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An exploratory study of earnings management detectability, analyst coverage and the impact of IFRS adoption: Evidence from China

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A B S T R A C T

Analysts serving as external monitors to managers is a topic of considerable interest in the analyst coverage literature. There are two outcomes of analyst coverage studies: curbing and stimulating earnings management. However, recent studies (such as Yu, 2008) only provide evidence supporting the curbing side. Given the fact that the data of these studies focus on developed markets and the finding of Rodríguez-Pérez and Hemmen (2010) that external governance mechanisms may stimulate earnings management in an opaque information environment, we conjecture whether stimulating side would be dominant in emerging markets. China offers a valuable setting for us to test the question. Using the data of China capital market from 2003 to 2009, we find that analyst coverage stimulates earnings management through above-the-line items (ALIs) where earnings management cannot be easily detected, and curbs earnings management through below-the-line items (BLIs) where earnings management can be easily detected. We also find that the adoption of International Financial Reporting Standards (IFRS) in China does create many new opportunities for managers' earnings management but does not significantly improve the monitoring effect of analyst coverage. We only find that compared to those without analyst coverage, firms with

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analyst coverage have a lower level of earnings management through BLIs after IFRS adoption. These findings suggest that information opacity may weaken the monitoring effect of external corporate governance mechanisms and high quality accounting standards in the literal sense may not enhance the monitoring effect of external corporate governance mechanisms if it is not compatible with the market's institutional environment. In addition, we find that firms with earnings meeting the benchmark have a lower level of earnings management, which indicates that bright-line accounting based rules used in emerging capital markets may constrain the managers' behavior.

1. Introduction

Existing research (such as Yu, 2008) on the effects of analyst coverage on earnings management (EM) with accruals argues that there are two possible effects: monitoring effect (i.e., curbing earnings management) and pressure effect (i.e., stimulating earnings management). Because analysts *per se* function as one of the external corporate governance mechanisms (Jensen and Meckling, 1976; Healy and Palepu, 2001; Lang et al., 2004; Yu, 2008), analyst coverage is intended to scrutinize firm behavior and discipline the earnings management behavior of managers. Numerous studies have shown that analyst coverage has achieved their intended objective of curbing earnings management (Degeorge et al., 2005; Knyazeva, 2007; Yu, 2008; Sun, 2009).

Nevertheless, through covering firms, analysts usually release earnings forecast reports, which may set a target for managers and create excessive pressure on managers. To achieve the target, managers may try to meet or beat analysts' forecast consensus through earnings management (Degeorge et al., 1999; Degeorge et al., 2005; Yu, 2008). Furthermore, there are many other factors such as the situation of analysts themselves under pressure (Yu, 2008), or the opaque information environment (Rodríguez-Pérez and Hemmen, 2010) that may affect analysts' role in governance. However, to the best of our knowledge, few studies have documented empirical evidences for the pressure effect, i.e., unintended consequences of analyst coverage. As Rodríguez-Pérez and Hemmen (2010) find that external governance mechanisms may stimulate earnings management in an opaque information environment, would pressure effect of analyst coverage be dominant in opaque information environments?

The above literature on analyst coverage in American capital market is all based on the perception that analysts typically focus on the persistent component of earnings, e.g. 'pro forma' earnings that exclude nonrecurring items or special items (Philbrick and Ricks 1991), thus the research on earning management is primarily concerned with above-the-line items (i.e., accruals, hereafter ALIs). [3]The effect analyst coverage has on the earnings management through below-the-line items (BLIs) remains unknown. In fact, besides using accruals to manage reported earnings, management also use BLIs (Chen and Yuan, 2004; Haw et al., 2005) or classification shifting (McVay, 2006) to manage earnings. Because BLIs have been shown to be highly transparent and excessive amounts of non-operating income are usually viewed as clear signs of earnings management (Chen and Yuan, 2004), earnings management through BLIs (BLIEM) is easier to detect and thus may result in management reputation damage or penalties.

Obviously, while forecasting earnings if analysts focus on BLIs and serve as one of external governance mechanisms, they could curb earnings management through BLIs or constrain the management behavior of classification shifting and therefore indirectly curb earnings management through ALIs. Then, could analysts focusing on BLIs as expected play a role in curbing earnings management through BLIs?

[3] This does not mean that analysts do not care about ALIs. Gu and Chen (2004) argue that activities such as mergers and acquisitions, major restructuring and asset sales, and pending lawsuits are meaningful for analysts to adjust the reported numbers.

China's capital market offers an ideal setting for examining the above question for the following reasons. First, China has become the world's largest emerging market and its total market value of the Shanghai Stock Exchange (SSE) and the Shenzhen Stock Exchange (SZE) ranks second in the world. China has become the exemplar of developing countries and is playing an increasingly active and significant role in the global economy. Second, China is still a developing country and its institutional development across regions is uneven. Yet despite recent institutional and regulatory improvements (e.g., IFRS adoption, the use of IAAS auditing standards, the presence of independent directors and limits on insider trading activity), China's capital market continues to suffer from opaque information environments, low quality financial information and weak investor protection (Piotroski and Wong, 2011). Under such circumstances, it seems that managers have an incentive to engage in relatively complicated strategies of earnings management in order to avoid the scrutinization of analyst coverage. Since earnings management through above-the-line items tends to increase informational ambiguity and heighten agency costs (Aerts and Cheng, 2011), we argue that detecting such earnings management is much harder. Therefore, managers in China have a greater motivation to engage in earnings management through ALIs (ALIEM), when they are in the presence of more external disciplinary actions. Third, different from American analysts, who focus on pro forma earnings that exclude nonrecurring items or special items, Chinese analysts focus on bottom line earnings that include nonrecurring items or extraordinary items. The standard sources of analyst forecasts used in China accounting research is China Stock Market & Accounting Research Database (CSMAR), in which both analysts' forecasts earnings and actual EPS focus on bottom line earnings, i.e., net income. Because Chinese analysts focus also on below-the-line items, it is possible for analyst coverage to affect firms' earning management through BLIs.

Prior research (such as Hunton et al., 2006) indicates that greater transparency in reporting requirements facilitates the detection of earnings management, and companies or managers will be punished for earnings management if earnings management is easier to detect (Lundholm,1999). Since China has adopted IFRS, which is expected to increase reporting transparency and improve the quality of financial reporting, would IFRS adoption facilitate analysts detecting earnings management and thus decrease the degree of earnings management? This is an empirical question.

Using a sample of Chinese A-share listed firms in the old Chinese Accounting Standards (CAS) years of 2003 to 2006 and the new CAS years of 2007 to 2009, we find that analyst coverage has a pressure effect on earnings management through ALIs, and a monitoring effect on earnings management through BLIs. Although China adopted IFRS with the intent of providing a high degree of transparency to firms' financial statements, our evidences show that the adoption of IFRS overall did not facilitate analyst coverage to lower the level of EM. The reason for this may be that the use of fair value creates many new opportunities for managers to engage in EM (He et al., 2011). Our findings indicate that readily detectable attributes of earnings management may be a key factor for external governance mechanisms such as analyst coverage to play an active role in governance. Since there is a self-selection problem with analyst coverage, we employ two stage least squares (2SLS) regression model and a treatment-effects (Maddala, 1983) two-stage regression model.

This study makes several contributions to the literature. First, it extends Yu's (2008) study by providing empirical evidence for the pressure effect of analyst coverage. Our evidence shows that in an environment of information opacity and weak investor protection, analyst coverage could trigger more extensive earnings management through those not-easily-detectable items such as ALIs, while analyst coverage could curb earnings management through those items with clear signs of earnings management such as BLIs. This may imply that in an opaque information environment, the detectability of earnings management could play an important role in the monitoring effect of analyst coverage. Second, our paper provides evidences on the influence of China's IFRS adoption. The evidences show that IFRS does create many new opportunities for Chinese managers to manage earnings, but may not significantly improve the monitoring effect of analyst coverage on EM through ALIs. This may indicate that the adoption of technologically advanced accounting rules (e.g., IFRS) could not instantly improve the monitoring effect of external mechanisms (e.g., analysts) as expected, since this kind of rules is not compatible with the institutional environment in emerging capital markets. Finally, our study provides some insights into the consequences of meeting earnings benchmark. We find that firms that meet earnings benchmark have a lower level of earnings management than those that do not, which

may show that bright-line accounting based rules may constrain the managers' behavior in emerging markets, and it is a sensible alternative for regulators to use those rules.

The remainder of this paper is organized as follows: Section 2 presents a brief description of the influence of analyst coverage, China's IFRS adoption and its impact on earnings management as well as research questions proposed. Section 3 discusses the research design. Section 4 shows the descriptive statistics, the results of the multiple regressions and the results of sensitivity testing. Finally, Section 5 concludes with implications.

2. Background and research questions

2.1. The influence of analyst coverage on earnings management

Analysts are viewed as one of the external corporate governance mechanisms (Jensen and Meckling, 1976; Healy and Palepu, 2001; Lang et al., 2004; Yu, 2008), and their engagement in private information production helps them to detect managers' misbehavior (Healy and Palepu, 2001) and reduce the agency costs (Jensen and Meckling, 1976). Their activities of continuously scrutinizing managers' behavior and financial statements reporting make them an effective monitor against earnings management. Therefore, the higher the level of analyst coverage, the less earnings management managers would perform. Several studies (Degeorge et al., 2005; Yu, 2008; Sun, 2009) give evidence supporting this assertion, and hypothesize it as the monitoring effect of analyst coverage.

On the other hand, greater analyst coverage usually creates excessive pressure on managers to manage earnings (Yu, 2008). Therefore, with higher analyst coverage, more earnings management managers may make. Yu (2008) hypothesizes this behavior as the pressure effect of analyst coverage. [4]However, as far as we are concerned, little direct evidence has been documented regarding the pressure effect, and existing studies have mainly focused on developed capital markets in which analysts are more skillful and have stronger influence (Khanna and Palepu, 2000; Jegadeesh and Kim, 2006). Moreover, in such an environment, although firms do earnings management to meet or beat analyst forecasts, the level is not much higher than that not meeting the benchmark (Burgstahler and Eames, 2006). Furthermore, after the passage of the Sarbanes–Oxley Act of 2002, the emphasis on earnings management to meet or beat analyst forecasts declined (Koh et al., 2008). Thus, when analyst coverage increases, wider scrutinization reduces the managers' inclination to engage in earnings management.[5] This may raise questions about what effect analyst coverage would exert on managers' earnings management in a developing market. As a result, China is a valuable empirical setting to test these questions.

Although the questionnaire results of Hu et al. (2008) show that the Chinese analysts society is still a fledgling profession, many studies (Lin, 2000; Wu and Xue, 2005; Zhu et al., 2007; Chu and Cang, 2008; Cang et al., 2011) find that Chinese analysts do promote rational investment philosophies, thus to promote China's market efficiency. As a result, we expect that Chinese analysts can play an active role in the capital market.

2.2. China's IFRS adoption and its impact on earnings management

In 2006, China harmonized its accounting standards with IFRS, [6]and the new Chinese accounting standards cover almost all topics under IFRS literature. For simplicity, we refer to this change as IFRS adoption. Under the spirit of IFRS, firms are required to provide more informative accounting disclosures and fair value measurements. Thus, the adoption of IFRS would be expected to lead to lower earnings management (Leuz, 2003). However, to the best of our knowledge, a large number of studies (Ball

[4] In addition to the pressure effect hypothesis, consensus fixed effect hypothesis (Degeorge et al., 2005) and winning the expectations game (Mande and Son, 2012) are another valuable explanations for this assertion. In order to meet or beat the target earnings set by analysts, managers are apt to undertake earnings management, because meeting or beating analyst forecasts usually enjoys a higher stock return (Bartov et al., 2002). However, the latter two hypotheses lay emphasis on the influence of earnings forecast rather than the coverage activities.

[5] In such a situation, downward expectation management may be a wise alternative (Koh et al., 2008).

[6] The new rules applied to listed companies began on January 1, 2007.

et al., 2003; Tendeloo and Vanstraelen, 2005; Jeanjean and Stolowy, 2008; Paananen and Lin 2009; He et al., 2011) present evidences that IFRS adoption plays a limited role in lowering earnings management, and may even stimulate earnings management. These authors argue that firms' reporting incentives, firm-specific characteristics and institutional background may account for this unintended consequence.

Nonetheless, IFRS adoption in China is expected to improve reporting transparency, and greater transparency leads to greater detection of earnings management, thus reducing its expected value and then managers' earnings management attempts (Hirst and Hopkins, 1998; Hunton et al., 2006). Therefore, we expect IFRS adoption to play a positive role in the effect of analyst coverage on earnings management.

2.3. Research questions

Yu (2008) studies three possibilities of the effect on earnings management exerted by analyst coverage: monitoring effect, pressure effect and no effect. Yu's analysis can be further viewed as the issue of what effect is dominant, and she finds that in the American market analysts played a positive role of monitoring. Similar results can be found in some other literature (Degeorge et al., 2005; Knyazeva, 2007; Sun, 2009). However, there is little direct evidence for the pressure effect. The study of Degeorge et al. (2005), Rodríguez-Pérez and Hemmen (2010) and Leuz et al. (2003) may offer some hints.

Degeorge et al. (2005) find that the more transparent the country is, the greater the reduction in earnings management activity associated with analyst coverage, and in opaque countries analysts coverage does not act as a curb on total earnings management. Rodríguez-Pérez and Hemmen (2010) find that external governance mechanisms might stimulate earnings management in an opaque information environment. Leuz et al. (2003) argue that in a circumstance of weak investor protection, as outsiders can only take disciplinary actions against insiders if outsiders detect the private benefits, insiders have an incentive to manipulate accounting reports in order to conceal their diversion activities. Therefore, one important research question is: would pressure effect be dominant in China capital market, since it faces an opaque information environment and weak investor protection? Sun (2009) finds that earnings management is more negatively associated with analyst coverage in weak investor protection countries than in strong investor protection countries. Although he asserts that his findings suggest a substitute relationship for monitoring between analyst coverage and investor protection, it actually begs the question that it may be possible that monitoring effect of analyst coverage will be dominant in China. Then, of the two effects, namely monitoring effect and pressure effect, which will be dominant in China's capital market, is an empirical research question.

However, prior research shows that Chinese firms manage reporting earnings not only with ALIs but also with BLIs. By definition, ALIs reflect the outcome of normal business activities and their accounting information is multi-layered, while BLIs reflect the outcome of abnormal business activities and their accounting information is single-layered. Therefore, BLIs have been shown to be more transparent than ALIs. Greater transparency in reporting position of statements enhances the ability of analysts to detect earnings management, and thus reduces its expected benefits (Fields et al., 2001; Hunton et al., 2006). Therefore, managers would have few incentives to engage in opportunistic earnings management. Accordingly, we conjecture that the effect analyst coverage on BLIEM may differ from that on ALIEM. In view of above, we put forward the following two research questions.

Research Question 1: In a relatively opaque information environment, which effect will be dominant in Chinese capital market, monitoring effect or pressure effect?
Research Question 2: In the China's capital market, is there a difference between the effects of analyst coverage on earnings management through above-the-line items versus the effect of analyst coverage on earnings management through below-the-line items?

China adopted IFRS in 2006, and the primary objective of IFRS adoption is to improve the reporting quality and comparability of financial reporting internationally and thus is expected to facilitate the detection of earnings management. However, a potential limitation of IFRS adoption is the interaction between the objective of accounting standards change and the use of accounting information in private contracting and legal arrangements (Brüggemann et al., 2013). When IFRS adoption is

incompatible with institutional environments (such as a higher-quality audit profession, more effective courts system, and better shareholder litigation rules), the risks and costs of the contracting parties will increase (Ball, 2006).

Institutional development across regions in China are uneven, and Chinese securities regulators use many bright-line accounting based rules, making Chinese accounting system play more of a contracting role than an information role (Piotroski and Wong, 2011; He et al., 2011). Moreover, listed firms in China are characterized as highly concentrated ownership structures and state-owned or state-related enterprises. Highly concentrated ownership structures are related to lower disclosure levels (Hossain et al., 1994; Hope, 2002), while state-owned or state-related enterprises are related to businesses transactions often carried out within social and political networks. What's more, some China's local governments are even engaged in assisting firms' earnings management (Chen et al., 2008). Therefore, it remains untested whether the expected benefit of IFRS to facilitate detection of earnings management has been achieved in China. Our third research question is put forward as follows.

Research Question 3: Under an institutional setting like China, would IFRS adoption facilitate the detection of earnings management by analyst coverage and thus decrease managers' earnings management?

3. Research design

3.1. Sample selection and data sources

China has two major stock exchange markets: Shanghai Stock Exchange (SSE) and Shenzhen Stock Exchange (SZE). We use A-share non-financial insurance listed companies in SSE and SZE during the years of 2003 to 2009 as our study samples. The data are from the China Stock Market & Accounting Research Database (CSMAR) and Wind Information Database (WIND). After removing the samples with missing data and debt ratio larger than 100%, we obtain 7951 listed companies' pooled samples.

3.2. Measurement of EM

3.2.1. Measurement of ALIEM

For the measurement of earnings management through ALIs, we employ a modified version of the Jones model (Yu, 2008), which estimates discretionary accruals from cross-sectional regressions of total accruals on changes in sales and on property, plant, and equipment (PPE) within industries by each year.

3.2.2. Measure of BLIEM

Following Chen and Yuan (2004), we use industry-median-adjusted BLIs to proxy for earnings management through BLIs, where BLIs is the profit before tax minus operating profits scaled by lagged assets. [7]We denote it as $BLIEM_{adj}$ and use the absolute values to measure the degree of BLIEM.

3.3. Measurement of analyst coverage

Following Yu (2008), we estimate analyst coverage by residual coverage regression:

Analyst Coverage = firm size + past performance + growth + external financing activities + cash flow volatilities + year dummies

where Analyst Coverage (LnAnal) is the number of analysts who made earnings forecasts or recommendations in any given year. If analyst coverage of a given firm is not recorded in CSMAR, we set the number of analyst coverage to be zero. We measure LnAnal as the logarithm of the coverage number plus one. We use the residuals from the above regression as the proxy for analyst coverage. Firm size

[7] In 2007, China adopted IFRS, and since then the item of investment income has become an item of ALIs, while before 2007, this item was an item of BLIs. In order to maintain comparability, the item of investment income before or after 2007, we still treat as an item of BLIs.

Table 1
Regression with residual analyst coverage.

Variable	Intercept	LnMV	lagROA	Growth	Extf	Cashstd	Year
Par.	−11.24 (−53.82***)	0.58 (61.01***)	3.05 (23.58***)	0.33 (7.85***)	−0.31 (−4.68***)	−0.93 (−6.34***)	Control
	Adj. R^2 (%) = 59, N = 7951						

LnAnal is measured by the logarithm of the number of analyst coverage plus 1; LnMV is measured by logarithm of market value; LagROA is measured by lagged return on assets; Growth is measured by growth rate of assets; Extf is measured by net cash proceeds from equity and debt financing scaled by total assets; Cashstd is measured by standard deviations of cash flow of a given firm over three consecutive years scaled by lagged assets. T values are reported in parentheses.
* Statistical significance at the 10% level.
** Statistical significance at the 5% level.
*** Statistical significance at the 1% level.

(LnMV) is measured by logarithm of market value; past performance (LagROA) is measured by lagged return on assets; growth (Growth) is measured by growth rate of assets; external financing activity (Extf) is measured by net cash proceeds from equity and debt financing scaled by total assets; and Cash flow volatilities (Cashstd) are measured by standard deviations of cash flow of a given firm over three consecutive years scaled by lagged assets. Table 1 shows the results of the regression.

3.4. Models to test questions

3.4.1. OLS models for the effect on ALIEM by analyst coverage

Based on Yu's EM model, we test the effect of analyst coverage on ALIEM by adding control variables ROE_{dum}, IFRS and IFRS*$Analyst_{resi}$ within the following OLS regression.

$$\begin{aligned}|\text{ALIEM}| = {} & a_0 + a_1 * \text{Analyst}_{resi} + a_2 * \text{PB} + a_3 * \text{ROA} + a_4 * \text{Growth} + a_5 * \text{Cashstd} + a_6 \\ & * \text{Extf} + a_7 * \text{LnMV} + a_8 * \text{Inst} + a_9 * \text{ROE}_{dum} + a_{10} * \text{IFRS} + a_{11} * \text{IFRS} \\ & * \text{Analyst}_{resi} + \text{industry control} + \varepsilon_1 \end{aligned} \quad (1)$$

where $Analyst_{resi}$ is the residual value estimated by the residual coverage regression by Yu's (2008). Growth, Cashstd, Extf, LnMV are defined the same as those in the residual coverage regression. PB is price-to-book ratio. ROA is return on assets. Inst is the institutional ownership. ROE_{dum} is a dummy variable for earnings benchmark meeting. Since Chinese regulators maintain the ROE threshold requirement in determining the qualification of additional stocks issue, [8]Chinese firms are motivated to meet the minimum requirement besides avoiding loss. Therefore, if ROE falls into the interval (0%, 1%) or (6%, 7%) or (10%, 11%) , we view it as a clear sign of EM and set ROE_{dum} equal to 1, otherwise 0. IFRS is a dummy variable which takes the value of 1 if data are from the years after IFRS adoption, otherwise IFRS = 0. IFRS*$Analyst_{resi}$ is the interaction item between IFRS and $Analyst_{resi}$.

As institutional ownership is affected by analyst coverage (O'Brien and Bhushan, 1990), we run the following regression and use its residuals as the proxy for institutional ownership, denoted as Inst.

Institutional Ownership = Analyst Coverage + year dummies

Table 2 shows the results of the regression that generates residual institutional ownership.

In addition, to explore whether uncovered firms perform more earnings management than covered firms, we run the OLS regression using analyst coverage dummies as the explanatory variable. If the firm has no analyst coverage, we set $analyst_{dum}$ equal to 0, otherwise 1.

[8] *Notice about Doing Well in the Issuance of New Shares by Listed Companies (No. 43 [2001] of CSRC)* specifies: the weighted average yield rates of net asset for the latest 3 years shall not be lower than 6%; *Notice about the Relevant Conditions for the Additional Issuance of Securities by Listed Companies (No. 55 [2002] of CSRC),* specifies: the weighted average yield rates of net asset for the latest 3 years shall not be lower than 10%, and the yield rate of net asset for the latest year shall not be lower than 10%. *Order of the China Securities Regulatory Commission (No.30 [2006] of CSRC),* specifies: the weighted average yield rates of net asset for the latest 3 years shall not be lower than 6%. Comparing the net profit deducting non-regularity profit and loss with the pre-deduction net profit the lower one shall be the calculation basis of weighted average yield rates of net asset.

Table 2
Regression with residual institutional ownership.

Variable	Intercept	LnAnal	Year
Par.	0.161 (30.57***)	0.112 (61.08***)	Control
	Adj. R^2 (%) = 47.31, N = 7951		

LnAnal is measured by the logarithm of the number of analyst coverage plus 1; T values are reported in parentheses.
* Statistical significance at the 10% level.
** Statistical significance at the 5% level.
*** Statistical significance at the 1% level.

$$\begin{aligned}|\text{ALIEM}| = {} & b_0 + b_1 * \text{Analyst}_{\text{dum}} + b_2 * \text{PB} + b_3 * \text{ROA} + b_4 * \text{Growth} + b_5 * \text{Cashstd} \\ & + b_6 * \text{Extf} + b_7 * \text{LnMV} + b_8 * \text{Inst} + b_9 * \text{ROE}_{\text{dum}} + b_{10} * \text{IFRS} \\ & + b_{11} * \text{IFRS} * \text{Analyst}_{\text{dum}} + \text{industry control} + \varepsilon_2 \end{aligned} \tag{2}$$

3.4.2. OLS models for the effect on BLIEM by analyst coverage

Following the spirit of above models construction, we structure following models to test the effect on BLIEM by analyst coverage.

$$\begin{aligned}|\text{BLIEM}| = {} & c_0 + c_1 * \text{Analyst}_{\text{resi}} + c_2 * \text{PB} + c_3 * \text{ROA} + c_4 * \text{Growth} + c_5 * \text{Cashstd} \\ & + c_6 * \text{Extf} + c_7 * \text{LnMV} + c_8 * \text{Inst} + c_9 * \text{ROE}_{\text{dum}} + c_{10} * \text{IFRS} \\ & + c_{11} * \text{IFRS} * \text{Analyst}_{\text{resi}} + \text{industry control} + \varepsilon_3 \end{aligned} \tag{3}$$

$$\begin{aligned}|\text{BLIEM}| = {} & d_0 + d_1 * \text{Analyst}_{\text{dum}} + d_2 * \text{PB} + d_3 * \text{ROA} + d_4 * \text{Growth} + d_5 * \text{Cashstd} \\ & + d_6 * \text{Extf} + d_7 * \text{LnMV} + d_8 * \text{Inst} + d_9 * \text{ROE}_{\text{dum}} + d_{10} * \text{IFRS} \\ & + d_{11} * \text{IFRS} * \text{Analyst}_{\text{dum}} + \text{industry control} + \varepsilon_4 \end{aligned} \tag{4}$$

where BLIEM is earnings management through below-the-line items.

3.4.3. 2SLS models and treatment effects models

There is a self-selection problem with analyst coverage, so we may get biased estimates by the OLS regressions. We employ 2SLS and treatment-effects models to handle this problem. From a view of the existing literature (Bhushan, 1989; Chung and Jo, 1996; Irani and Karamanou, 2003; Lang et al., 2004; Yu, 2008), factors influencing analyst coverage could be isolated into two aspects: fundamental factors and technical factors. The former include EPS, total assets, firm size, earnings growth, earnings surprise, ownership, etc., and the later include stock return, stock return variation, price, trade volume, etc. As earnings management is related to these fundamental factors, we select the technical factors to construct the instrument variable (IV) for analyst coverage.

These factors include stock turnover (Stturnover), Outstanding stock market value (Lnval), Volatility of stock return (Retud) and Listing age (Lnage).We use weekly day's average share turnover to proxy for stock turnover, and use the logarithm of yearly week's average outstanding stock market value to generate Lnval. Stock return is measured by the average weekly stock return in a given year. Furthermore, we calculate the standard deviation of these weekly stock returns in a given year and use it as a proxy for volatility of stock return. Listing age is measured by the logarithm of the amount of research year minus IPO year plus one. We use the following model year by year to estimate the expected analyst coverage, and employ 2SLS regressions by using the expected value of analyst coverage as IV.

$$\begin{aligned}\text{LnAnal} = {} & k_0 + k_1 * \text{Stturnover} + k_2 * \text{Retud} + k_3 * \text{Lnval} + k_4 * \text{Lnage} + \varepsilon\text{Analyst}_{\text{exp}} \\ = {} & \frown k_0 + \frown k_1 * \text{Stturnover} + \frown k_2 * \text{Retud} = \text{Lnval} + \frown k_4 * \text{Lnage} \end{aligned}$$

Table 3
Annual distribution of analyst coverage.

Year	Analyst coverage			Obs.of all	Coverage rate (%)
	Mean	Median	N		
2003	2.22	2	288	842	34
2004	2.46	2	298	1020	29
2005	5.14	3	496	1080	46
2006	5.59	4	698	1163	60
2007	5.35	4	670	1169	57
2008	10.08	6	866	1275	68
2009	10.05	6	1271	1402	91
Total			4587	7951	58

For the method of treatment-effects model, we first estimate the IMR Lambda through running the following probit model year by year, and then take lambda into analyst coverage dummy models as a control variable to take the second-stage regression.

$$\text{Analyst}_{\text{dum}} = \varphi_0 + \varphi_1 * \text{Stturnover} + \varphi_2 * \text{Retud} + \varphi_3 * \text{Lnval} + \varphi_4 * \text{Lnage}$$

4. Descriptive statistics and regression results

4.1. Descriptive statistics of raw analyst coverage

Table 3 reports the annual distribution of the analyst coverage from year 2003 to 2009. Our research contains a pooled sample of 7951 firm-year observations, 4,587 of which with analyst coverage, taking up 58% of the total observations. The occupying ratios of analyst coverage are 34%, 29%, 46%, 60%, 57%, 68% and 91% respectively from year 2003 to 2009, showing an upward trend year by year. This trend indicates that Chinese analyst society is still at the fledging stage. [9]Therefore, it is interesting to explore whether this young society in an emerging market of China can serve as an external governance mechanism against managers' earnings management just as their peers in developed markets have performed.

4.2. Descriptive statistics of other main variables in time intervals

Panel A of Table 4 reports the descriptive statistics of other main variables in these two year- intervals. The mean (median) of |ALIEM| in old CAS is 0.061 (0.042) and less than that in new CAS, and the *Z*-test shows that this difference is statistically significant. As for $|\text{BLIEM}_{\text{adj}}|$, there is a similar result. These may indicate that IFRS adoption creates more opportunities for managers to conduct earnings management. The mean (median) of ROA in old CAS is 0.045 (0.046), which is significantly less than that of New CAS, but the results of OP show that there is no difference in operating profits between these two intervals. These may imply that the application of fair value oriented accounting may improve earnings on paper. As to other variables such as external finance, market value, cash flow volatility, *P*/*B* ratio and assets growth, there also seems to be greater changes after IFRS adoption. To avoid the impact of the extreme values on our study, we process the main variables with a two-sided 1% winsorized in the following analysis and multiple regressions.

Panel B of Table 4 shows correlations among the main variables. The Pearson correlation coefficient between |ALIEM| and $\text{Analyst}_{\text{resi}}$ is −0.11, which is not statistically significant, while the coefficient between $|\text{BLIEM}_{\text{adj}}|$ and $\text{Anal}_{\text{resi}}$ is −0.086 with statistical significance at the 1% level. This may indicate

[9] The Qualification Tests for Securities of China began in 1999 and Analysts Community in Securities Association of China was built in Beijing in July, 2000. The Code of Ethics for China Securities Analysts was passed in this conference and this code help to enhance the self-discipline in the analysts industry. Therefore, the analysts industry in China is very young if we use this event as a sign of the official existence of this industry in the capital markets in China.

Table 4
Descriptive and correlation statistics.

Variable	Old CAS				New CAS				Wilcoxon test
	Mean	Median	Std.	*N*	Mean	Median	Std.	N	
Panel A: Descriptive statistics between different intervals									
|ALIEM|	0.061	0.042	0.071	4105	0.081	0.048	0.172	3846	$z = 5.99^{***}$
$\|BLIEM_{adj}\|$	0.013	0.005	0.026	4105	0.021	0.008	0.055	3846	$z = 16.1^{***}$
ROA	0.045	0.046	0.073	4105	0.062	0.056	0.085	3846	$z = 10.69^{***}$
Extf	0.048	0.012	0.191	4105	0.113	0.017	0.597	3846	$z = 4.42^{***}$
LnMV	21.247	21.114	0.896	4105	22.104	21.973	1.085	3846	$z = 37.31^{***}$
Cashstd	0.057	0.041	0.057	4105	0.064	0.044	0.100	3846	$z = 2.39^{**}$
PB	2.590	2.012	12.493	4105	5.323	3.909	30.955	3846	$z = 38.39^{***}$
Growth	0.128	0.077	0.369	4105	0.250	0.102	1.375	3846	$z = 6.43^{***}$
OP	0.036	0.03	0.072	4105	0.041	0.029	0.103	3846	$Z = 0.02$
Revenue	0.764	0.587	0.712	4105	0.871	0.67	0.831	3846	$Z = 7.96^{***}$
Lnsize	21.368	21.29	0.965	4105	21.661	21.545	1.197	3846	$Z = 10.94^{***}$

	|ALIEM|	$\|BLIEM_{adj}\|$	$Analyst_{resi}$	ROA	LnMV	Cashstd	PB	Growth	Extf	Inst	ROE_{dum}
Panel B: Correlations among the main variables											
|ALIEM|	1	0.097^{***}	−0.011	-0.024^{**}	0.046^{***}	0.561^{***}	0.166^{***}	0.269^{***}	0.231^{***}	0.039^{***}	-0.044^{***}
$\|BLIEM_{adj}\|$	0.064^{***}	1	-0.086^{***}	-0.026^{**}	0.027^{**}	0.083^{***}	0.192^{***}	0.019^{*}	−0.005	0.004	-0.055^{***}
$Analyst_{resi}$	0.023^{**}	-0.075^{***}	1	0.081^{***}	0.000	0.000	-0.034^{***}	0.000	0.000	-0.151^{***}	−0.013
ROA	0.005	−0.008	0.143^{***}	1	0.433^{***}	0.068^{***}	0.063^{***}	0.332^{***}	0.134^{***}	0.148^{***}	−0.015
LnMV	0.016	0.057^{***}	0.022^{**}	0.458^{***}	1	0.014	0.257^{***}	0.303^{***}	0.196^{***}	0.125^{***}	-0.046^{***}
Cashstd	0.417^{***}	0.041^{***}	0.036^{***}	0.052^{***}	−0.014	1	0.151^{***}	0.260^{***}	0.187^{***}	0.035^{***}	-0.031^{***}
PB	0.154^{***}	0.204^{***}	0.034^{***}	0.227^{***}	0.387^{***}	0.156^{***}	1	0.050^{***}	0.001	0.11^{***}	-0.097^{***}
Growth	0.098^{***}	-0.092^{***}	0.088^{***}	0.430^{***}	0.334^{***}	0.103^{***}	0.099^{***}	1.000	0.791^{***}	0.078^{***}	-0.019^{*}
Extf	0.039^{***}	-0.091^{***}	0.057^{***}	0.132^{***}	0.165^{***}	0.001	-0.024^{**}	0.655^{***}	1	0.027^{**}	−0.005
Inst	0.027^{**}	0.016	-0.167^{***}	0.137^{***}	0.076^{***}	0.038^{***}	0.129^{***}	0.093^{***}	0.018	1	-0.033^{***}
ROE_{dum}	-0.039^{***}	-0.037^{***}	−0.017	-0.043^{***}	-0.035^{***}	-0.035^{***}	-0.092^{***}	−0.011	−0.001	-0.027^{**}	1

Values above/below the diagonal are the Pearson/Spearman correlation coefficients. ALIEM, earnings management through ALIs; $BLIEM_{adj}$, industry-median-adjusted BLIs; $Analyst_{resi}$, the residual values of analyst coverage estimated from Yu's (2008) residual model; ROA, return on assets; LnMV, the logarithm of market value; Cashstd, cash flow volatilities; PB, price-to-book ratio; Growth, growth rate of assets; Extf, external financing activities; Inst, institutional ownership; ROE_{dum}, dummy variable, ROE_{dum} = 1 if ROE falls into the interval (0%, 1%) or (6%, 7%) or (10%, 11%) , otherwise 0; OP, operating profit; Revenue, operating revenue; lnsize, the logarithm of total assets; T values are reported in parentheses.

* Statistical significance at the 10%, 5%, and 1% level.

** Statistical significance at the 10%, 5%, and 1% level.

*** Statistical significance at the 10%, 5%, and 1% level.

Table 5
Results of regression on analyst coverage and earnings management through ALIs.

Variable	OLS Par.	2SLS Par.	Variable	OLS Par.	Treatment Par.
Panel A: The number of analyst coverage			*Panel B: The dummy variable of analyst coverage*		
Intercept	0.01	0.033	Intercept	0.0211	0.026
	(0.67)	(1.38)		(1.18)	(1.29)
IV(Analyst$_{exp}$)		0.0037	Lambda		−0.0011
		(1.87*)			(−0.53)
Analyst$_{resi}$	0.0033		Analyst$_{dum}$	0.0041	0.0055
	(2.19**)			(2.1**)	(1.66*)
PB	0.0015	0.0016	PB	0.0015	0.0016
	(7.36***)	(7.43***)		(7.44***)	(7.42***)
ROA	−0.121	−0.1264	ROA	−0.123	−0.123
	(−11.08***)	(−10.81***)		(−11.2***)	(−11.21***)
Growth	0.0292	0.0294	Growth	0.0292	0.0294
	(7.89***)	(7.92***)		(7.88***)	(7.9***)
Cashstd	0.6327	0.6358	Cashstd	0.635	0.635
	(48.8***)	(49.07***)		(49.07***)	(49.06***)
Extf	0.0142	0.0141	Extf	0.0143	0.0143
	(2.48**)	(2.46**)		(2.5**)	(2.49**)
LnMV	0.0005	−0.0007	LnMV	−0.0001	−0.0003
	(0.59)	(−0.57)		(−0.08)	(−0.33)
Inst	0.0091	0.0083	Inst	0.0085	0.0081
	(2.1**)	(1.92*)		(1.96**)	(1.89*)
ROE$_{dum}$	−0.0035	−0.0033	ROE$_{dum}$	−0.0034	−0.0034
	(−2.07**)	(−1.96**)		(−2.05**)	(−2.04**)
IFRS	0.0051	0.0072	IFRS	0.007	0.0067
	(3.53***)	(3.31***)		(3.11***)	(2.95***)
IFRS*Analyst$_{resi}$	−0.0024		IFRS*Analyst$_{dum}$	−0.0035	−0.0036
	(−1.25)			(−1.28)	(−1.29)
IFRS*IV(Analyst$_{exp}$)		−0.0028			
		(−1.64)			
Industry	Control	Control	Industry	Control	Control
Adj. R^2 (%)	37.57	37.55	Adj. R^2 (%)	37.56	37.55
N	7951	7951	N	7951	7951

ALIEM, earnings management through ALIs; BLIEM$_{adj}$, industry-median-adjusted BLIs; IV(Analyst$_{exp}$), instrument variable of analyst coverage; Analyst$_{resi}$, the residual values of analyst coverage estimated from Yu's (2008) residual model; Lambda, inverse mills ratio; Analyst$_{dum}$, the dummy variable of analyst coverage; PB, price-to-book ratio; ROA, return on assets; Growth, growth rate of assets; Cashstd, cash flow volatilities; Extf, external financing activities; LnMV, the logarithm of market value; Inst, institutional ownership; ROE$_{dum}$, dummy variable, ROE$_{dum}$ = 1 if ROE falls into the interval (0%, 1%) or (6%, 7%) or (10%, 11%) , otherwise 0; IFRS, dummy variable, IFRS = 1 if data from years after IFRS adoption, otherwise 0.T values are reported in parentheses.

* Statistical significance at the 10% level.
** Statistical significance at the 5% level.
*** Statistical significance at the 1% level.

that more analyst coverage leads to less earnings management through BLIs. Comparing these two results may create a first impression that the impact of analyst coverage on EM through BLIs refers to monitoring, while the impact on EM through ALIs remains ambiguous. In order to investigate further the relation between analyst coverage and EM, we employ a multiple regression analysis.

4.3. Results and analysis of multiple regressions

4.3.1. Analyst coverage and EM through ALIs

Table 5 reports the multiple regression results between analyst coverage and firms' EM through ALIs. Panel A shows the results of the regression from |ALIEM| on the number of analyst coverage. The coefficient between Analyst$_{resi}$ and |ALIEM| is 0.0033 with statistical significance at the 5% level, suggesting that *ceteris paribus,* more analyst coverage leads to higher levels of EM through ALIs. Moreover, the results from 2SLS show that the coefficient between IV of analyst coverage and |ALIEM| is

0.0037 with statistical significance at the 10% level. These results indicate that analyst coverage has a pressure effect on the firms' earnings management through not easily detectable items such as above-the-line items.

The coefficient between |ALIEM| and the dummy variable IFRS is positive with statistical significance at the 1% level, suggesting that IFRS adoption creates more opportunities for managers to mange earnings. The coefficient of IFRS*$Analyst_{resi}$ is −0.0024, which is not statistically significant. This may indicate that IFRS cannot enhance the monitoring effect of analyst coverage against managers' earnings management through above-the-line items.

Panel B of Table 5 shows the results of the regression from |ALIEM| on the dummy variable of analyst coverage. The coefficient of the dummy variable of analyst coverage is 0.0041 with statistical significance at the 5% level from OLS regression, and is 0.0055 with statistical significance at the 10% level from treatment effects regression. These results demonstrate that firms with analyst coverage have more earnings management through above-the-line-items than those without analyst coverage.

Table 6
Results of regression on analyst coverage and earnings management through BLIs.

	$\lvert BLIEM_{adj}\rvert$			$\lvert BLIEM_{adj}\rvert$	
	OLS	2SLS		OLS	Treatment
Panel A: The number of analyst coverage			*Panel B: The dummy variable of analyst coverage*		
Intercept	0.018	−0.016	Intercept	0.006	0.0041
	(2.35**)	(−1.48)		(0.74)	(−0.46)
IV($Analyst_{exp}$)		−0.0053	Lambda		0.0023
		(−6.01***)			(2.59***)
$Analyst_{resi}$	−0.0001		$Analyst_{dum}$	−0.0025	−0.0056
	(−0.2)			(−2.79***)	(−3.73***)
PB	0.0012	0.0011	PB	0.0012	0.0011
	(12.9***)	(11.5***)		(12.51***)	(11.84***)
ROA	−0.0082	−0.0027	ROA	−0.0102	−0.01
	(−1.67*)	(−0.5)		(−2.05**)	(−2.01**)
Growth	0.0038	0.0042	Growth	0.0046	0.0042
	(2.28**)	(2.5**)		(2.72***)	(2.53**)
Cashstd	0.0235	0.022	Cashstd	0.0231	0.0231
	(4.02***)	(3.76***)		(3.94***)	(3.96***)
Extf	−0.0053	−0.0055	Extf	−0.0057	−0.0055
	(−2.07**)	(−2.12**)		(−2.18**)	(−2.13**)
LnMV	−0.0003	0.0014	LnMV	0.0003	0.0008
	(−0.86)	(2.74***)		(0.77)	(1.94*)
Inst	−0.0044	−0.0038	Inst	−0.0038	−0.0032
	(−2.27**)	(−1.9*)		(−1.97**)	(−1.65*)
ROE_{dum}	−0.0027	−0.0029	ROE_{dum}	−0.0026	−0.0026
	(−3.56***)	(−3.88***)		(−3.49***)	(−3.5***)
IFRS	0.0031	0.0016	IFRS	0.0058	0.0063
	(4.65***)	(1.63)		(5.72***)	(6.11***)
IFRS*$Analyst_{resi}$	−0.0052		IFRS*$Analyst_{dum}$	−0.0034	−0.0033
	(−5.87***)			(−2.69***)	(−2.61***)
IFRS*IV($Analyst_{exp}$)		0.0029			
		(3.76***)			
Industry	Control	Control	Industry	Control	Control
Adj. R^2 (%)	7.09	6.5	Adj. R^2 (%)	6.51	6.57
N	7951	7951	N	7951	7951

ALIEM, earnings management through ALIs; $BLIEM_{adj}$, industry-median-adjusted BLIs; IV($Analyst_{exp}$), instrument variable of analyst coverage; $Analyst_{resi}$, the residual values of analyst coverage estimated from Yu's (2008) residual model; Lambda, inverse mills ratio; $Analyst_{dum}$, the dummy variable of analyst coverage; PB, price-to-book ratio; ROA, return on assets; Growth, growth rate of assets; Cashstd, cash flow volatilities; Extf, external financing activities; LnMV, the logarithm of market value; Inst, institutional ownership; ROE_{dum}, dummy variable, ROE_{dum} = 1 if ROE falls into the interval (0%, 1%) or (6%, 7%) or (10%, 11%) , otherwise 0; IFRS, dummy variable, IFRS = 1 if data from years after IFRS adoption, otherwise 0.T values are reported in parentheses.

* Statistical significance at the 10% level.
** Statistical significance at the 5% level.
*** Statistical significance at the 1% level.

4.3.2. Analyst coverage and EM through BLIs

Table 6 reports the multiple regression results between analyst coverage and firms' EM through BLIs. Panel A shows the results of the regression from $|BLIEM_{adj}|$ on the number of analyst coverage. The coefficient between $|BLIEM_{adj}|$ and $Analyst_{resi}$ in OLS regression is negative but not statistically significant, suggesting that analyst coverage seems to have no influence on BLIEM. However, the coefficient between $|BLIEM_{adj}|$ and $Analyst_{resi}$ in 2SLS is −0.0053 and statistically significant at the 1% level, suggesting that analyst coverage has a monitoring effect on firms' earning management through below-the-line items. The coefficient between $|BLIEM_{adj}|$ and IFRS in OLS regression is positive and statistically significant at the 1% level, and in 2SLS is positive with a weak statistical significance, suggesting that IFRS adoption on the whole creates more opportunities for managers to manage earnings. The coefficient of $IFRS^{*}Analyst_{resi}$ in the OLS regression is −0.0052 and statistically significant at the 1% level, which indicates that IFRS can enhance the monitoring effect of analyst coverage. However, this is opposite to the result from the 2SLS regression, which shows that IFRS enhances the pressure effect of analyst coverage on EM through BLIs. Therefore, we need further evidences to excavate the effect of IFRS adoption.

Panel B of Table 6 shows the results of the regression from $|BLIEM_{adj}|$ on the dummy variable of analyst coverage. The coefficient of the dummy variable of analyst coverage is −0.0025 with statistical significance at the 1% level from OLS, and is −0.0056 with statistical significance at the 1% level from treatment effects model. These results show that compared to firms without analyst coverage, those with analyst coverage have low earnings management through below-the-line items. The coefficients between $|BLIEM_{adj}|$ and IFRS in both regressions are positive and statistically significant at the 1% level, suggesting that IFRS adoption creates more opportunities through BLIs for managers to mange earnings. The coefficients of $IFRS^{*}Analyst_{dum}$ in both regressions are negative and statistically significant at the 1% level, which indicates that IFRS adoption may enhance the monitoring effect of analyst coverage against earnings management through below-the-line items.

In addition, comparing the results from Tables 5 and 6, we see two other interesting findings. The first one is that the coefficient of Extf in Table 5 is positive and statistically significant, while that in Table 6 is negative and statistically significant. These results show that external financing activities curb earnings management through BLIs but stimulate earnings management through ALIs. This may suggest that managers are apt to manage earnings through ALIs when there is a need for financing. The evidence supports the finding of Rodríguez-Pérez and Hemmen (2010) that external governance mechanisms may stimulate earnings management in an opaque information environment. We conclude that external governance mechanisms may stimulate earnings management in an opaque information environment, and that only under such a condition is the earnings management difficult to detect.

The other finding is that the coefficients on ROE_{dum} among models are all significantly negative, which suggests that benchmark-meeting firms manage less earnings. This finding complements the literature on earnings benchmark meeting (Burgstahler and Dichev, 1997; Degeorge et al., 1999; Phillips et al., 2003; Daniel et al., 2008) that focuses on the motivation of managers. Since the benchmark in our paper is viewed as a sign of loss avoidance or ROE threshold requirement, it may be regarded as a particular concern for users of accounting information. To relieve unexpected results due to over-concern, managers may not manage a higher degree of earnings in order to meet the benchmark. Xia and Yang (2002) provide an indirect evidence for this inference. They find that firms with their ROE meeting benchmark are less likely to receive a modified audit opinion. Specifically, the probability of receiving modified opinions for firms with earnings at a 0% level benchmark is significantly lower than those with earnings at non 0%. They argue that auditors cannot detect and reveal the managers' earnings management at this level. However, from our findings, the lower probability of receiving modified opinions for firms with earnings benchmark meeting may be caused by their lower degree of earnings management. Our finding thus offer some light for emerging capital markets to make use of earnings threshold requirement regulations for constraining managers' behavior.

4.3.3. Sensitivity testing

Because the variable of analyst coverage we design includes those firms without analyst coverage, our results may be driven by the presence or absence of analyst coverage. As a result, we have selected

Table 7
Results of sensitivity testing using the subsample consisting only of firms covered by analysts.

	|ALIEM|		|$BLIEM_{adj}$|	
	OLS	2SLS	OLS	2SLS
Intercept	0.0246	0.04	0.0144	−0.0329
	(1.1)	(1.35)	(1.52)	(−2.6***)
IV($Analyst_{exp}$)		0.0045		−0.0035
		(1.78*)		(−3.22***)
$Analyst_{resi}$	−0.0003		−0.0032	
	(−0.14)		(−3.01***)	
PB	0.0014	0.0015	0.0006	0.0005
	(4.83***)	(4.81***)	(4.73***)	(4***)
ROA	−0.0859	−0.0896	0.043	0.0439
	(−5.84***)	(−5.77***)	(6.88***)	(6.6***)
Growth	0.0268	0.0269	0.0062	0.0068
	(5.72***)	(5.75***)	(3.1***)	(3.42***)
Cashstd	0.6543	0.6554	0.0026	0.0012
	(37.31***)	(37.4***)	(0.35)	(0.16)
Extf	0.0203	0.02	−0.0066	−0.0069
	(2.91***)	(2.87***)	(−2.33**)	(−2.39**)
LnMV	0.0001	−0.0008	−0.0003	0.002
	(0.12)	(−0.58)	(−0.66)	(3.28***)
Inst	0.0038	0.004	−0.007	−0.0069
	(0.8)	(0.083)	(−3.47***)	(−3.33***)
ROE_{dum}	−0.0045	−0.0043	−0.0012	−0.0013
	(−2.04**)	(−1.95*)	(−1.22)	(−1.38)
IFRS	0.0026	0.0077	0.0048	0.0046
	(1.24)	(2.13**)	(5.36***)	(2.92***)
IFRS*$Analyst_{resi}$	0.0019		−0.0038	
	(0.63)		(−2.99***)	
IFRS*IV($Analyst_{exp}$)		−0.0041		0.0003
		−(−1.68*)		(0.29)
Industry	Control	Control	Control	Control
Adj. R^2 (%)	39.26	39.29	7.77	5.96
N	4587	4587	4587	4587

ALIEM, earnings management through ALIs; $BLIEM_{adj}$, industry-median-adjusted BLIs; IV($Analyst_{exp}$), instrument variable of analyst coverage; $Analyst_{resi}$, the residual values of analyst coverage estimated from Yu's (2008) residual model; PB, price-to-book ratio; ROA, return on assets; Growth, growth rate of assets; Cashstd, cash flow volatilities; Extf, external financing activities; LnMV, the logarithm of market value; Inst, institutional ownership; ROE_{dum}, ROE_{dum} = 1 if ROE falls into the interval (0, 1%) or (6%, 7%) or (10%, 11%) , otherwise 0; IFRS, dummy variable, IFRS = 1 if data from years after IFRS adoption, otherwise 0.T values are reported in parentheses.
* Statistical significance at the 10% level.
** Statistical significance at the 5%.
*** Statistical significance at the 1% level.

only samples with analyst coverage to redo the above tests. Table 7 shows the results, and we focus on the results of the 2SLS regression. The results show that analyst coverage has a pressure effect on earnings management through ALIs and a monitoring effect on earnings management through BLIs. In addition, the results provide weak evidence that IFRS adoption does enhance the monitoring effect of analyst coverage against earnings management through ALIs.

5. Conclusions and implications

According to agency theory and earnings management motivation literature, accounting information disclosed on firms' financial statements tends to be asymmetrically distributed and intentionally distorted, and managers may take advantage of information opacity to make earnings manipulation possible (Rodríguez-Pérez and Hemmen, 2010). Under these circumstances, the consistent monitoring by analysts on corporate financial information would be expected to reduce information opacity, thus

decreasing the possibility of earnings management. However, this does not necessarily mean that the degree of earnings management would be reduced, because managers will continue to create or make use of the opaque information setting to avoid scrutiny from analysts. With this in mind, China provides us with a valuable setting to test our questions.

Using data from China, we find empirical evidence that analyst coverage has a pressure effect on managers' earnings management through not easily detected items such as above-the-line items, and a monitoring effect on managers' earning management through readily detected items such as below-the-line items. In addition, our evidence shows that IFRS adoption creates more new opportunities for managers to manage earnings, but does not significantly enhance the monitoring effect of analyst coverage on earnings management. Nevertheless, we find that IFRS adoption does enhance the monitoring effect of presence or absence of analyst coverage on earnings management through below-the-line items. These evidences further indicate that what effect of analyst coverage on earnings management depends on the detectability of earnings management and the compatibility between technologically advanced accounting standards adoption and institutional contexts may play a role in the effect of analyst coverage on earnings management. Meanwhile, the findings that analyst coverage has a monitoring effect on mangers' BLIEM may shed some light on the issue of classification shifting to manage earnings (McVay, 2006). If analysts focus on BLIs and if their coverage has a monitoring effect on BLIEM, the prominent position of the item in BLIs shifted from ALIs is easier to detect, thus reducing managers' classification shifting attempts.

Last but not the least, we find that firms with the goal of meeting earnings benchmark engage in less earnings management. This finding provides a possible explanation for the findings of Xia and Yang (2002) that firms with earnings benchmark meeting are less likely to receive modified audit opinions.

Our study findings indicate that the opacity of accounting information may undermine the monitoring effect of external corporate governance mechanisms. Regulators should pay particular attention to the implications of any changes in the technical methods used in managers' financial reporting, especially when regulators decide to converge local accounting standards with international accounting standards. If these technical methods could be detectable, the adverse effects such as increased earnings management could be effectively decreased.

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