



Contents lists available at ScienceDirect

Journal of Accounting and Economics

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

Earnings management, audit adjustments, and the financing of corporate acquisitions: Evidence from China

Clive Lennox^{a,*}, Zi-Tian Wang^b, Xi Wu^c^a Leventhal School of Accounting, University of Southern California, USA^b School of Accountancy, Shanghai University of Finance and Economics, China^c School of Accountancy, Central University of Finance and Economics, China

ARTICLE INFO

Article history:

Received 26 November 2016

Revised 26 May 2017

Accepted 16 November 2017

Available online 20 November 2017

Keywords:

Stock-financed acquisitions

Earnings management

Audit

Adjustments

ABSTRACT

Acquirers are motivated to overstate earnings prior to stock-financed acquisitions. We hypothesize that audits help to detect and correct such overstatements. We test this using a difference-in-differences design, which compares audit adjustments to earnings for stock-financed and cash-financed acquirers before versus after the acquisitions. Consistent with our hypothesis, we find larger downward adjustments in the audits immediately before stock-financed acquisitions. Further analysis of regulatory sanctions suggests the downward adjustments are in fact warranted, rather than auditors being overly conservative. Moreover, modifications in audit reports suggest that downward adjustments do not correct all of the reporting irregularities in audited financial statements.

© 2017 Elsevier B.V. All rights reserved.

1. Introduction

In mergers and acquisitions (M&A), acquirers have incentives to overstate earnings when they finance acquisitions using stock rather than cash. There are two reasons for this. First, the stock price will be over-inflated if investors are misled by the overstated earnings. An inflated stock price reduces the cost of acquiring the target when the acquisition is financed using equity. Second, even if the market is not misled, stock-financed acquirers would still inflate earnings. Stein (1989) argues that in an efficient market, investors rationally unravel earnings overstatements when they know that companies are motivated to overstate earnings. Anticipating this rational market response, the company's optimal response is to inflate earnings. Therefore, regardless of whether the market is misled, stock-financed acquirers would have incentives to inflate earnings before stock-financed acquisitions. We expect that audits help to detect and correct these earnings overstatements. Accordingly, we hypothesize that auditors require more downward adjustments to earnings prior to stock-financed acquisitions.

We test this hypothesis using a difference-in-differences research design. The dependent variable captures the downward adjustments to companies' annual earnings during the course of the audit. The treatment sample comprises stock-financed acquirers ($STOCK = 1$), while the control sample comprises cash-financed acquirers ($STOCK = 0$). We code the fiscal year-end immediately before the acquisition announcement as the pre-period ($BEFORE = 1$) and the fiscal year-end immediately after the acquisition completion (or termination) date as the post-period ($BEFORE = 0$). The treatment variable is the interaction term, $STOCK \times BEFORE$, which captures how downward audit adjustments change for stock-financed acquirers ($STOCK = 1$)

* Corresponding author.

E-mail address: clive.lennox@marshall.usc.edu (C. Lennox).

compared with cash-financed acquirers ($STOCK=0$), moving from the period before the M&A announcement ($BEFORE=1$) to the period afterwards ($BEFORE=0$). Consistent with the hypothesis, we find larger downward adjustments to earnings in the year before stock-financed acquisitions. This suggests that stock-financed acquirers attempt to overstate earnings and auditors help to correct these overstatements by requiring earnings to be adjusted downwards.

We conduct two supplementary analyses to better assess the effects of audit adjustments on earnings management. We first evaluate whether the downward adjustments are necessary or auditors are being overly conservative when they require downward adjustments to earnings. To assess this, we examine regulatory sanctions due to reporting irregularities that occurred during the fiscal year before the M&A announcement. These sanctions often pertain to irregularities in unaudited reports and voluntary disclosures that are beyond the purview of the auditor. We find a highly significant positive association between downward audit adjustments and subsequent regulatory sanctions. This suggests the downward adjustments are warranted because the companies receiving downward adjustments were issuing misleading information to investors.

Second, we examine auditors' reports to determine whether auditors are aware of, and disclose, reporting problems that remain in the audited financial statements after the adjustments have been booked. When audit adjustments fail to correct all the accounting problems in the audited financial statements, the auditor can respond by disclosing the problems in the audit report. Such problems are more likely to be disclosed prior to stock-financed acquisitions because managers of stock-financed acquirers are motivated to overstate earnings. Consistent with this, we find that audit reports disclose more accounting problems in the period prior to stock-financed acquisitions. This suggests that not all of the attempts by managers to overstate earnings are corrected through audit adjustments.

Our study is the first to examine how auditors adjust pre-audit earnings when managers are motivated to overstate earnings prior to stock-financed acquisitions. Prior auditing studies typically examine the cross-sectional associations between audit characteristics and various proxies for earnings management, such as abnormal accruals. However, this area of the literature has a couple of significant limitations. First, prior studies do not reveal what auditors actually do to curb earnings management. We use information on audit adjustments to open up the black-box of how auditors curb earnings management when managers overstate earnings.¹ Second, the audit characteristics examined in prior studies are typically endogenous (e.g., Big N) which makes it difficult to infer how auditors affect earnings management. We mitigate this limitation by employing a difference-in-differences research design.²

Our study also contributes to the earnings management literature. Prior studies use accruals variables to test whether managers overstate earnings before stock-financed acquisitions. However, the extant findings are rather mixed (Erickson and Wang, 1999; Louis, 2004; Heron and Lie, 2002; Pungaliya and Vijh, 2009) due to several potential reasons. First, there are well-documented biases in accruals, particularly around significant corporate events such as acquisitions (Hribar and Collins, 2002). The biases are especially problematic when examining the method of financing because stock-financed acquirers have stronger growth prospects than cash-financed acquirers, which means that stock-financed acquirers tend to have larger signed accruals even if they are not engaged in earnings management (Pungaliya and Vijh, 2009). Second, accruals are notoriously noisy measures of earnings management (Dechow et al., 1995; Subramanyam, 1996; McNichols, 2000; Dechow and Dichev, 2002; Tucker and Zarowin, 2006; Dechow et al., 2010). This could explain why some accruals studies fail to find significant evidence of earnings management prior to stock-financed acquisitions (Heron and Lie, 2002; Pungaliya and Vijh, 2009), while others find significant evidence (Erickson and Wang, 1999; Louis, 2004). The confounding factors that create bias and noise in accruals are mitigated in our analysis of audit adjustments because the confounds affect both the pre-audit and audited earnings of a given company in the same fiscal year (Lennox et al., 2016). Third, managers' attempts to overstate earnings may be detected and corrected by auditors. These audit corrections could cause researchers to find insignificant evidence of earnings management attempts when looking at the audited earnings.

Section 2 discusses the extant literature on earnings management prior to stock-financed acquisitions and the role of auditors in curbing earnings management. It then develops our hypothesis. Section 3 describes the research design and presents the sample and descriptive statistics. Section 4 shows that auditors require larger downward adjustments prior to stock-financed acquisitions. Section 5 reports the results of supplementary analyses, including analyses of regulatory sanctions, auditors' reporting decisions, unaudited accruals, audited accruals, and results of propensity score matching. Section 6 concludes by discussing the study's findings and limitations.

2. Prior research and hypothesis development

2.1. Why do we examine stock-financed acquisitions in China?

We examine China because the data on audit adjustments are generally unavailable in other countries. In China, it is mandatory for every audit firm to report to the Ministry of Finance (MOF) the pre-audit and audited values of earnings and

¹ Lennox et al. (2016) compare the earnings properties of pre-audit earnings and audited earnings using audit adjustments data from China. Unlike this study, Lennox et al. (2016) do not examine how audit adjustments are affected by a company's incentive to misstate earnings.

² Although we use a difference-in-differences research design, we refrain from drawing strong causal inferences regarding the effect of stock-financed acquisitions on earnings adjustments. This is because companies can choose both the method of finance (i.e., $STOCK$) and the timing of the M&A announcement (i.e., $BEFORE$). Thus, our treatment variable (i.e., $STOCK \times BEFORE$) is not completely exogenous.

total assets for their publicly traded audit clients. The pre-audit data are not publicly available but the MOF has provided these data to us and other researchers for the purpose of academic study.

We focus on stock-financed acquisitions rather than other earnings management situations for several reasons. First, we are unable to examine earnings management prior to IPOs because the audit adjustment data are only available *after* a company becomes publicly traded. Second, Seasoned Equity Offerings (SEOs) in China are often sold to corporate insiders and controlling shareholders. This means that Chinese companies sometimes understate rather than overstate earnings prior to SEOs. Unfortunately, it is not possible to distinguish between the incentives for upward and downward earnings management because data on the number of shares purchased by insiders and major shareholders are unavailable. Third, although managers have incentives to understate earnings prior to stock repurchases, stock repurchases are rare in China. Finally, it is not possible to obtain detailed information on executive compensation contracts and loan agreements, so we are unable to investigate how these contracts influence earnings management. In short, we consider stock-financed acquisitions to be the most suitable setting for testing whether auditors correct earnings overstatements by requiring downward adjustments to managers' pre-audit earnings.

2.2. Prior evidence on earnings management before stock-financed acquisitions

Prior studies hypothesize that acquirers manage earnings upwards before stock-financed acquisitions. The hypothesis has been tested using accruals variables only. Using a sample of 55 stock-financed acquisitions, Erickson and Wang (1999) find signed discretionary accruals are larger before stock-financed acquisitions compared with afterwards. Louis (2004) examines working capital accruals for a sample of 236 stock-financed acquirers. Similar to Erickson and Wang (1999), Louis (2004) finds that working capital accruals are larger prior to stock-financed acquisitions compared with afterwards.³

Unfortunately, accruals are susceptible to producing false positives in tests of earnings management. The risk of false positives is particularly high when researchers examine significant corporate transactions such as acquisitions and stock offerings (Hribar and Collins, 2002; Dechow et al., 2010; Ball, 2013). Moreover, the potential biases are larger in stock-financed acquisitions because companies tend to pay for acquisitions using stock rather than cash when they need to retain cash to finance future growth. These high-growth companies tend to have positive abnormal accruals even if they are not engaged in earnings management (Collins et al., 2017). Thus, a finding that stock-financed acquirers have larger signed accruals does not necessarily mean they are managing earnings upwards (Fairfield et al., 2003; Pungaliya and Vijh, 2009).⁴ In addition, when an acquisition is financed using stock rather than cash, the acquirer has less need to generate cash from its non-cash working capital (e.g., by selling inventory or collecting accounts receivable). Therefore, a stock-financed acquirer is more likely to increase its non-cash working capital prior to the acquisition even if it has no intention to manage earnings. Two accruals studies by Heron and Lie (2002) and Pungaliya and Vijh (2009) find insignificant evidence of earnings management. These studies use larger samples than Erickson and Wang (1999) and Louis (2004). Heron and Lie (2002) examine 427 stock-financed acquisitions, 342 cash-financed acquisitions, and 90 acquisitions that are financed using both stock and cash. Across the three groups, Heron and Lie (2002) find no significant association between abnormal accruals and the method of financing.⁵ Pungaliya and Vijh (2009) examine 895 stock-financed acquisitions and 1719 cash-financed acquisitions. After controlling for growth, they find no evidence of upward earnings management prior to stock-financed acquisitions. Accordingly, they suggest the significant results of Erickson and Wang (1999) and Louis (2004) might be attributable to the strong growth prospects of stock-financed acquirers rather than upward earnings management.

On the other hand, the insignificant results of Heron and Lie (2002) and Pungaliya and Vijh (2009) do not necessarily mean that companies refrain from overstating earnings prior to stock-financed acquisitions. One reason is that auditors may detect and correct any earnings overstatements during the audit. These audit corrections could mean that the *audited* earnings are not overstated even though managers overstated the *pre-audit* earnings. Another potential reason for the insignificant results of Heron and Lie (2002) and Pungaliya and Vijh (2009) is that these studies suffer from low power tests. Abnormal accruals are noisy measures of earnings management and are prone to producing false negatives as well as false positives. We examine this by testing whether the pre-audit accruals variables have sufficient power to detect the earnings overstatements that are corrected by auditors. To the extent that accruals provide low power tests of earnings management, we would expect the pre-audit accruals variables to lack sufficient power to identify earnings overstatements even when those overstatements are detected and corrected by auditors.

³ Erickson and Wang (1999) and Louis (2004) examine samples of cash-financed acquisitions but they do not use the cash-financed acquisitions to conduct difference-in-differences tests.

⁴ Louis (2004) finds stock-financed acquirers have significantly higher market-to-book ratios compared with cash-financed acquirers, which suggests that stock-financed acquirers have stronger growth opportunities. However, Louis (2004) does not control for the market-to-book ratio in his examination of abnormal accruals. Pungaliya and Vijh (2009) argue that controlling for growth opportunities overturns the result that companies manage earnings upwards prior to stock-financed acquisitions. Similarly, we find that stock-financed acquirers have better growth opportunities than cash-financed acquirers and we control for this in our research design.

⁵ Heron and Lie (2002) acknowledge the limitation that their earnings management tests rely on annual data. To the extent that companies overstate their (unaudited) quarterly earnings rather than their annual earnings, the tests of Heron and Lie (2002) may lack sufficient power to detect earnings management. In our study, the data on audit adjustments are only available for the annual financial statements, not the quarterly financial statements. To the extent that stock-financed acquirers choose to inflate their unaudited quarterly earnings rather than their audited annual earnings, this would make it harder for us to find significant results for audit adjustments.

2.3. The effects of auditing on earnings management

Ours is not the first study to examine how auditing affects earnings management. Indeed, a large literature correlates earnings management proxies with various audit characteristics, such as audit firm size (Becker et al., 1998; Francis et al., 1999; Khurana and Raman, 2004; Lennox and Pittman, 2010; Chen et al., 2011), audit office size (Francis and Yu, 2009; Francis et al., 2013), non-audit fees (Frankel et al., 2002; Ashbaugh et al., 2003; Chung and Kallapur, 2003; Ferguson et al., 2004), auditor tenure (Johnson et al., 2002; Myers et al., 2003; Chen et al., 2008; Davis et al., 2009), auditor industry expertise (Balsam et al., 2003; Gul et al., 2009; Reichelt and Wang, 2010), and audit market concentration (Boone et al., 2012; Francis et al., 2012; Newton et al., 2013).

Although many studies have tried to assess the effects of auditing on earnings management, they have been unable to provide *direct* evidence on *how* exactly auditors curb earnings management. We address this limitation by examining the audit adjustments that are booked to earnings and the audit opinions issued after the booking of audit adjustments. Another limitation of prior research is that many auditing studies rely on accruals variables to identify earnings management. This can be problematic because accruals contain significant biases and noise, particularly around significant transactions such as acquisitions and equity offerings (Hribar and Collins, 2002; Dechow et al., 2010; Ball, 2013). The biases increase the odds that a researcher will conclude that earnings management exists when in fact it is absent (i.e., a false positive).⁶ On the other hand, noise increases the odds that a researcher will fail to find significant evidence of earnings management when in fact earnings management does exist (i.e., a false negative).

We address these limitations in several ways. First, instead of conducting cross-sectional comparisons, we employ a difference-in-differences research design that controls for time-invariant differences between the treatment group (stock-financed acquirers) and the control group (cash-financed acquirers). Second, we strengthen our inferences by focusing on a specific audit setting where managers are motivated to overstate earnings. Third, we use information on audit adjustments to identify the mechanism through which auditors help to curb earnings management. Fourth, examining audit adjustments allows us to mitigate the confounding factors that create bias and noise in accruals. In particular, the confounds have an equal effect on pre-audit earnings and audited earnings in the same fiscal year but these confounds are unlikely to affect audit adjustments because audit adjustments reflect the *difference* between the pre-audit and audited earnings (Lennox et al., 2016).

2.4. Hypothesis development

When an acquisition is financed using equity, the shareholders of the target company exchange their shares for a specified number of the acquirer's shares. Erickson and Wang (1999) point out that the exchange ratio is fixed by the acquirer and target before the public announcement of the acquisition, although either party has the option to withdraw from the agreed deal prior to the completion date. We confirm with practitioners in China that this is also the case for stock-financed acquisitions in China. The exchange ratio is determined by the relative stock prices of the acquirer and target (or the target's appraised price if the target is a private company) prior to the M&A announcement.⁷

A stock-financed acquirer has an incentive to overstate earnings before the M&A announcement for two reasons. First, overstating earnings may boost the acquirer's stock price, resulting in fewer shares being paid to the target. Second, even if the market can fully undo the earnings management, the stock-financed acquirer would still overstate earnings. Stein (1998) argues that in an efficient market, investors discount companies' reported earnings when they know that managers have incentives to inflate reported earnings. Anticipating this, the best response of the manager is to inflate reported earnings.

Auditors are responsible for testing whether financial statements are fairly presented. If an auditor finds the pre-audit earnings are overstated, the auditor should propose a downward adjustment to earnings. The company can accept the proposed adjustment in which case earnings are adjusted downwards, or it can refuse to make the adjustment. If the company refuses to book the adjustment, the auditor can disclose the accounting problem in the audit report. In practice, an auditor's threat to disclose the problem in the audit report is often (but not always) sufficient to persuade the client to book the adjustment.

We expect companies to overstate earnings prior to stock-financed acquisitions. We also expect auditors to (at least partially) detect and correct these earnings overstatements. We therefore hypothesize that earnings are adjusted downwards during audits that take place immediately before the announcement of stock-financed acquisitions.

H1. *Auditors require larger downward adjustments to earnings prior to the announcement of stock-financed acquisitions.*

There are a number of reasons why this hypothesis may not hold. First, Ball and Shivakumar (2008) argue that companies report conservatively prior to equity offerings, which is opposite to the traditional view that managers overstate earnings to

⁶ Simple cross-sectional analyses of the correlations between earnings management and audit characteristics are prone to generating false positives because audit characteristics are typically endogenous. For example, Lawrence et al. (2011) argue that the negative correlation between earnings management and audit firm size is attributable to client characteristics rather than superior audits by the Big N audit firms. Likewise, Minutti-Meza (2013) reports that the negative correlation between earnings management and auditor industry expertise becomes insignificant when clients are matched using propensity scores or simply on client size.

⁷ In our sample, very few of the target companies are publicly traded so we do not examine the audit adjustments of target companies. Instead, we focus on the audit adjustments of acquiring companies.

boost the stock price (Teoh et al., 1998a, 1998b). Ball and Shivakumar (2008) argue that equity issuers report conservatively because their financial statements are closely scrutinized by auditors and other interested parties (e.g., potential litigants, regulators, and the press).

Second, managers who deliberately overstate earnings may try to hide the misstatements from their auditors (Botosan et al., 2016). This would make it harder for auditors to detect and correct earnings overstatements prior to stock-financed acquisitions.

Third, companies with future financing plans may inflate earnings using real earnings management techniques (Cohen and Zarowin, 2010; Kothari et al., 2016). Auditors would have little effect on this kind of manipulation because it is done through real operating decisions rather than accounting method choices (Kim and Park, 2014).

Fourth, an acquirer may not inform its auditor about a forthcoming acquisition until the acquirer is ready to make a public announcement. One reason is that the acquirer would not want to reveal its private negotiations with the target before the deal is made. Another reason is that the acquirer may not want the auditor to closely scrutinize its financial statements because close scrutiny could result in more downward adjustments to earnings and higher audit fees.⁸

Fifth, anticipating the auditor's close scrutiny of annual earnings, stock-financed acquirers may choose to inflate earnings in their unaudited quarterly financial statements. This means that we are less likely to find significant audit adjustments for annual earnings.

Finally, auditors in China face a relatively low threat of being sued (Chan et al., 2006; Chen et al., 2011). This means that auditors in China may have less incentive to detect and correct earnings overstatements.⁹

3. Research design, sample, and descriptive statistics

3.1. Difference-in-differences research design

Our hypothesis is that auditors require larger downward adjustments prior to public announcements of stock-financed acquisitions. We test H1 by estimating the following model that explains the absolute magnitudes of downward adjustments to earnings:

$$|ADJ_DN_{it}| = \alpha_0 + \alpha_1 STOCK_i + \alpha_2 BEFORE_t + \alpha_3 STCOK_i \times BEFORE_t + CONTROLS + u \quad (1)$$

The dependent variable in Eq. (1) is constructed using a company's pre-audit earnings ($E_{PRE,it}$) and its audited earnings ($E_{AUD,it}$). In particular, $|ADJ_DN_{it}|$ equals $(|E_{AUD,it} - E_{PRE,it}|)/|E_{PRE,it}|$ when earnings are adjusted downwards (i.e., when $E_{AUD,it} < E_{PRE,it}$), and equals zero when earnings are not adjusted downwards (i.e., when $E_{AUD,it} \geq E_{PRE,it}$). Therefore, $|ADJ_DN_{it}|$ takes positive values when earnings are adjusted downwards, and zero values otherwise. We estimate Eq. (1) using tobit regression because $|ADJ_DN_{it}|$ is truncated at zero.¹⁰

The $STOCK_i$ variable equals one if the acquisition by company i is financed using stock, and zero if it is financed using cash.¹¹ The $STOCK_i$ variable controls for any time-invariant differences between the treatment sample of stock-financed acquirers ($STOCK_i = 1$) and the control sample of cash-financed acquirers ($STOCK_i = 0$). We note that an acquisition can increase accounting complexity and therefore increase the incidence of accidental reporting errors, regardless of the method of financing. We control for this by using cash-financed acquirers rather than non-acquirers as our control group.¹²

The $BEFORE_t$ variable equals one for the most recent fiscal year-end immediately before the M&A announcement, and zero for the first fiscal year-end immediately after the M&A completion (or termination) date. The timing for $BEFORE_t$ is illustrated in Fig. 1. For example, when an M&A is first announced on July 1, 2010, the $BEFORE_t$ variable equals one for the previous fiscal year-end (i.e., December 31, 2009).¹³ When the M&A is completed or terminated on July 1, 2011, the $BEFORE_t$ variable equals zero for the following fiscal year-end (i.e., December 31, 2011). The $BEFORE_t$ variable captures any time-varying factors that are common to both the treatment sample and the control sample.¹⁴

⁸ Consistent with auditors being unaware of impending acquisitions, we find in Section 5.6 that auditors do not negotiate higher audit fees before the public announcement of a stock-financed acquisition.

⁹ On the other hand, auditors in China can suffer severe punishments from the regulatory agencies (Chen et al., 2011). In addition, Chinese auditors increasingly have market-based incentives to develop and maintain reputations for high quality auditing (Chen et al., 2010; He et al., 2016).

¹⁰ In untabulated sensitivity analyses, we scale by the absolute value of audited earnings, pre-audit total assets, and audited total assets as alternatives to scaling by the absolute value of pre-audit earnings. Our inferences are unchanged in these alternative specifications.

¹¹ All the acquisitions in our sample are financed using either cash or stock but not a combination of both stock and cash.

¹² We do not expect a significant difference in the incidence or magnitude of accidental reporting errors between stock-financed and cash-financed acquirers. Consistent with this, we find that upward adjustments are similar for the stock-financed and cash-financed acquirers in Eq. (2). This reduces the likelihood that our results are driven by accidental reporting errors.

¹³ In China, every company is required to have a December 31 fiscal year-end.

¹⁴ Since there is a gap between the most recent fiscal year-end and the subsequent M&A announcement date, it is possible that acquirers inflate earnings in their quarterly reports issued between these two dates. To check this, we calculate acquirers' total accruals and discretionary accruals in the four quarters immediately preceding the merger announcement date. In each quarter, we find no significant differences in income-increasing or income-decreasing total and discretionary accruals between stock-financed acquirers and cash-financed acquirers.

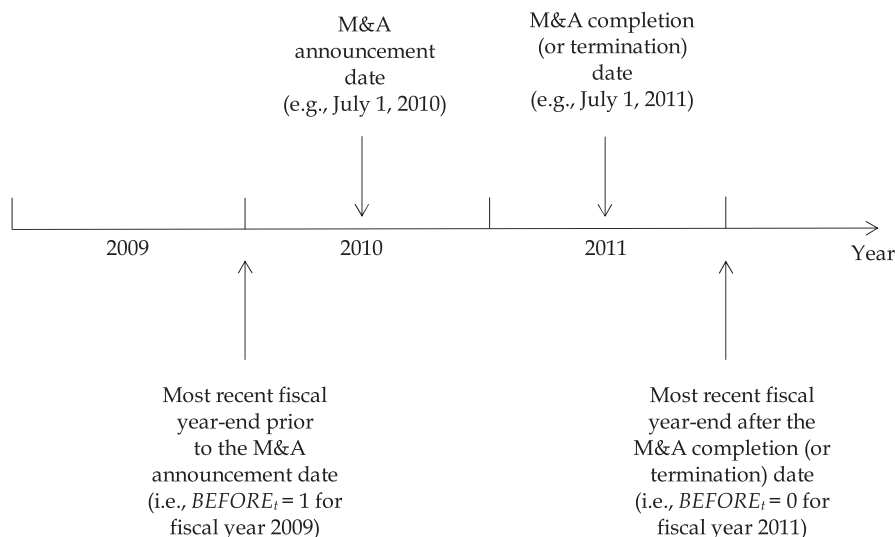


Fig. 1. An illustration of how the $BEFORE_t$ variable is constructed.

Our treatment variable is the interaction term, $STOCK_i \times BEFORE_t$. Under H1, we expect larger downward adjustments prior to stock-financed acquisitions. Therefore, we predict a positive coefficient on $STOCK_i \times BEFORE_t$ in Eq. (1) (i.e., $\alpha_3 > 0$).¹⁵

Whereas Eq. (1) considers auditors' downward adjustments to earnings, Eq. (2) considers the upward adjustments to earnings:

$$|ADJ_UP_{it}| = \beta_0 + \beta_1 STOCK_i + \beta_2 BEFORE_t + \beta_3 STOCK_i \times BEFORE_t + CONTROLS + u \quad (2)$$

The $|ADJ_UP_{it}|$ variable equals $(|E_{AUD,it} - E_{PRE,it}|) / |E_{PRE,it}|$ when earnings are adjusted upwards ($E_{AUD,it} > E_{PRE,it}$), and zero when earnings are not adjusted upwards ($E_{AUD,it} \leq E_{PRE,it}$). We do not have a hypothesis for upward adjustments because we do not expect managers to intentionally understate earnings prior to stock-financed acquisitions. Therefore, we do not make a signed prediction for $STOCK_i \times BEFORE_t$ in Eq. (2).

3.2. Research setting

China's auditing profession was first established in 1980, when most audit firms were affiliates of the local governments. China introduced reforms to separate audit firms from the government following the opening of two stock exchanges in Shanghai and Shenzhen in 1990 and 1991. The reforms were completed by early 2000 and China's audit firms are now independent of the government and operate under competitive market conditions (Chen et al., 2011). By 2006, Chinese GAAP had converged to IFRS in all material respects (Ding and Su, 2008; Peng and Smith, 2010). China has adopted auditing standards that are convergent with the International Standards on Auditing in all material respects (Simnett and Sylph, 2006). Audit firms are closely regulated by the MOF, the China Securities Regulatory Commission (CSRC), and the Chinese Institute of Certified Public Accountants (CICPA), and these agencies conduct regular inspections of audit firms. Although the legal environment in China is far from mature, individual auditors and audit firms are subject to considerable legal liabilities and reputational losses in cases of audit failure (Chen et al., 2011; He et al., 2016).

In 2006, the MOF introduced a requirement for Chinese audit firms to report to the Inspection Bureau of the MOF the pre-audit and audited values of earnings and total assets for all publicly traded clients. We understand from the MOF that other regulatory agencies in China (including the CSRC and the stock exchanges) have not requested access - and have not been given access - to the audit adjustment data during our sample period.

The requirement to file audit adjustment data was introduced to provide the Inspection Bureau with background information about the audit engagement when preparing for an inspection. For example, the data provide a useful starting point of conversation when the inspectors first meet with the partner responsible for the audit. If there was no adjustment, the inspectors can ask the partner why no adjustment was deemed necessary. Conversely, if there was an adjustment, the inspectors can scrutinize the misstatements associated with the audit adjustment and ask the partner whether the adjustment was sufficient to ensure fair presentation of the audited financial statements.

¹⁵ Ai and Norton (2003) point out that in non-linear models the marginal effect of the interaction term is not captured by the coefficient on the interaction variable. However, Puhani (2012) demonstrates that the Ai and Norton (2003) critique does not apply when researchers are using a difference-in-differences research design because the treatment effect in a difference-in-differences model is not a simple cross-difference. Instead, the treatment effect is the cross-difference of the observed outcome minus the cross-difference of the potential non-treatment outcome. Puhani (2012) shows that this treatment effect is in fact equal to the coefficient on the interaction term.

Table 1

The sample.

This table presents the sample used in our analyses. Panel A shows how we obtain our final estimation sample. Panel B presents the number of stock-financed acquisitions and cash-financed acquisitions announced in each year. Panel C presents the number of observations in each year.

Panel A: Sample selection (2006–2014)			
Sample of M&As from the CSMAR database, where data are available in the year before the M&A announcement date and the year after the M&A completion or termination date (see Fig. 1 for further details).			4932
Less: observations with missing audit adjustment data from the Ministry of Finance database.			(262)
Less: observations where there are inconsistencies between the CSMAR and Ministry of Finance databases.			(148)
Final sample			4522
Panel B: M&A deals by announcement year			
	Cash-financed deals	Stock-financed deals	Total
2007	243	30	273
2008	325	53	378
2009	300	39	339
2010	311	26	337
2011	309	21	330
2012	294	25	319
2013	253	32	285
Total	2035	226	2261
Panel C: Number of observations in each year			
	Cash-financed observations ($STOCK_{it} = 0$)	Stock-financed observations ($STOCK_{it} = 1$)	Total
2006	243	30	273
2007	504	69	573
2008	609	71	680
2009	626	56	682
2010	608	60	668
2011	591	54	645
2012	577	64	641
2013	257	33	290
2014	55	15	70
Total	4070	452	4522

3.3. Sample

The MOF data on audit adjustments made available to us start in 2006 and end in 2014. We require one year of data prior to the M&A announcement date when coding the pre-period ($BEFORE_t = 1$), so our sample comprises M&A deals announced on or after January 1, 2007. The sample ends with deals announced in 2013 because we also require data for the year after the M&A completion or termination date ($BEFORE_t = 0$).¹⁶

Panel A of Table 1 shows how the sample is constructed. We begin with 2466 M&A announcements with data available from the CSMAR database.¹⁷ This yields an initial sample of 4932 company-year observations with two observations for each M&A deal ($= 2 \times 2466$). We lose 262 observations (131 deals) where audit adjustment data are missing in the MOF database. We drop 148 observations (74 deals) where there are inconsistencies between the CSMAR and MOF databases in the values of audited earnings ($E_{AUD,it}$).¹⁸

Panel B of Table 1 reports the number of deals by announcement year. There are 273 deals in the first year (2007) and 285 in the final year (2013). The most deals are announced in 2008 (378), while 2007 has the fewest (273). In total, there are 2035 cash-financed acquisitions and 226 stock-financed acquisitions.¹⁹ Of the 226 stock-financed deals announced in year t , there are only two with subsequent stock-financed deals announced in year $t + 1$ and only two with previous stock-financed deals announced in year $t - 1$. Therefore, most companies do not repeatedly use equity to finance deals in successive years.

¹⁶ The mean (median) number of days between the most recent fiscal year-end prior to the M&A announcement date and the M&A announcement date is 195 (196). The mean (median) number of days between the M&A announcement date and the M&A completion date is 130 (60). The mean (median) number of days between the M&A completion date and the most recent fiscal year-end after the M&A completion date is 166 (165).

¹⁷ We manually checked each M&A record in the CSMAR database and traced the outcome of each verified M&A deal by the end of our sample period. There are 41 terminated stock-financed acquisitions and 118 terminated cash-financed acquisitions. Our results are qualitatively unchanged if we drop the terminated deals. In untabulated tests, we find stock-financed acquisitions are more likely to be terminated than cash-financed acquisitions. In addition, stock-financed acquisitions take longer to complete than cash-financed acquisitions. This is consistent with targets taking more time to conduct due diligence when acquirers pay them using stock rather than cash.

¹⁸ Lennox et al. (2016) find the inconsistencies are partly explained by the data entry person using the parent company rather than group accounts when entering data into the MOF database. After taking into account the rounding differences between the CSMAR and MOF databases, we define the two databases as being inconsistent when the reported difference in audited earnings is at least $\pm 1\%$.

¹⁹ Cash financing occurs more often than stock financing in the United States as well as in China. For example, the sample of Pungaliya and Vijh (2009) comprises 1719 cash-financed acquisitions and 895 stock-financed acquisitions between 1989 and 2005.

Table 2

Descriptive statistics.

This table presents the descriptive statistics of the variables used in the analyses. The sample comprises M&As announced in the period 2007–2013. All variables are defined in [Appendix A](#). All the continuous variables are winsorized at the 1st and 99th percentiles to mitigate the impact of outliers.

	N	Mean	S.D.	P10	P25	P50	P75	P90
ADJ_{it}	4522	-0.034	0.201	-0.162	-0.041	0.000	0.000	0.025
$ ADJ_DN_{it} $	4522	0.059	0.152	0.000	0.000	0.000	0.041	0.162
$ ADJ_UP_{it} $	4522	0.025	0.120	0.000	0.000	0.000	0.000	0.025
$UNCLEAN_{it}$	4522	0.034	0.181	0.000	0.000	0.000	0.000	0.000
$OPINION_{it}$	4522	0.054	0.304	0.000	0.000	0.000	0.000	0.000
$SANC_{it}$	4522	0.094	0.292	0.000	0.000	0.000	0.000	1.000
$ PMA_DN_{PRE,it} $	4522	0.035	0.088	0.000	0.000	0.000	0.036	0.086
$ PMA_UP_{PRE,it} $	4522	0.038	0.077	0.000	0.000	0.004	0.048	0.101
$ PMA_DN_{AUD,it} $	4522	0.033	0.079	0.000	0.000	0.000	0.036	0.088
$ PMA_UP_{AUD,it} $	4522	0.039	0.079	0.000	0.000	0.006	0.049	0.106
$ DA_DN_{PRE,it} $	3810	0.028	0.052	0.000	0.000	0.000	0.036	0.087
$ DA_UP_{PRE,it} $	3810	0.033	0.055	0.000	0.000	0.004	0.048	0.098
$ DA_DN_{AUD,it} $	3818	0.028	0.054	0.000	0.000	0.000	0.036	0.089
$ DA_UP_{AUD,it} $	3818	0.034	0.056	0.000	0.000	0.006	0.050	0.102
$STOCK_i$	4522	0.100	0.300	0.000	0.000	0.000	0.000	0.000
$BEFORE_t$	4522	0.500	0.500	0.000	0.000	0.500	1.000	1.000
$SIZE_{it}$	4522	21.915	1.324	20.414	21.009	21.746	22.649	23.625
MB_{it}	4522	1.926	1.754	0.445	0.786	1.437	2.414	3.945
LEV_{it}	4522	0.488	0.219	0.179	0.326	0.499	0.645	0.752
SOE_{it}	4522	0.490	0.500	0.000	0.000	0.000	1.000	1.000
BD_SIZE_{it}	4522	2.196	0.206	1.946	2.197	2.197	2.197	2.398
IN_DIR_{it}	4522	0.365	0.049	0.333	0.333	0.333	0.385	0.429
$BHRET_{it}$	4522	0.125	0.683	-0.443	-0.181	0.007	0.284	0.822
$CASH_{it}$	4522	0.194	0.152	0.050	0.090	0.150	0.248	0.412
AGE_{it}	4522	2.006	0.787	0.693	1.386	2.303	2.639	2.773
ROA_{it}	4522	0.048	0.054	0.005	0.020	0.043	0.073	0.108
$BIG10_{it}$	4522	0.415	0.493	0.000	0.000	0.000	1.000	1.000
$AUDCH_{it}$	4522	0.080	0.272	0.000	0.000	0.000	0.000	0.000

Each deal in our sample has two observations, one relating to the period before the M&A announcement ($BEFORE_t = 1$) and the other relating to the period afterwards ($BEFORE_t = 0$). Accordingly, Panel C shows there are 4070 observations relating to the cash-financed acquisitions ($STOCK_i = 0$) and 452 observations relating to the stock-financed acquisitions ($STOCK_i = 1$).

3.4. Descriptive statistics

[Appendix A](#) provides definitions for all the variables used in our analyses. [Table 2](#) presents the descriptive statistics. Expressed as a percentage of absolute pre-audit earnings, we find that the mean signed audit adjustment (ADJ_{it}) is -3.4% while the median adjustment is zero; 47.81% of audits have downward earnings adjustments, 31.11% have no adjustment to earnings, and 21.07% have upward adjustments. Therefore, downward adjustments occur more than twice as often as upward adjustments. Moreover, downward adjustments are typically larger than upward adjustments. For example, [Table 2](#) shows that the tenth and ninetieth percentiles of signed adjustments (ADJ_{it}) are -16.2% and 2.5% respectively. [Table 2](#) presents similar descriptive statistics for the absolute magnitudes of downward adjustments ($|ADJ_DN_{it}|$) and upward adjustments ($|ADJ_UP_{it}|$).

We construct two accrual measures: (1) performance-matched total accruals (PMA), and (2) discretionary accruals (DA) estimated using the modified Jones model.²⁰ We expect that managers overstate pre-audit earnings prior to stock-financed acquisitions, so we focus on the absolute magnitudes of income-increasing pre-audit accruals (i.e., $|PMA_UP_{PRE,it}|$ and $|DA_UP_{PRE,it}|$). However, for the sake of completeness, we also examine the absolute magnitudes of income-decreasing pre-audit accruals ($|PMA_DN_{PRE,it}|$ and $|DA_DN_{PRE,it}|$), the absolute magnitudes of income-increasing audited accruals ($|PMA_UP_{AUD,it}|$ and $|DA_UP_{AUD,it}|$), and the absolute magnitudes of income-decreasing audited accruals ($|PMA_DN_{AUD,it}|$ and $|DA_DN_{AUD,it}|$).

[Table 2](#) presents descriptive statistics for the control variables. We control for company size ($SIZE_{it}$), the market-to-book ratio (MB_{it}), and leverage (LEV_{it}). We include an indicator for state-owned enterprises (SOE_{it}) because government ownership is common in China ([Wang et al., 2008](#)). We control for corporate governance characteristics using the proportion of independent directors on the board (IN_DIR_{it}) and the number of board members (BD_SIZE_{it}). We use annual buy-and-hold stock returns ($BHRET_{it}$) to control for performance. We control for liquidity using the ratio of cash to total assets ($CASH_{it}$).

²⁰ In untabulated tests, we also examine total accruals and performance-matched discretionary accruals. Our inferences are unchanged using these alternative measures of earnings management.

Table 3

Univariate difference-in-differences tests.

This table presents the results of univariate difference-in-differences tests. The sample comprises M&As announced in the period 2007–2013. Panel A reports the results of downward audit adjustments and panel B reports the results of upward audit adjustments. All variables are defined in Appendix A. *** denotes significance at the 1% level (two-tailed).

Panel A: Downward audit adjustments to pre-audit earnings ($ ADJ_DN_{it} $)			
	Stock-financed ($STOCK_{it} = 1$)	Cash-financed ($STOCK_{it} = 0$)	
Pre-M&A period ($BEFORE_t = 1$)	0.118	0.055	
Post-M&A period ($BEFORE_t = 0$)	0.053	0.058	
Difference-in-differences test	$(0.118 - 0.053) - (0.055 - 0.058)$		$t\text{-stat.} = 4.28^{***}$
Panel B: Upward audit adjustments to pre-audit earnings ($ ADJ_UP_{it} $)			
	Stock-financed ($STOCK_{it} = 1$)	Cash-financed ($STOCK_{it} = 0$)	
Pre-M&A period ($BEFORE_t = 1$)	0.033	0.027	
Post-M&A period ($BEFORE_t = 0$)	0.030	0.022	
Difference-in-differences test	$(0.033 - 0.030) - (0.027 - 0.022)$		$t\text{-stat.} = -1.02$

and we also control for the company's age (AGE_{it}). The Big 10 audit firms in China supply higher quality audits and have higher quality clients (DeFond et al., 2000; Chen et al., 2001), so we include an indicator for the Big 10 audit firms ($BIG10_{it}$). We also include an indicator for audit firm changes ($AUDCH_{it}$). Finally, we control for industry and year fixed effects.

4. Main results

4.1. Univariate results

Table 3 reports the univariate difference-in-differences tests for H1, which predicts that auditors require larger downward adjustments prior to stock-financed acquisitions. The difference-in-differences test is highly significant ($t\text{-stat.} = 4.28$). Therefore, consistent with H1, the downward adjustments to earnings are significantly larger prior to the announcement of stock-financed acquisitions. Panel B reports the univariate results for the upward adjustments to earnings ($|ADJ_UP_{it}|$). The difference-in-differences test is insignificant for upward adjustments, signifying that auditors do not require larger upward adjustments prior to stock-financed acquisitions.²¹

4.2. The parallel trends assumption

A key assumption of the difference-in-differences design is that the control group captures what would have happened to the treatment group in the absence of treatment. To test this assumption, researchers usually examine whether the dependent variables exhibit parallel trends for the two groups prior to the onset of treatment (Roberts and Whited, 2013; Atanasov and Black, 2015). Fig. 2 therefore reports the mean values of downward adjustments for the stock-financed and cash-financed acquirers in years -2 , -1 , 0 , and $+1$, where year 0 corresponds to the most recent fiscal year-end prior to the M&A announcement and year $+1$ is the most recent fiscal year-end immediately after the M&A completion (or termination) date. Fig. 2 is constructed using M&A deals announced in the period 2009–2013 because the audit adjustments data only become available starting in 2006 and year -2 corresponds to 2006 for deals announced during 2009.

Fig. 2 shows parallel trends for the treatment and control groups in years -1 and -2 . Notably, there is a sharp increase in downward adjustments for the treatment group in year 0 , which corresponds to the year immediately before the announcement of a stock-financed acquisition (i.e., $STOCK_i = BEFORE_t = 1$). In contrast, the downward adjustments exhibit a continuous linear trend from year -2 to year $+1$ in the control group. Overall, the parallel trends assumption is supported in our setting.

4.3. Multivariate results

Table 4 reports the results from tobit regressions using the difference-in-differences designs in Eqs. (1) and (2). The dependent variables capture downward adjustments ($|ADJ_DN_{it}|$) and upward adjustments ($|ADJ_UP_{it}|$). Col. (1) shows that the coefficient on the treatment variable, $STOCK_i \times BEFORE_t$, is significantly positive in the model of downward adjustments ($t\text{-stat.} = 3.039$). Consistent with H1, this means that auditors require significantly larger downward adjustments to earnings before the announcement of stock-financed acquisitions.

²¹ We also use a categorical variable to capture downward and upward audit adjustments. The dependent variable equals zero when there is no adjustment, one when there is an upward adjustment, and two when there is a downward adjustment. Using the same difference-in-differences research design, we find significant results for the incidence of downward adjustments and insignificant results for upward adjustments.

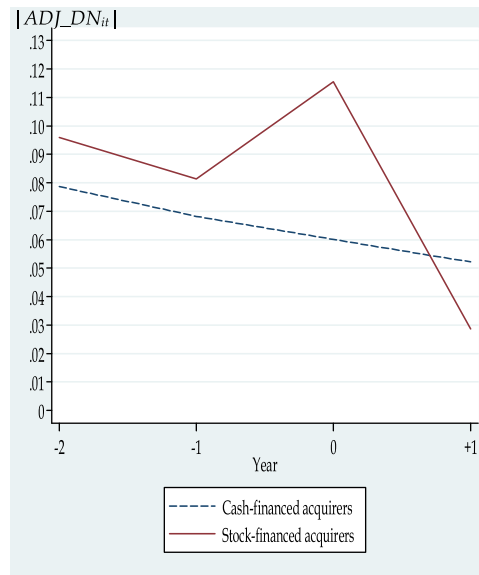


Fig. 2. The parallel trends assumption. This figure shows the mean values of downward audit adjustments ($|ADJ_DN_{it}|$) for stock-financed and cash financed acquirers in years -2 , -1 , 0 , and $+1$, where year 0 is the most recent fiscal year-end immediately before the M&A announcement date, and year $+1$ is the most recent fiscal year-end immediately after the M&A completion (or termination) date. The sample in Fig. 2 comprises M&As announced in the period 2009–2013.

Col. (2) shows the coefficient on $STOCK_i \times BEFORE_t$ is negative but insignificant in the model of upward adjustments (t -stat. = -1.508). The opposite results for $STOCK_i \times BEFORE_t$ in the models of upward and downward adjustments are inconsistent with stock-financed acquirers having more accidental reporting errors than cash-financed acquirers during the pre-acquisition period. In other words, stock-financed acquirers systematically overstate, but they do not systematically understate, their pre-audit earnings prior to the M&A announcement date. This strongly suggests that many earnings overstatements are intentional rather than accidental.

Results for the control variables show that downward adjustments are smaller when companies are larger ($SIZE_{it}$) and have stronger performance ($BHRET_{it}$). Downward adjustments are positively related to leverage (LEV_{it}), suggesting that companies with high leverage are more likely to overstate pre-audit earnings. Consistent with Cohen et al. (2011), auditors require larger downward adjustments when corporate boards have a higher proportion of independent directors (IN_DIR_{it}). The other control variables are insignificant for downward adjustments. Col. (2) finds that upward adjustments are significantly smaller when companies are younger (AGE_{it}), have lower market-to-book ratios (MB_{it}), larger boards (BD_SIZE_{it}), and the audit firm is newly appointed to the engagement ($AUDCH_{it}$).

5. Supplementary analyses

5.1. Regulatory sanctions for accounting and disclosure irregularities

This section evaluates whether auditors are overly conservative when they require acquirers to adjust earnings downwards or the downward adjustments are in fact warranted. To assess this, we examine regulatory sanctions issued to acquirers due to accounting and disclosure irregularities that originally occurred in the year prior to the M&A announcement. If downward adjustments are in fact warranted, we expect the downward adjustments to be positively associated with the irregularities that are subsequently discovered and punished by the CSRC. This would be inconsistent with auditors being excessively conservative when they require earnings to be adjusted downwards.

We do not argue that downward adjustments directly *cause* regulatory sanctions. From our discussions with the Chinese regulatory agencies, we understand that the CSRC has never had access to the MOF's database of audit adjustments. Therefore, it seems unlikely that a downward adjustment would directly trigger a CSRC investigation. Instead, we argue that regulatory sanctions are triggered in several ways: (1) over-inflating annual earnings (which causes larger downward adjustments), (2) over-inflating quarterly earnings, and (3) hiding bad news in voluntary disclosures. Even though downward adjustments help correct the misstatements in annual financial reports (i.e., (1)), companies would still receive regulatory sanctions for other irregularities that are outside the control of auditors (i.e., (2) and (3)). As a result, we may observe a positive association between downward adjustments and regulatory sanctions despite that downward adjustments help to mitigate the risk of an overstatement in the audited financial statements.

We read all the sanctions issued by the CSRC to the acquirers in our sample. We discard sanctions that do not pertain to irregularities in the year prior to the M&A announcement. In addition, we discard sanctions that do not directly pertain

Table 4

Audit adjustments prior to stock-financed acquisitions (H1).

This table reports the regression tests of H1. The sample comprises M&As announced in the period 2007–2013. Col. (1) reports the results of downward audit adjustments and Col. (2) reports the results of upward audit adjustments. Cols. (1) and (2) are estimated using tobit because the dependent variables are truncated at zero. The standard errors are clustered by company and *t*-statistics are reported in parentheses. All variables are defined in Appendix A. ***, **, and * denote significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

	Downward adjustments to pre-audit earnings ($ ADJ_DN_{it} $) (1)	Upward adjustments to pre-audit earnings ($ ADJ_UP_{it} $) (2)
$STOCK_i$	−0.046** (−2.112)	0.020 (0.577)
$BEFORE_t$	−0.009 (−1.069)	0.015 (1.268)
$STOCK_i \times BEFORE_t$	0.085*** (3.039)	−0.073 (−1.508)
$SIZE_{it}$	−0.039*** (−6.597)	−0.019** (−2.363)
MB_{it}	−0.003 (−0.657)	0.009* (1.771)
LEV_{it}	0.107*** (3.011)	−0.093** (−2.041)
SOE_{it}	−0.020 (−1.441)	−0.016 (−0.834)
BD_SIZE_{it}	−0.018 (−0.614)	−0.088** (−1.991)
IN_DIR_{it}	0.229* (1.953)	0.067 (0.394)
$BHRET_{it}$	−0.021*** (−3.071)	−0.010 (−0.928)
$CASH_{it}$	−0.119*** (−2.778)	−0.026 (−0.424)
AGE_{it}	0.013 (1.565)	0.035*** (3.010)
$BIG10_{it}$	0.008 (0.692)	0.012 (0.723)
$AUDCH_{it}$	−0.015 (−0.813)	−0.065** (−2.074)
$CONSTANT_{it}$	0.775*** (5.183)	0.203 (0.962)
Industry dummies	Yes	Yes
Year dummies	Yes	Yes
Observations	4522	4522

to financial reporting or disclosure irregularities (e.g., sanctions for insider trading, misappropriation of assets, violation of environmental laws, product mispricing, and unlawful taxation practices).

In total, we find 137 accounting irregularities and 30 irregularities that pertain to unaudited voluntary disclosures (Panel A of Table 5). The accounting irregularities include misstatements of assets, liabilities, owners' equity, cash flows, revenues, expenses, earnings, and inadequate or misleading disclosures in the notes.²² The other disclosure irregularities include the company's failure to disclose bad news to investors in a timely way and a failure to issue earnings forecasts in a timely way.²³ We include these disclosure irregularities in our sample because they indicate that companies were attempting to portray an overly favorable picture. Of the 226 stock-financed acquirers, we find that 22 (9.7%) are sanctioned due to irregularities in the year before the M&A announcement. Of the 2035 cash-financed acquirers, we find that 145 (7.1%) are sanctioned due to irregularities in the year before the M&A announcement.

Panel B of Table 5 reports the mean audit adjustments for the stock-financed acquirers. The mean downward adjustment is 0.225 in the irregularities sub-sample ($N=22$) compared with 0.107 in the no-irregularities sub-sample ($N=204$). The difference (0.225 vs. 0.107) is statistically significant (t -stat. = 2.287). Therefore, downward adjustments are significantly larger among the stock-financed acquirers that are later sanctioned. In contrast, there is no significant difference in upward adjustments between the acquirers that are later sanctioned and those that are not sanctioned.

²² Many of the sanction filings do not provide sufficient information to determine whether the accounting irregularities pertain to the unaudited interim financial statements or the audited annual financial statements.

²³ During our sample period, public companies in China are required to issue earnings forecasts if they expect a loss, or they expect earnings to change by at least 50% compared with the previous year, or they expect a profit in the current year after reporting a loss in the previous year.

Table 5

Audit adjustments and regulatory sanctions.

This table shows the associations between audit adjustments and regulatory sanctions that are issued for financial reporting and disclosure irregularities that occurred in the year before the M&A announcement. The sample comprises M&As announced in the period 2007–2013. Panel A presents the different types of irregularities. Panel B shows the univariate relation between audit adjustments and irregularities for stock-financed acquisitions. Panel C shows the univariate relation between audit adjustments and irregularities for cash-financed acquisitions. Panel D presents the results of logistic regressions with the standard errors clustered at the company level and z-statistics reported in parentheses. All variables are defined in Appendix A. *** and ** denote significance at the 1% and 5% levels (two-tailed), respectively.

Panel A: Financial reporting and disclosure irregularities occurring in the year before the M&A announcement (i.e., when $BEFORE_i = 1$).			
	Financial reporting irregularities	Other disclosure irregularities	Total number of irregularities
Stock-financed acquirers	14	8	22
Cash-financed acquirers	123	22	145
Total	137	30	167

Panel B: Univariate relation between audit adjustments ($ ADJ_DN_{it} $, $ ADJ_UP_{it} $) and irregularities ($IRREG_{it}$) occurring in the year before stock-financed acquisitions.			
	$IRREG_{it} = 1$ ($N = 22$) (1) Mean	$IRREG_{it} = 0$ ($N = 204$) (2) Mean	(1) vs. (2) t-stat.
$ ADJ_DN_{it} $	0.225	0.107	2.287**
$ ADJ_UP_{it} $	0.016	0.034	-0.537

Panel C: Univariate relation between audit adjustments ($ ADJ_DN_{it} $, $ ADJ_UP_{it} $) and irregularities ($IRREG_{it}$) occurring in the year before cash-financed acquisitions.			
	$IRREG_{it} = 1$ ($N = 145$) (1) Mean	$IRREG_{it} = 0$ ($N = 1890$) (2) Mean	(1) vs. (2) t-stat.
$ ADJ_DN_{it} $	0.105	0.051	4.484***
$ ADJ_UP_{it} $	0.033	0.027	0.523

Panel D: Logistic regression (dep. var. = $IRREG_{it}$).			
$ ADJ_DN_{it} $	1.802*** (4.011)		
$ ADJ_DN_{it} \times STOCK_i$	-0.122 (-0.128)	F-test: $ ADJ_DN_{it} + ADJ_DN_{it} \times STOCK_i > 0$ Chi ² = 3.97** (p-value = .046)	
$ ADJ_UP_{it} $	0.646 (1.026)		
$ ADJ_UP_{it} \times STOCK_i$	-1.953 (-1.126)		
$STOCK_i$	0.066 (0.205)		
Control variables	Yes		
Industry and year dummies	Yes		
Observations	2261		

Panel C of Table 5 reports the mean audit adjustments for the cash-financed acquirers. The mean downward adjustment is 0.105 in the irregularities sub-sample ($N = 145$) and 0.051 in the no-irregularities sub-sample ($N = 1890$). The difference (0.105 vs. 0.051) is statistically significant (t -stat. = 4.484). Therefore, downward adjustments are significantly larger among the cash-financed acquirers that are subsequently sanctioned. Again, this indicates that downward adjustments are positively associated with improper financial reporting and disclosure activities. This goes against the argument that auditors are being overly conservative when they require earnings to be adjusted downwards.

Panel D of Table 5 reports the results from a logistic regression where the dependent variable ($IRREG_{it}$) equals one if the acquirer is subsequently sanctioned for an accounting or disclosure irregularity that occurred in the year prior to the M&A announcement. We employ the same control variables as in Table 4 but the results for the control variables are suppressed for the sake of brevity. Consistent with Panels B and C, we find significant positive associations between downward adjustments and subsequent sanctions. This suggests that auditors do not require downward adjustments because they are overly conservative. Rather, auditors require downward adjustments when companies overstate their earnings.²⁴

5.2. Auditors' reporting choices

This section evaluates whether auditors are aware of, and disclose, any financial reporting problems that remain in the audited financial statements after the adjustments are booked. If a company fails to make a necessary adjustment, the audi-

²⁴ The coefficient on the interaction variable ($|ADJ_DN_{it}| \times STOCK_i$) is statistically insignificant. This does not change when we use the approach recommended by Ai and Norton (2003).

Table 6

Audit opinions prior to stock-financed acquisitions.

Panel A presents the descriptive statistics for the different types of audit opinions. Panel B reports the univariate difference-in-differences results. Panel C reports the multivariate difference-in-differences results. Col. (1) of Panel C is estimated using a binary logit model whereas Cols. (2) and (3) are estimated using a multinomial logit model because the dependent variable $OPINION_{it}$ takes three values. Standard errors are clustered at the company level. All variables are defined in Appendix A. ***, **, and * denote significance at the 1%, 5% and 10% levels (two-tailed), respectively.

Panel A: Descriptive statistics for audit opinions			
	N		Percentage
Non-clean audit opinions:			
Unqualified opinions that are modified due to accounting issues	33		0.73%
Except for qualifications due to accounting issues	27		0.60%
Opinion disclaimers due to accounting issues	2		0.04%
Fundamental uncertainties about going-concern	86		1.90%
Fundamental uncertainties about impending lawsuits	6		0.13%
Sub-total	154		3.41%
Clean audit opinions:	4368		96.59%
Total	4522		100.00%

Panel B: Frequencies of non-clean audit opinions.			
	Stock-financed ($STOCK_{it} = 1$)	Cash-financed ($STOCK_{it} = 0$)	
Pre-M&A period ($BEFORE_t = 1$)	0.168	0.023	
Post-M&A period ($BEFORE_t = 0$)	0.071	0.027	
Difference-in-differences test	$(0.168 - 0.071) - (0.023 - 0.027)$		z-stat. = 3.05***

Panel C: Audit opinion models			
	Unclean opinions $UNCLEAN_{it} = 1$	Accounting-related unclean opinions $OPINION_{it} = 1$	Uncertainty-related unclean opinions $OPINION_{it} = 2$
	(1)	(2)	(3)
$STOCK_i$	-0.304 (-0.714)	-1.948* (-1.699)	0.347 (0.682)
$BEFORE_t$	-0.178 (-0.890)	-0.350 (-1.225)	-0.007 (-0.027)
$STOCK_i \times BEFORE_t$	0.868** (2.110)	2.445** (2.249)	0.317 (0.636)
Control variables	Yes	Yes	Yes
Industry & Year dummies	Yes	Yes	Yes
Observations	4522	4522	4522

tor can disclose the accounting problem in the audit report. We expect more problems prior to stock-financed acquisitions because the managers of stock-financed acquirers have incentives to overstate earnings and may not accept all of the proposed adjustments.

Panel A of Table 6 shows the different types of audit opinions in our sample. There are 4368 (96.59%) clean opinions and 154 unclean opinions (3.41%). Of the 154 unclean opinions, there are 33 unqualified opinions that are modified due to accounting issues, 27 opinions are qualified due to accounting issues, 2 opinion disclaimers mention accounting issues, 86 are modified due to fundamental uncertainties relating to going-concern, and 6 are modified due to fundamental uncertainties relating to impending lawsuits.

The fundamental uncertainty opinions do not directly reference accounting issues. Nevertheless, these opinions could indicate a lack of accounting conservatism because auditors issue going-concern opinions as a warning to investors that the book values of assets (reported under the going-concern assumption) are substantially higher than their liquidation values (Kausar and Lennox, 2017). On the other hand, a going-concern modification can also reflect the auditor's assessment that a company is financially distressed. Therefore, the prediction for going-concern opinions is unclear.

With this in mind, we create two audit opinion variables: $UNCLEAN_{it}$ and $OPINION_{it}$. The $UNCLEAN_{it}$ variable equals zero for the 4368 clean opinions, and one for the 154 unclean opinions. The $OPINION_{it}$ variable equals zero for the 4368 clean opinions; one for the 62 (= 33 + 27 + 2) unclean opinions that directly reference accounting problems; and two for the 92 (= 86 + 6) unclean opinions that do not directly reference accounting problems but instead disclose fundamental uncertainties relating to going-concern or lawsuits.²⁵

Panel B of Table 6 shows that 16.8% of audit opinions are unclean in the year prior to stock-financed acquisitions, whereas only 7.1% are unclean in the year after stock-financed acquisitions. In the sample of cash-financed acquisitions, 2.3% of audit opinions are unclean in the pre-acquisition period and 2.7% are unclean in the post-acquisition period. The magnitude of the

²⁵ In our sample, some audit reports disclose both accounting-related problems and fundamental uncertainties about going-concern. We assign these companies to the $OPINION_{it} = 1$ group because we are primarily interested in auditors' disclosures of accounting-related problems.

difference-in-differences is 10.1% ($= (16.8\% - 7.1\%) - (2.3\% - 2.7\%)$) and is statistically significant at the 1% level ($z\text{-stat.} = 3.05$). Therefore, auditors issue more unclean audit opinions prior to stock-financed acquisitions.

Panel C of Table 6 reports results for the difference-in-differences regressions, where the dependent variables are $UNCLEAN_{it}$ and $OPINION_{it}$.

$$UNCLEAN_{it} = \eta_0 + \eta_1 STOCK + \eta_2 BEFORE_t + \eta_3 STCOK_i \times BEFORE_t + CONTROLS + u \quad (3)$$

$$OPINION_{it} = \gamma_0 + \gamma_1 STOCK + \gamma_2 BEFORE_t + \gamma_3 STCOK_i \times BEFORE_t + CONTROLS + u \quad (4)$$

Eq. (3) is estimated using ordinary logit because the dependent variable is binary ($UNCLEAN_{it} = 0, 1$); Eq. (4) is estimated using multinomial logit because the dependent variable takes three values ($OPINION_{it} = 0, 1, 2$).

Col. 1 of Panel C presents Eq. (3) for the unclean opinions; Col. 2 presents Eq. (4) for the accounting-related problems (i.e., where $OPINION_{it} = 1$); Col. (3) presents Eq. (4) for the uncertainty-related opinions (i.e., where $OPINION_{it} = 2$). We employ the same control variables as in Tables 4 and 5 except that we add a control for the return on assets (ROA) because auditors issue going-concern opinions when companies are less profitable.

Col. (1) finds a significant positive coefficient on $STCOK_i \times BEFORE_t$ in the regression for unclean opinions ($z\text{-stat.} = 2.110$). Col. (2) also finds a significant positive coefficient on $STCOK_i \times BEFORE_t$ in the regression for accounting-related unclean opinions ($z\text{-stat.} = 2.249$). Therefore, auditors are more likely to disclose accounting problems prior to stock-financed acquisitions. In contrast, Col. (3) finds an insignificant positive coefficient on $STCOK_i \times BEFORE_t$ in the regression for uncertainty-related unclean opinions ($z\text{-stat.} = 0.636$). Together, these results indicate that the significant results in Col. (1) are driven by accounting-related problems rather than fundamental uncertainties.

Overall, these results suggest that auditors are aware of, and disclose, accounting problems that remain in the audited financial statements after adjustments have been booked. The fact that auditors are more likely to disclose accounting problems prior to stock-financed acquisitions suggests that not all the earnings management attempts are corrected through audit adjustments. Moreover, our finding that auditors are not more likely to disclose fundamental uncertainties prior to stock-financed acquisitions suggests the audit opinion results are not simply attributable to greater auditor conservatism. However, we are cautious in our conclusions from Table 6 given that there are only 62 unclean audit opinions that directly reference accounting problems.

5.3. Accruals prior to stock-financed acquisitions

Prior studies use accruals variables to test for upward earnings management prior to stock-financed acquisitions but the extant findings are mixed (Erickson and Wang, 1999; Louis, 2004; Heron and Lie, 2002; Pungaliya and Vijh, 2009). Our results for audit adjustments are consistent with auditors (partially) detecting and correcting managers' attempts to overstate earnings. Therefore, to the extent that the accruals variables have sufficient power to detect earnings overstatements, we ought to find significantly larger income-increasing accruals in the year prior to stock-financed acquisitions.

Table 7 reports the results for pre-audit accruals and audited accruals. We employ the same control variables as in Table 4 but results for the control variables are suppressed for the sake of brevity. Panel A presents the performance-matched accruals, while Panel B presents discretionary accruals estimated using the modified Jones model. The $STCOK_i \times BEFORE_t$ coefficients are insignificant for both the pre-audit accruals and the audited accruals. Therefore, the accruals variables are unable to detect upward earnings management prior to stock-financed acquisitions. This is in contrast to the evidence that auditors (partially) correct earnings overstatements in the pre-audit financial statements (Table 4) and auditors disclose accounting-related problems after the audit adjustments have been booked (Table 6). Together, the insignificant results are consistent with the accruals variables being noisy proxies for earnings overstatements.

5.4. Propensity-score matching

Our difference-in-differences design controls for time-invariant differences between the treatment group of stock-financed acquirers and the control group of cash-financed acquirers. Nevertheless, there could still be a concern that the results for $STCOK_i \times BEFORE_t$ are confounded by time-varying differences between the two groups. To address this concern, we match each stock-financed acquirer to a cash-financed acquirer based on their observable characteristics in the year prior to the acquisition announcement.

We begin the matching by estimating a logit model, where the dependent variable ($STCOK_i$) equals one if company i finances an acquisition in year t using stock, and zero if the acquisition is financed using cash. The independent variables are measured in the year before the acquisition announcement: $SIZE_{it-1}$, MB_{it-1} , LEV_{it-1} , SOE_{it-1} , BD_SIZE_{it-1} , IN_DIR_{it-1} , $BHRET_{it-1}$, $CASH_{it-1}$, AGE_{it-1} , ROA_{it-1} , $BIG10_{it-1}$, and $AUDCH_{it-1}$. The logit results are shown in Appendix B.²⁶ We find companies finance their acquisitions using stock rather than cash when they are smaller ($SIZE_{it-1}$), have higher market-to-book

²⁶ The number of acquisitions decreases to 2248 in Appendix B because there are 13 cash-financed acquisitions where the acquirer belongs to an industry which perfectly predicts the method of financing. The model is estimated using logit rather than probit because the logit gives better covariate balance, which is important when using propensity score matching (Shipman et al., 2017).

Table 7

Accruals prior to stock-financed acquisitions.

This table shows the associations between stock-financed acquisitions and accruals. The sample comprises M&As announced in the period 2007–2013. Panel A shows the results for performance-matched total accruals and Panel B shows the results for discretionary accruals. The models are estimated using tobit regressions because the dependent variables are truncated at zero. The standard errors are clustered at the company level and *t*-statistics are reported in parentheses. All variables are defined in [Appendix A](#).

Panel A: Income-increasing and income-decreasing performance-matched accruals				
	Income-increasing accruals		Income-decreasing accruals	
	$ PMA_UP_{PRE,it} $	$ PMA_UP_{AUD,it} $	$ PMA_DN_{PRE,it} $	$ PMA_DN_{AUD,it} $
$STOCK_i$	0.011 (1.071)	0.011 (1.071)	0.007 (0.530)	−0.007 (−0.623)
$BEFORE_t$	0.003 (−0.703)	−0.003 (−0.874)	0.001 (0.296)	0.003 (0.781)
$STOCK_i \times BEFORE_t$	0.005 (0.319)	0.010 (0.684)	0.004 (0.226)	0.009 (0.525)
Control variables	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Observations	4522	4522	4522	4522
Panel B: Income-increasing and income-decreasing discretionary accruals				
	Income-increasing accruals		Income-decreasing accruals	
	$ DA_UP_{PRE,it} $	$ DA_UP_{AUD,it} $	$ DA_DN_{PRE,it} $	$ DA_DN_{AUD,it} $
$STOCK_i$	0.004 (0.591)	0.006 (0.820)	−0.004 (−0.533)	−0.005 (−0.657)
$BEFORE_t$	0.002 (0.885)	0.003 (1.114)	−0.004 (−1.354)	−0.003 (−1.074)
$STOCK_i \times BEFORE_t$	−0.001 (−0.107)	−0.002 (−0.183)	0.016 (1.570)	0.019 (1.578)
Control variables	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Observations	3810	3818	3810	3818

ratios (MB_{it-1}), have higher leverage (LEV_{it-1}), are older (AGE_{it-1}), and less profitable (ROA_{it-1}). We use the coefficients from the logit model to calculate the predicted probabilities of using stock rather than cash. We then match each stock-financed acquirer to a cash-financed acquirer using the closest predicted probability.²⁷

Next, we check that matching eliminates the observable differences between the treatment and control groups. [Appendix C](#) reports the differences between stock-financed acquirers and: (1) the full control sample of cash-financed acquirers, and (2) the matched control sample of cash-financed acquirers. [Appendix C](#) shows that the covariate differences become small and statistically insignificant when the treatment sample is compared to the matched control sample. Therefore, our propensity score matching achieves covariate balance ([Shipman et al., 2017](#)).

Finally, we re-run the tests of H1 using the matched control group. The sample drops from 4522 to 904 observations (452 observations correspond to the pre- and post-periods for the 226 stock-financed acquisitions; another 452 observations correspond to the pre- and post-periods for the 226 matched cash-financed acquisitions). [Table 8](#) presents the results. Consistent with H1, we find a significant positive coefficient on $STOCK_i \times BEFORE_t$ in the model for downward audit adjustments (*t*-stat. = 2.386).²⁸ Therefore, we continue to find that auditors require larger downward adjustments prior to stock-financed acquisitions.

5.5. SOEs vs. non-SOEs

We expect stock-financed acquirers to engage in upward earnings management regardless of whether they are owned by the government or private individuals. Therefore, we do not expect our H1 results to be different between SOEs and non-SOEs. Nevertheless, we recognize that our setting is different from many countries because approximately half of China's publicly traded companies have the central or local government as the ultimate shareholder. This raises a question as to whether our findings are likely to generalize to settings in which the government is not a principal shareholder.

²⁷ The mean (median) absolute difference in the propensity score between the treatment sample and the matched control sample is 0.002 (0.000), with the largest difference being only 0.061. We match with replacement but our results are similar if we match without replacement using the same caliper of 0.061. Under this alternative treatment, the $STOCK_i \times BEFORE_t$ coefficient remains positive and significant in Col. (1) of [Table 4](#) (*t*-stat. = 2.030).

²⁸ The $STOCK_i \times BEFORE_t$ coefficients also remain positive and significant in Cols. (1) and (2) of [Table 6](#) (*z*-stats. = 2.291, 3.107) and insignificant in Col. (3) of [Table 6](#) (*z*-stat. = −0.161).

Table 8

Results using propensity score matching.

This table shows the results using propensity score matching. The sample comprises M&As announced in the period 2007–2013. We match each stock-financed acquisition to one cash-financed acquisition using the closest propensity score. The propensity scores are estimated using the model shown in Appendix B. Cols. (1) and (2) are estimated using tobit because the dependent variables are truncated at zero. The standard errors are clustered at the company level with t -statistics reported in parentheses. All variables are defined in Appendix A. ** denotes significance at the 5% level (two-tailed).

	Downward adjustments ($ ADJ_DN_{it} $) (1)	Upward adjustments ($ ADJ_UP_{it} $) (2)
$STOCK_i$	−0.052 (−1.481)	0.034 (0.628)
$BEFORE_t$	−0.033 (−0.844)	0.053 (0.924)
$STOCK_i \times BEFORE_t$	0.110** (2.386)	−0.108 (−1.418)
Control variables	Yes	Yes
Industry dummies	Yes	Yes
Year dummies	Yes	Yes
Observations	904	904

To address this concern, we examine whether the results are different between SOEs and non-SOEs. We test this by adding an interaction for $STOCK_i \times BEFORE_t \times SOE_{it}$ to our models of audit adjustments. Untabulated results show the coefficient on this three-way interaction is not significantly different from zero. We also examine whether regulators' incentives to sanction acquirers are different for SOEs and non-SOEs. We test this by adding interactions for $|ADJ_DN_{it}| \times SOE_{it}$ and $|ADJ_UP_{it}| \times SOE_{it}$ to the $IRREG_{it}$ model. Again, the interaction coefficients are not significantly different from zero. Overall, these results suggest that our main findings are not driven by differences between SOEs and non-SOEs.

5.6. Audit fees

Audit fees are typically negotiated *before* the start of the audit and research shows that auditors negotiate higher fees when they anticipate that the audit will be riskier (Hope et al., 2017). To the extent that auditors are able to anticipate a higher risk of misstatement due to an impending stock-financed acquisition, we would expect auditors to negotiate higher audit fees. On the other hand, we would not expect to observe higher audit fees if auditors are unable to anticipate future stock-financed acquisitions. Companies are motivated to not inform their auditors about impending stock-financed acquisitions because otherwise auditors would respond by conducting additional audit procedures and charging higher audit fees. In addition, acquirers would prefer to keep the negotiations secret until they are ready to make a public announcement to the market.

To investigate whether auditors are aware of future announcements of stock-financed acquisitions and whether this affects audit pricing, we estimate an audit fee model using a difference-in-differences research design that is similar to our previous analyses. In untabulated tests, we find an insignificant positive coefficient on $STOCK_i \times BEFORE_t$ in the audit fee model (t -stat. = 1.451). We suspect the lack of significance is due to auditors being uninformed about future acquisitions when they negotiate audit fees.

6. Conclusions

Our study is the first to examine the corrections that are required by auditors when managers are motivated to overstate earnings prior to stock-financed acquisitions. We find auditors require larger downward adjustments to earnings in the year before companies finance their acquisitions using equity. We also find that companies with downward adjustments are more likely to be sanctioned by the CSRC for accounting and disclosure irregularities that occurred in the year prior to the M&A announcement date. This is inconsistent with auditors being overly conservative when they require companies to make downward adjustments. Further, we find that auditors are more likely to disclose accounting problems in their audit reports during the year immediately prior to stock-financed acquisitions. This suggests that not all of the attempts to overstate earnings are corrected through downward audit adjustments.

Our study helps to reconcile the mixed findings in prior studies that test for upward earnings management prior to stock-financed acquisitions. Erickson and Wang (1999) and Louis (2004) find abnormally large signed accruals prior to stock-financed acquisitions, whereas Heron and Lie (2002) and Pungaliya and Vjth (2009) obtain insignificant results. Consistent with managers attempting to overstate earnings prior to stock-financed acquisitions, we find larger downward audit adjustments to earnings. Our results provide two explanations for the insignificant results reported in prior studies (Heron and Lie, 2002; Pungaliya and Vjth, 2009). First, the audited financial statements provide less evidence of earnings management than the pre-audit financial statements because auditors help to detect and correct earnings overstatements. Audit corrections make it harder for researchers to detect upward earnings management using publicly available financial statements.

Second, accruals variables provide low power tests for earnings management. We find insignificant results for pre-audit accruals even though our analysis of audit adjustments shows that auditors correct overstatements of pre-audit earnings prior to stock-financed acquisitions.

Because China is different from other countries, we acknowledge that our results may not generalize to other jurisdictions. The threat of legal liability is relatively low in China, which means that managers may be more inclined to overstate earnings, while auditors may be less inclined to detect and correct the earnings overstatements. We encourage researchers to examine other countries to assess whether audit adjustments help to mitigate earnings overstatements when managers are motivated to inflate earnings.

Another institutional difference is that Chinese auditors are required to report the pre-audit values of earnings and total assets to the MOF, whereas this is not a requirement in other countries. However, the situation in China is similar to other countries in the sense that investors are not informed about audit adjustments because the pre-audit data reported to the MOF are *not* publicly disclosed to investors. Similar to China, the regulatory agencies in other countries have access to information about audit adjustments on the engagements that they choose to inspect. It is only on the uninspected engagements where the MOF has an informational advantage relative to regulatory agencies in other countries.

Acknowledgments

We thank the editor (SP Kothari) and the reviewer (Luo Zuo) for their excellent comments. This study has also benefited from the comments of workshop participants at the University of Bath, UC Berkeley, University of Chicago, Duke University, Michigan State University, and Northeastern University. Xi Wu thanks the Inspection Bureau of the Chinese Ministry of Finance for providing data support. Zi-Tian Wang acknowledges financial support from the National Natural Science Foundation of China (71502097), the Ministry of Education through the Institute of Accounting and Finance at Shanghai University of Finance and Economics (16JJD790038), and the “Chenguang Program” by Shanghai Education Development Foundation and Shanghai Municipal Education Commission.

Appendix A. Variable definitions

Measures of audit adjustments	
$E_{PRE,it}$	= Pre-audit earnings.
$E_{AUD,it}$	= Audited earnings.
ADJ_{it}	= Audit adjustments to earnings, scaled by the absolute value of pre-audit earnings: $ADJ_{it} = (E_{AUD,it} - E_{PRE,it}) / E_{PRE,it} $.
$ ADJ_DN_{it} $	= Absolute magnitude of downward audit adjustments to earnings, scaled by the absolute value of pre-audit earnings: $ ADJ_DN_{it} = (E_{AUD,it} - E_{PRE,it}) / E_{PRE,it} $ if $E_{AUD,it} < E_{PRE,it}$, and 0 otherwise.
$ ADJ_UP_{it} $	= Absolute magnitude of upward audit adjustments to earnings, scaled by the absolute value of pre-audit earnings: $ ADJ_UP_{it} = (E_{AUD,it} - E_{PRE,it}) / E_{PRE,it} $ if $E_{AUD,it} > E_{PRE,it}$, and 0 otherwise.
Measures of performance-matched accruals	
$TA_{PRE,it}$	= Pre-audit total assets.
$TA_{AUD,it}$	= Audited total assets.
$CFO_{PRE,it}$	= Operating cash flows scaled by pre-audit total assets: $CFO_{it} / TA_{PRE,it}$.
$CFO_{AUD,it}$	= Operating cash flows scaled by audited total assets: $CFO_{it} / TA_{AUD,it}$.
$ACC_{PRE,it}$	= Pre-audit accruals scaled by pre-audit total assets: $(E_{PRE,it} - CFO_{it}) / TA_{PRE,it}$.
$ACC_{AUD,it}$	= Audited accruals scaled by audited total assets: $(E_{AUD,it} - CFO_{it}) / TA_{AUD,it}$.
$PMA_{PRE,it}$	= Pre-audit performance-matched accruals. We match a sample company's pre-audit accruals ($ACC_{PRE,it}$) with another company's pre-audit accruals based on the same year, industry, and closest value of $CFO_{PRE,it}$.
$PMA_{AUD,it}$	= Audited performance-matched accruals. We match a sample company's audited accruals ($ACC_{AUD,it}$) with another company's audited accruals based on the same year, industry, and closest value of $CFO_{AUD,it}$.
$ PMA_DN_{PRE,it} $	= Income-decreasing performance-matched pre-audit accruals: $ PMA_{PRE,it} $ if $PMA_{PRE,it} < 0$ and 0 if $PMA_{PRE,it} \geq 0$.
$ PMA_{it_UP_{PRE,it}} $	= Income-increasing performance-matched pre-audit accruals: $ PMA_{PRE,it} $ if $PMA_{PRE,it} > 0$ and 0 if $PMA_{PRE,it} < 0$.
$ PMA_DN_{AUD,it} $	= Income-decreasing performance-matched audited accruals: $ PMA_{AUD,it} $ if $PMA_{AUD,it} < 0$ and 0 if $PMA_{AUD,it} \geq 0$.
$ PMA_{it_UP_{AUD,it}} $	= Income-increasing performance-matched audited accruals: $ PMA_{AUD,it} $ if $PMA_{AUD,it} > 0$ and 0 if $PMA_{AUD,it} < 0$.

(continued on next page)

Measures of discretionary accruals	
$DA_{PRE,it}$	= Pre-audit discretionary accruals, which are estimated using the modified Jones model: $ACC_{PRE,it} = a_0 + a_1(1/TA_{PRE,it-1}) + a_2(\Delta REV_{it} - \Delta REC_{it}) + a_3(PPE_{it})$. We scale each independent variable by the lagged value of pre-audit total assets ($TA_{PRE,it-1}$).
$DA_{AUD,it}$	= Audited discretionary accruals, which are estimated using the modified Jones model: $ACC_{AUD,it} = a_0 + a_1(1/TA_{AUD,it-1}) + a_2(\Delta REV_{it} - \Delta REC_{it}) + a_3(PPE_{it})$. We scale each independent variable by the lagged value of audited total assets ($TA_{AUD,it-1}$).
$ DA_{DN_{PRE,it}} $	= Pre-audit income-decreasing discretionary accruals. = $ DA_{PRE,it} $ if $DA_{PRE,it} < 0$ and 0 if $DA_{PRE,it} \geq 0$.
$ DA_{UP_{PRE,it}} $	= Pre-audit income-increasing discretionary accruals. = $ DA_{PRE,it} $ if $DA_{PRE,it} > 0$ and 0 if $DA_{PRE,it} < 0$.
$ DA_{DN_{AUD,it}} $	= Audited income-decreasing discretionary accruals. = $ DA_{AUD,it} $ if $DA_{AUD,it} < 0$, and 0 if $DA_{AUD,it} \geq 0$.
$ DA_{UP_{AUD,it}} $	= Audited income-increasing discretionary accruals. = $ DA_{AUD,it} $ if $DA_{AUD,it} > 0$ and 0 if $DA_{AUD,it} < 0$.
Measures of regulatory sanctions and audit opinions	
$SANC_{it}$	= 1 if company i receives a regulatory sanction because it issued fraudulent audited financial statements in year t , = 0 otherwise.
$UNCLEAN_{it}$	= 1 for unclean audit opinions, = 0 for clean audit opinions.
$OPINION_{it}$	= 2 for unclean audit opinions that disclose uncertainty-related issues, = 1 for unclean audit opinions that disclose accounting-related issues, and = 0 for clean audit opinions.
Treatment variables	
$STOCK_i$	= 1 if company i engages in a stock-financed acquisition, and 0 if it engages in a cash-financed acquisition.
$BEFORE_t$	= 1 for fiscal year t immediately before the M&A announcement date, and 0 for fiscal year t immediately after the M&A completion date (or termination date). See Fig. 1 for further details.
Control variables	
$SIZE_{it}$	= Natural logarithm of total assets.
MB_{it}	= Market-to-book ratio.
LEV_{it}	= Total liabilities/total assets.
SOE_{it}	= 1 for stated-owned-enterprises, and 0 otherwise.
BD_SIZE_{it}	= natural logarithm of the number of directors on the board.
IN_DIR_{it}	= Percentage of independent directors on the board.
$BHRET_{it}$	= Annual buy-and-hold returns.
$CASH_{it}$	= Cash and cash equivalents divided by total assets.
AGE_{it}	= Natural logarithm of the company's age.
ROA_{it}	= Audited profits divided by total assets.
$BIG10_{it}$	= 1 for a Big 10 audit firm, and 0 otherwise.
$AUDCH_{it}$	= 1 if company i hires a new audit firm in year t , and 0 otherwise.

Appendix B. A logit model that predicts the method of acquisition financing

This table presents the results of a logistic regression that predicts the method of acquisition financing. The sample comprises M&As announced in the period 2007–2013. The dependent variable equals one if the company finances an acquisition in year t using stock, and zero if cash. The independent variables are measured at year $t-1$. The z-statistics are reported in parentheses. All variables are defined in Appendix A. ***, **, and * denote significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

$SIZE_{it-1}$	-0.564*** (-6.781)
MB_{it-1}	0.097** (2.003)
LEV_{it-1}	1.945*** (5.222)
SOE_{it-1}	-0.120 (-0.690)
BD_SIZE_{it-1}	0.286 (0.654)
IN_DIR_{it-1}	0.120 (0.067)
$BHRET_{it-1}$	-0.140 (-1.276)

(continued on next page)

CASH _{it-1}	-0.719 (-1.088)
AGE _{it-1}	0.420*** (3.260)
ROA _{it-1}	-2.328* (-1.813)
BIG10 _{it-1}	-0.180 (-1.046)
AUDCH _{it-1}	0.209 (0.843)
CONSTANT _{it-1}	8.038*** (3.814)
Year dummies	Yes
Industry dummies	Yes
Observations	2248
Pseudo R-square	14.75%

Appendix C. Univariate tests for the independent variables that are used to predict the method of financing in Appendix B

This table presents tests of covariate balance for the independent variables used in the propensity score matching. The sample comprises M&As announced in the period 2007–2013. All variables are defined in Appendix A. *** and ** denote significance at the 1% and 5% levels (two-tailed), respectively.

	Treatment sample of stock-financed acquisitions (N = 226) (1) Mean	Full sample of cash-financed acquisitions (N = 2035) (2) Mean	Matched sample of cash-financed acquisitions (N = 226) (3) Mean	(1) vs. (2) t-stat.	(1) vs. (3) t-stat.
SIZE _{it-1}	21.146	21.837	21.141	-7.632***	0.042
MB _{it-1}	2.426	1.957	2.631	3.724***	-0.866
LEV _{it-1}	0.583	0.470	0.573	7.240***	0.390
SOE _{it-1}	0.465	0.492	0.465	-0.778	0.000
BD_SIZE _{it-1}	2.175	2.203	2.196	-1.932**	-1.203
IN_DIR _{it-1}	0.362	0.363	0.360	-0.202	0.613
BHRET _{it-1}	0.074	0.078	0.116	-0.078	-0.620
CASH _{it-1}	0.161	0.212	0.172	-4.341***	-0.737
AGE _{it-1}	2.197	1.857	2.203	5.606***	-0.092
ROA _{it-1}	0.034	0.051	0.029	-4.340***	0.629
BIG10 _{it-1}	0.283	0.385	0.301	-3.012***	-0.413
AUDCH _{it-1}	0.124	0.075	0.142	2.595***	-0.554

References

- Ai, C., Norton, E.C., 2003. Interaction terms in logit and probit models. *Econ. Lett.* 80, 123–129.
- Ashbaugh, H., LaFond, R., Mayhew, B.W., 2003. Do nonaudit services compromise auditor independence? Further evidence. *Account. Rev.* 78, 611–639.
- Atanasov, V., Black, B., 2015. The trouble with instruments: *re-examining shock-based IV designs*. Working paper.
- Ball, R., 2013. Accounting informs investors and earnings management is rife: two questionable beliefs. *Account. Horizons* 27, 847–853.
- Ball, R., Shivakumar, L., 2008. Earnings quality at initial public offerings. *J. Account. Econ.* 45, 324–349.
- Balsam, S., Krishnan, J., Yang, J.S., 2003. Auditor industry specialization and earnings quality. *Auditing: J. Pract. Theory* 22, 71–97.
- Becker, C.L., DeFond, M.L., Jiambalvo, J., Subramanyam, K.R., 1998. The effect of audit quality on earnings management. *Contemp. Account. Res.* 15, 1–24.
- Boone, J.P., Khurana, I.K., Raman, K.K., 2012. Audit market concentration and auditor tolerance for earnings management. *Contemp. Account. Res.* 29, 1171–1203.
- Botosan, C., Boyle, E., Lewis-Western, M., 2016. The impact of audits on financial statement error in the presence of incentive and opportunity. Working paper, University of Utah.
- Chan, K.H., Lin, K., Mo, P., 2006. A political-economic analysis of auditor reporting and auditor switches. *Rev. Account. Stud.* 11, 21–48.
- Chen, C.J.P., Chen, S., Su, X., 2001. Profitability regulation, earnings management and modified audit opinions: evidence from China. *Auditing: J. Pract. Theory* 20, 9–30.
- Chen, C.Y., Lin, C.J., Lin, Y.C., 2008. Audit partner tenure, audit firm tenure, and discretionary accruals: Does long auditor tenure impair earnings quality. *Contemp. Account. Res.* 25, 415–445.
- Chen, H., Chen, J.Z., Lobo, G.J., Wang, Y., 2011. Effects of audit quality on earnings management and cost of equity capital: evidence from China. *Contemp. Account. Res.* 28, 892–925.
- Chen, S., Sun, S.Y.J., Wu, D., 2010. Client importance, institutional improvements, and audit quality in China: an office and individual auditor level analysis. *Account. Rev.* 85, 127–158.
- Chung, H., Kallapur, S., 2003. Client importance, nonaudit services, and abnormal accruals. *Account. Rev.* 78, 931–955.
- Cohen, D.A., Zarowin, P., 2010. Accrual-based and real earnings management activities around seasoned equity offerings. *J. Account. Econ.* 50, 2–19.
- Cohen, J.R., Gaynor, L.M., Krishnamoorthy, G., Wright, A.M., 2011. The impact on auditor judgements of CEO influence on audit committee independence. *Auditing: J. Pract. Theory* 30, 129–147.
- Collins, D., Pungaliya, R., Vijh, A., 2017. The effects of firm growth and model specification choices on tests of earnings management in quarterly settings. *Account. Rev.* 92, 69–100.
- Davis, L.R., Soo, B.S., Trompeter, G.M., 2009. Auditor tenure and the ability to meet or beat earnings forecasts. *Contemp. Account. Res.* 26, 517–548.

- Dechow, P., Dichev, I., 2002. The quality of accruals and earnings: the role of accrual estimation errors. *Account. Rev.* 77, 35–59.
- Dechow, P., Ge, W., Schrand, C., 2010. Understanding earnings quality: a review of the proxies, their determinants and their consequences. *J. Account. Econ.* 50, 344–401.
- Dechow, P., Sloan, R., Sweeney, A., 1995. Detecting earnings management. *Account. Rev.* 70, 193–226.
- DeFond, M.L., Wong, T.J., Li, S., 2000. The impact of improved auditor independence on audit market concentration in China. *J. Account. Econ.* 28, 269–305.
- Ding, Y., Su, X., 2008. Implementation of IFRS in a regulated market. *J. Account. Public Policy* 27, 474–479.
- Erickson, M., Wang, S.-W., 1999. Earnings management by acquiring firms in stock for stock mergers. *J. Account. Econ.* 27, 149–176.
- Fairfield, P., Whisenant, S., Yohn, T.L., 2003. Accrued earnings and growth: Implications for future profitability and market mispricing. *Account. Rev.* 78, 353–371.
- Ferguson, M.J., Seow, G.S., Young, D., 2004. Nonaudit services and earnings management: UK evidence. *Contemp. Account. Res.* 21, 813–841.
- Francis, J.R., Maydew, E.L., Sparks, H.C., 1999. The role of Big6 auditors in the credible reporting of accruals. *Auditing: J. Pract. Theory* 18, 17–34.
- Francis, J., Michas, P.N., Seavey, S.E., 2012. Does audit market concentration harm the quality of audited earnings? Evidence from audit market in 42 countries. *Contemp. Account. Res.* 30, 325–355.
- Francis, J.R., Michas, P.N., Yu, M.D., 2013. Office size of Big 4 auditors and client restatements. *Contemp. Account. Res.* 30, 1626–1661.
- Francis, J.R., Yu, M.D., 2009. Big 4 office size and audit quality. *Account. Rev.* 84, 1521–1552.
- Frankel, R.M., Johnson, M.F., Nelson, K.K., 2002. The relation between auditors' fees for nonaudit services and earnings management. *Account. Rev.* 77, 71–105.
- Gul, F.A., Fung, S.Y.K., Jaggi, B., 2009. Earnings quality: Some evidence on the role of auditor tenure and auditors' industry expertise. *J. Account. Econ.* 47, 265–287.
- He, X., Pittman, J., Rui, O.M., 2016. Reputational implications for partners after a major audit failure: evidence from China. *J. Bus. Ethics* 138, 703–722.
- Heron, R., Lie, E., 2002. Operating performance and the method of payment in takeovers. *J. Financial Quant. Anal.* 37, 137–155.
- Hribar, P., Collins, D., 2002. Errors in estimating accruals: implications for empirical research. *J. Account. Res.* 40, 105–134.
- Hope, O.K., Hu, D., Zhao, W., 2017. Third-party consequences of short-selling threats: The case of auditor behavior. *J. Account. Econ.* 63, 479–498.
- Johnson, V.E., Khurana, I.K., Reynolds, K.J., 2002. Audit-firm tenure and the quality of financial reports. *Contemp. Account. Res.* 19, 637–660.
- Kausar, A., Lennox, C., 2017. Balance sheet conservatism and audit reporting conservatism. *J. Bus. Finance Account.* 44, 897–924.
- Khurana, I.K., Raman, K.K., 2004. Litigation risk and the financial reporting credibility of Big4 versus non-Big4 audits: evidence from Anglo-American countries. *Account. Rev.* 79, 473–495.
- Kim, Y., Park, M.S., 2014. Real activities manipulation and auditors' client-retention decisions. *Account. Rev.* 89, 367–401.
- Kothari, S.P., Mizik, N., Roychowdhury, S., 2016. Managing for the moment: the role of earnings management via real activities versus accruals in SEO valuation. *Account. Rev.* 91, 559–586.
- Lawrence, A., Minutti-Meza, M., Zhang, P., 2011. Can Big4 versus non-Big4 differences in audit-quality proxies be attributed to client characteristics. *Account. Rev.* 86, 259–286.
- Lennox, C., Pittman, J., 2010. Big five audits and accounting fraud. *Contemp. Account. Res.* 27, 209–247.
- Lennox, C., Wu, X., Zhang, T., 2016. The effect of audit adjustments on earnings quality: evidence from China. *J. Account. Econ.* 61, 545–562.
- Louis, H., 2004. Earnings management and the market performance of acquiring firms. *J. Financial Econ.* 74, 121–148.
- McNichols, M.F., 2000. Research design issues in earnings management studies. *J. Account. Public Policy* 19, 313–345.
- Minutti-Meza, M., 2010. Does auditor industry specialization improve audit quality. *J. Account. Res.* 51, 779–817.
- Myers, J.N., Myers, L.A., Omer, T.C., 2003. Exploring the term of the auditor-client relationship and the quality of earnings: a case for mandatory auditor rotation. *Account. Rev.* 78, 779–799.
- Newton, N.J., Wang, D., Wilkins, M.S., 2013. Does a lack of choice lead to lower quality? Evidence from auditor competition and client restatements. *Auditing: J. Pract. Theory* 32, 31–67.
- Peng, S., Smith, J., 2010. Chinese GAAP and IFRS: An analysis of the convergence process. *J. Int. Account. Audit. Tax.* 19, 16–34.
- Puhani, P.A., 2012. The treatment effect, the cross difference, and the interaction term in nonlinear “difference-in-differences” models. *Econ. Lett.* 115, 85–87.
- Pungaliya, R., Vijh, A., 2009. Do acquiring firms manage earnings? Working paper, University of Iowa.
- Reichelt, K.J., Wang, D., 2010. National and office-specific measures of auditor industry expertise and effects on audit quality. *J. Account. Res.* 48, 647–686.
- Roberts, M., Whited, T., 2013. Endogeneity in corporate finance. In: *Handbook of the Economics of Finance*, 2, pp. 493–572. Part A Chapter 7.
- Shipman, J., Swanquist, Q., Whited, R., 2017. Propensity score matching in accounting research. *Account. Rev.* 92, 213–244.
- Simnett, R., Sylph, J.M., 2006. Update of the IAASB's activities 2005. *Auditor's Rep.* 29 (2). <http://aaahq.org/audit/Pubs/Audrep/06spring/item05.htm>.
- Stein, J., 1989. Efficient capital markets, inefficient firms: a model of myopic corporate behavior. *Q. J. Econ.* 104, 655–669.
- Subramanyam, K., 1996. The pricing of discretionary accruals. *J. Account. Econ.* 22, 249–281.
- Teoh, S., Welch, I., Wong, T., 1998a. Earnings management and the long run underperformance of seasoned equity offerings. *J. Financial Econ.* 50, 53–100.
- Teoh, S., Welch, I., Wong, T., 1998b. Earnings management and the subsequent market performance of initial public offerings. *J. Finance* 53, 1935–1974.
- Tucker, J., Zarowin, P., 2006. Does income smoothing improve earnings informativeness. *Account. Rev.* 81, 251–270.
- Wang, Q., Wong, T.J., Xia, L., 2008. State ownership, the institutional environment, and auditor choice: Evidence from China. *J. Account. Econ.* 46, 112–134.