Then we place those firms with a negative *CSCORE\_Change* in the *CSCORE\_Decreasing Sample*, and those firms with a non-negative *CSCORE\_Change* in the *CSCORE\_Increasing Sample*. If our primary results are driven by the reduction in accounting conservatism that is associated with IFRS adoption, then the influence of accounting conservatism should be greater for the *CSCORE\_Decreasing Sample* than for the *CSCORE\_Increasing Sample*. As shown in Panel B of Table 6, the coefficient of  $IFRS * \Delta ROA$  is only significantly positive in the *CSCORE\_Decreasing Sample*, which is consistent with our argument. All of the results in Table 6 support our argument that the positive effects of IFRS adoption on the use of accounting performance in executive compensation are largely determined by the reduction in accounting conservatism associated with IFRS adoption.

## 6. Robustness tests

In this section, we conduct a series of robustness tests to check the reliability of our results. For brevity, we only report the results of the tests that were designed to rule out the influence of the non-tradable share reform on changes in the top three executives' combined compensation ( $\Delta ExeComp$ ) as shown in Table 7. All of the other regression results are qualitatively the same as previous results. The regression results are available on request.

### 6.1. Influence of the non-tradable share reform

Our sample period of 2004–2009 largely overlaps with another milestone event for the Chinese stock market, namely, the non-tradable share reform, which started in 2005 and was almost finished by 2008. This reform aimed to unlock non-tradable shares, allowing them to be freely traded in exchange markets. Prior studies have provided empirical evidence that the non-tradable share reform played a role in corporate governance and stock market valuation.

In this section, we conduct three robustness tests to control for the possible influence of the non-tradable share reform on our findings. First, we include a dummy variable indicating whether the plan of the non-tradable share reform was approved by the holders of tradable shares in the given year (*Reform*), and an interaction term ( $Reform * \Delta ROA$ ) to control for the effect of the non-tradable share reform on accounting-based performance sensitivity. Models 1 and 2 in Table 7 suggest that the coefficient of  $Reform * \Delta ROA$  is insignificant. Also, we still find a significant positive coefficient of  $IFRS * \Delta ROA$ . For the second robustness test, we re-run all our regressions in the pre-IFRS adoption period of 2004–2006. We exclude *IFRS* and the interaction term  $IFRS * \Delta ROA$ , but include *Reform* and the interaction term  $Reform * \Delta ROA$ . As suggested by Model 3 in Table 7, the coefficient of  $Reform * \Delta ROA$  is completely insignificant, which indicates that the non-tradable share reform had no significant effect on accounting-based performance sensitivity even before the IFRS adoption. Lastly, we re-run all of our regressions using a subsample of firms issuing B- or H-shares, which had already adopted IFRS before 2007. If the non-tradable share reform played a role in accounting-based performance sensitivity, we should see an even stronger association between executive compensation and accounting performance in the post-reform period compared to the pre-reform period. As shown by Model

Table 6  
Additional subsample analysis.

Variable	1		2		3		4	
	Fair value sample		Non-fair value sample		Fair value sample		Non-fair value sample	
	Coeff.	t-Value	Coeff.	t-Value	Coeff.	t-Value	Coeff.	t-Value
<i>Panel A. Subsample regression results based on the income from changes in fair value</i>								
Constant	0.079	0.55	0.033	0.26	0.278*	1.76	0.203	1.22
$\Delta ROA$	0.300	1.05	0.849***	3.71	0.602*	1.84	0.629**	2.23
IFRS	0.013	0.86	-0.003	-0.28	0.011	0.60	-0.012	-0.86
IFRS * $\Delta ROA$	0.907***	2.65	0.282	1.06	0.825**	2.11	0.378	1.13
Other controls	Present		Present		Present		Present	
Industry fixed effects	Present		Present		Present		Present	
Observations	2603		4184		2603		4184	
R-squared	0.054		0.062		0.053		0.041	
	1		2		3		4	
	CSCORE-Decreasing sample		CSCORE-Increasing sample		CSCORE-Decreasing sample		CSCORE-Increasing sample	
	Coeff.	t-Value	Coeff.	t-Value	Coeff.	t-Value	Coeff.	t-Value
<i>Panel B. Subsample regression results based on CSCORE_Change</i>								
Constant	-0.196	-1.58	0.234	1.33	-0.074	-0.50	0.464**	2.28
$\Delta ROA$	0.821***	3.63	0.975**	2.54	0.760***	2.83	0.931**	2.05
IFRS	-0.000	-0.01	-0.005	-0.26	-0.011	-0.80	-0.006	-0.26
IFRS * $\Delta ROA$	0.466*	1.75	0.425	0.93	0.686**	2.10	0.422	0.78
Other controls	Present		Present		Present		Present	
Industry fixed effects	Present		Present		Present		Present	
Observations	4490		1687		4490		1687	
R-squared	0.064		0.053		0.045		0.046	

The whole sample is partitioned into two subsamples based on the income from changes in fair value, and *CSCORE\_Change* in Panels A and B, respectively. The firms with non-zero income from changes in fair value during the post-IFRS adoption 2007–2009 period are placed in the *Fair Value Sample*, and the firms with zero income from changes in fair value during the same period are placed in the *Non-Fair Value Sample*. The firms with a negative *CSCORE\_Change* are placed in the *CSCORE-Decreasing Sample*, and the firms with a non-negative *CSCORE\_Change* are placed in the *CSCORE-Increasing Sample*. The dependent variable of Models 1–2 (3–4) in each panel is  $\Delta ExeComp$  ( $\Delta DirComp$ ), which is measured by the change in the logarithm of the top three executives' (directors') combined compensation from the previous year. The explanatory variables include the change in ROA from the previous year ( $\Delta ROA$ ), the IFRS adoption indicator (*IFRS*), and their interaction term (*IFRS* \*  $\Delta ROA$ ). In all models, we further control for variables describing firm characteristics and corporate governance (not reported). Industry fixed effects are also included in all regressions (not reported). The *t*-values, adjusted for heteroskedasticity (White, 1980) and clustered by firm (Petersen, 2009), are given in parentheses.

\* Significance level at 10%.

\*\* Significance level at 5%.

\*\*\* Significance level at 1%.

Table 7  
Robustness tests.

Variable	1		2		3		4		5	
	Coeff.	t-Value	Coeff.	t-Value	Coeff.	t-Value	Coeff.	t-Value	Coeff.	t-Value
Constant	0.029	0.30	0.029	0.30	-0.131	-0.81	0.048	0.17	-0.008	-0.03
$\Delta ROA$	0.724***	3.98	0.762***	3.83	0.763***	3.27	0.997**	2.04	0.960*	1.67
IFRS	0.013	1.23	0.013	1.24					-0.037	-1.04
IFRS * $\Delta ROA$	0.462**	2.21	0.538**	2.13					0.578	0.88
Reform	-0.026***	-2.65	-0.027***	-2.69	-0.024*	-1.73	-0.036	-1.18		
Reform * $\Delta ROA$			-0.128	-0.50	-0.184	-0.52	0.570	0.83		
Other Controls	Present		Present		Present		Present		Present	
Industry fixed effects	Present		Present		Present		Present		Present	
Observations	6787		6787		3187		564		564	
R-squared	0.057		0.057		0.050		0.101		0.101	

The sample used in Models 1–2 consists of 6787 observations for A-share companies in China from 2004 to 2009 for which data are available in the databases, excluding those in the financial industry and ST firms. Observations excluding those in the post-IFRS adoption period are used in Model 3. In Models 4 and 5, we only include the firms issuing additional B- or H-shares. The dependent variable is  $\Delta ExeComp$ , which is measured by the change in the logarithm of the top three executives' combined compensation from the previous year. In all models, we further control for variables describing firm characteristics and corporate governance (not reported). Industry fixed effects are also included in all regressions (not reported). The *t*-values, adjusted for heteroskedasticity (White, 1980) and clustered by firm (Petersen, 2009), are given in parentheses.

\* Significance level at 10%.

\*\* Significance level at 5%.

\*\*\* Significance level at 1%.

4 in Table 7, the coefficient of the interaction term *Reform* \*  $\Delta ROA$  is not statistically significant, which suggests that our results are not driven by the influence of the non-tradable share reform. Model 5 indicates that the coefficient of *IFRS* \*  $\Delta ROA$  is insignificant for B- and H-share companies, as these companies are not likely to be influenced by IFRS adoption. The results for B- and H-share companies make our findings more convincing and provide informative evidence concerning the causality between IFRS adoption and executive compensation.

## 6.2. Other robustness checks

We also conduct several other robustness tests.

First, we conduct a similar analysis using an alternative measure of executive compensation, namely CEO compensation, and two alternative measures of accounting performance, namely return on equity (ROE) and return on sales (ROS). The results are similar to those from prior estimations.

Second, we test another alternative explanation of our findings, the learning effect. If the learning effect is a factor in previous results, then the increase in accounting-based performance sensitivity would be simply the effect of time trends. To rule out this explanation, we expand the sample to 2002, and limit our analysis to the pre-IFRS adoption 2002–2006 period. We set a variable, *Post*, to indicate the time trend, which takes the value 1 for 2005–2006, and 0 otherwise. Then we re-run all our regressions, taking *Post*,  $\Delta ROA$  and the interaction term *Post* \*  $\Delta ROA$  as explanatory variables. The coefficient of the interaction term *Post* \*  $\Delta ROA$  shows no significance, which suggests that our main findings are not due to the learning effect. If we set the variable *Post* to 1 during 2004–2006, and 0 otherwise, we obtain very similar findings.

Third, to consider the possible influence of the recent financial crisis, we re-run all our regressions using a subsample excluding 2008, which is the year when the influence of the financial crisis was most serious in China. As the influence of this business cycle could be generally reflected by industry trends, we also try to remove the influence of the recent crisis using the alternative measure of the change in industry-adjusted ROA. Our findings remain unaltered. Also, we include each year's GDP growth rate as an additional controlling factor of the macroeconomic conditions in all of the regressions. We find results very similar to the previous results.

Fourth, to avoid the effects of noise at the firm-year level, we conduct another test at the industry level. We identify IFRS influence in each industry as the median value of the firms' *IFRS\_Adjustment* within the industry. Untabulated results suggest that the relative increase in accounting-based performance sensitivity in the post-IFRS adoption period occurs only in industries with IFRS influence greater than the median, which is quite consistent with Table 5.

Finally, we re-run all our regressions after winsorizing the top and bottom 1%, 2.5%, 7.5% and 10% for each continuous variable. The results are still highly significant at winsorization levels of 2.5%, 7.5% and 10%, and close to being significant at the 1% winsorization level.

## 7. Conclusion

As a principle-based standard, IFRS, and in particular fair value accounting, brings challenges to less-developed emerging markets. Since IFRS adoption in China, managers' incentives to make use of discretion and respond to the more symmetric reflection of both good news and bad news have given rise to an increase in earnings management and a decrease in accounting conservatism. Increased earnings management polishes accounting performance, which makes managers' effort more opaque to investors and boards, and reduces the weight of accounting performance in executive compensation. However, decreasing accounting conservatism makes accounting earnings more natural and timely, recognizing both good news and bad news, which can improve internal evaluation based on accounting performance. This study provides evidence on these joint effects of IFRS adoption concerning the sensitivity of executive compensation to accounting performance.

Using a sample of 6787 firm-year observations for A-share firms in China from 2004 to 2009, we find strong evidence supporting the positive effects of IFRS adoption on accounting-based performance sensitivity, after controlling for firm and corporate governance characteristics. Furthermore, based on subsample analysis, we find that the positive effects of IFRS adoption on the accounting-based performance sensitivity of executive compensation occur only in regions with higher institutional quality (as measured by the level of marketization) and in firms that are more affected by the adoption (as measured by IFRS adjustments in 2006). Through subsample analyses based on income from changes in fair value and on changes in C-Score, we find that the positive effect of IFRS adoption on the accounting-based performance sensitivity of executive compensation is significant only for firms with non-zero income from changes in fair value during the post-IFRS adoption period and for firms with negative changes in C-Score after IFRS adoption. These findings support our argument that in China, the positive effect of IFRS adoption on the use of accounting performance in executive compensation is driven by the reduction in accounting conservatism associated with IFRS adoption.

This study enriches our understanding of how mandatory adoption of IFRS affects executive compensation in emerging markets. The findings have policy implications, especially in terms of internal contract benefits. We provide a thorough examination of the factors influencing the effects of IFRS adoption within a single country, China, which is generally missing in EU-based studies.

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