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The effect of audit adjustments on earnings quality: Evidence from China ☆

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ABSTRACT

We examine how adjustments to earnings during year-end audits affect measures of earnings quality. There are four key findings. First, audit adjustments cause earnings to become smoother and more persistent. Second, the adjustments result in higher accrual quality. Third, audit adjustments have a larger negative effect on signed accruals than absolute accruals. Fourth, the adjustments do not reduce the discontinuity in the earnings distribution around zero. These findings are of interest to researchers who use earnings properties as proxies for earnings quality and audit quality. However, we caution that our findings for China may not generalize to other countries.

1. Introduction

We study the adjustments that auditors require companies to make to their pre-audit earnings numbers during year-end audits. In particular, we are interested in how these year-end audit adjustments affect the following measures of earnings quality that are commonly used in the financial accounting and auditing literatures:

- earnings smoothness and earnings persistence,
- accrual quality,
- signed accruals and absolute accruals, and
- the discontinuity in the earnings distribution around zero.

We examine the impact of audit adjustments on earnings using a unique dataset obtained from the Ministry of Finance (MOF) in China. Since 2006, Chinese audit firms have been required to provide the MOF with information on the pre-audit

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and audited values of pre-tax earnings and total assets for their publicly traded clients. The MOF has provided these data to us for the purposes of academic research.

These data have several advantages. One is that prior studies of audit adjustments rely on data voluntarily supplied by audit firms but audit firms have incentives to withhold information about highly sensitive audits, thereby creating potential sample selection problems. In contrast, it is mandatory for every audit firm in China to provide the data to the MOF. Further, the samples used in prior audit adjustment studies have been relatively small. For example, Kinney and Martin (1994) report that the sample sizes of prior studies range from 44 to 326 with a median of 152. Our sample is much larger (11,486 audits), which allows us to test research questions that have not previously been examined. Finally, we examine the differences between pre-audit and audited earnings, where both earnings variables correspond to the *same fiscal year-end*. This allows us to control for the effect of all non-accounting factors (e.g., economic performance) that equally affect pre-audit earnings and audited earnings. Our examination of the differences between pre-audit earnings and audited earnings avoids the confounding influence of non-accounting factors on earnings because each fiscal year-end is used as its own control.

What do we find? First, the audited earnings are significantly smoother and more persistent compared with the pre-audit earnings. Second, using the accrual quality measure of Dechow and Dichev (2002), we find that the audited accruals are of higher quality than the pre-audit accruals. Third, audit adjustments have a larger negative impact on signed accruals than absolute accruals. Fourth, audit adjustments have no effect on the discontinuity in the earnings distribution around zero.

We caution that China is different from other countries and this may limit the generalizability of our findings. Chinese Generally Accepted Accounting Principles has taken elements of International Financial Reporting Standards (IFRS) and is converging towards IFRS but is not the same as IFRS. Moreover, China's economy is strongly influenced by the government and the institutional environment is weak with relatively little legal protection for private investors. It is conceivable, therefore, that Chinese companies and auditors have different incentives than their counterparts in stronger institutional environments. For example, managers and auditors in China might collude on audit adjustments if they believe that no adjustment would look suspicious to the MOF. This might result in managers reporting unadjusted earnings knowing that the auditor would require a non-suspicious adjustment to generate the level of the earnings desired by managers and acceptable to auditors. Such collusion is perhaps more plausible in a country like China that ranks high in terms of corruption.

On the other hand, descriptive statistics for our large sample are similar to those for smaller samples in other countries. In particular, adjustments occur on approximately 70% of audits and downward (i.e., income-decreasing) adjustments are far more common than upward (i.e., income-increasing) adjustments. The fact that audit adjustments in our sample are similar to those reported in prior research suggests that our results may be generalizable beyond China.

To the extent that our findings can be generalized to other countries, the evidence has important implications for our understanding of earnings quality and audit quality. First, our study contributes to the debate as to whether earnings smoothness is a proxy for high or low earnings quality. This is controversial as some studies use smoothness as a proxy for low earnings quality (Leuz et al., 2003; Bhattacharya et al., 2003), whereas other studies argue that smoothness indicates high earnings quality (Hand, 1989; Sankar and Subramanyam, 2001; Tucker and Zarowin, 2006). We find that the pre-audit earnings are significantly more volatile and less persistent than the audited earnings. This suggests that audit adjustments reduce volatility and result in a smoother time-series of audited earnings.

Second, compared with pre-audit accruals, the audited accruals are more strongly associated with underlying cash flows. This suggests that audit adjustments help to reduce the estimation errors in accruals. This finding is important because DeFond and Francis (2005) question whether auditing might be detrimental to shareholders:

> *"Regulators and researchers generally seem to assume (at least implicitly) that the auditor's bias toward conservatively-reported financials improves earnings quality. We observe that while this may be true for creditors, equity holders may not benefit from the auditors conservative bias. We therefore encourage researchers to consider issues related to the link between auditing and earnings quality."*

Consistent with audits having a conservative effect on earnings, we find that downward adjustments occur far more often than upward adjustments. However, these downward adjustments do not seem to impair earnings quality. Rather, they offset the upward bias in managers' pre-audit earnings, such that the audited earnings better reflect the company's underlying cash flows.

Third, researchers often employ discretionary accruals as proxies for audit outcomes. However, there are inconsistencies in the way that studies measure accruals. Some studies use signed discretionary accruals, some employ absolute discretionary accruals, while others use both the signed and absolute measures. We find that audit adjustments have a larger negative impact on signed accruals than absolute accruals. This is for two reasons. One is that audit adjustments increase the frequency with which net accruals switch sign from positive to negative. These sign switches are fully captured by the signed measure but not by the absolute measure.[1] The other reason is that audit adjustments have a large *negative* impact

[1] For example, when the pre-audit accrual (scaled by total assets) is +0.01 and the audited accrual (scaled by total assets) is −0.01, the signed measure indicates a drop equal to −0.02 whereas the absolute measure does not change (i.e., |0.01|=|−0.01|). Therefore, the absolute accruals measure fails to fully account for sign changes.

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on net positive accruals, whereas they have a small *positive* impact on the magnitude of net negative accruals. Consequently, audit adjustments affect signed accruals more than absolute accruals.[2]

Fourth, we assess whether audit adjustments affect the discontinuity in the earnings distribution around zero. There is significant disagreement among researchers as to whether the discontinuity is a valid proxy for earnings management (Burgstahler and Dichev, 1997; Degeorge et al., 1999; Dechow et al., 2003; Durtschi and Easton, 2005; Durtschi and Easton, 2009; Beaver et al., 2007; Gilliam et al. 2015; Burgstahler and Chuk, 2015). Even if the discontinuity is caused by earnings management, it may not be a valid proxy for audit quality. For example, meeting and beating the zero earnings benchmark may be achieved through real earnings management and auditors are unlikely to reverse any real earnings management choices. However, a maintained assumption in many auditing studies is that a high incidence of small positive profits is a reliable indicator of a low quality audit.

If auditing really reduces the incidence of loss avoidance, we would expect the audited earnings distribution to have a smaller discontinuity around zero than the pre-audit earnings distribution. We do not find this. Therefore, either (1) the discontinuity is not a reliable indicator of earnings management, or (2) auditors in China do not prevent this form of earnings management. In either case, our results suggest that the relative incidence of losses and small profits may not be a good proxy for audit quality – at least not in China.

Section 2 discusses the relevant literature and develops the hypotheses. Section 3 discusses the sample and presents descriptive statistics. Section 4 reports the main results, while Section 5 provides a supplementary analysis. Section 6 concludes.

2. Prior literature and hypothesis development

2.1. Pre-audit earnings and audited earnings

Many studies attempt to gauge audit quality using measures of earnings quality. However, this can be problematic as audited earnings are affected by the reporting choices of managers as well as the procedures performed by auditors. Moreover, audited earnings are heavily affected by non-discretionary factors (e.g., fundamental performance) and real earnings management. Accordingly, the earnings quality metrics used in prior research are indirect and imprecise measures of audit outcomes (DeFond and Zhang, 2014).

To measure audit outcomes more directly, we compare the manager's pre-audit earnings (E_{PRE}) with the audited earnings (E_{AUD}), where a difference between the two (i.e., $E_{PRE} \neq E_{AUD}$) indicates an adjustment during the year-end audit. We express the pre-audit earnings (E_{PRE}) and audited earnings (E_{AUD}) as follows:

$$E_{PRE} = NA + A_{PRE} + \varepsilon_{PRE} \tag{1}$$

$$E_{AUD} = NA + A_{AUD} + \varepsilon_{AUD} \tag{2}$$

where:

NA = the *non-accounting* factors that affect earnings,
A_{PRE} = the accounting choices of managers that affect pre-audit earnings,
A_{AUD} = the accounting choices of managers *and* auditors that affect audited earnings,
ε_{PRE} = a random error in the manager's pre-audit earnings, and
ε_{AUD} = a random error in the audited earnings.

The non-accounting factors (NA) that affect both pre-audit and audited earnings include fundamental performance, the company's life-cycle, and real earnings management (Srivasta, 2014). The A_{PRE} variable reflects the manager's pre-audit accounting choices, whereas the A_{AUD} variable reflects the accounting choices of *both* managers and auditors. The two error terms (ε_{PRE} and ε_{AUD}) capture any unintended reporting errors. For example, an inventory counting error by the client would be reflected in ε_{PRE}, while audit sampling errors would be reflected in ε_{AUD}.

An audit adjustment is the difference between audited earnings and pre-audit earnings:

$$E_{AUD} - E_{PRE} = (A_{AUD} - A_{PRE}) + (\varepsilon_{AUD} - \varepsilon_{PRE}) \tag{3}$$

As shown in Eq. (3), the audit adjustment is not contaminated by any non-accounting factors (NA). Prior studies draw inferences about audit outcomes by examining E_{AUD}, which is potentially contaminated by non-accounting factors (NA). In

[2] Hribar and Nichols (2007) conclude that signed accruals are preferable to absolute accruals because absolute accruals are more likely to be contaminated by omitted variables. Our study is different from Hribar and Nichols (2007) because we compare the impact of audit adjustments on signed accruals versus absolute accruals. Moreover, the omitted variables problem is less of an issue for our study because we use each company-year observation as a control for itself.

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contrast our inferences are based on audit adjustments to earnings, i.e., E_{AUD}–E_{PRE}, and these audit adjustments are not contaminated by non-accounting factors (i.e., *NA* does not appear in Eq. (3))

This has three important advantages. First, we control for all time-varying non-accounting factors that simultaneously affect both pre-audit earnings (E_{PRE}) and audited earnings (E_{AUD}). For example, corporate performance is likely to affect both E_{PRE} and E_{AUD}, but this time-varying factor is controlled for because we take the difference between audited and pre-audit earnings for the *same* fiscal year-end. Thus, our approach controls for both time-varying and time-invariant non-accounting factors that impact earnings. Second, we do not need a regression model to control for non-accounting factors such as corporate performance. Instead, we simply examine the differences between pre-audit and audited earnings. Third, we directly control for alternative non-accounting explanations for the discontinuity in the earnings distribution around zero, such as sample selection biases, scaling effects, and asymmetric tax rules.

In Eq. (3) the effects of non-accounting factors (*NA*) are differenced away. For example, large companies may have higher earnings than small companies because they have greater market power, where market power is considered to be a non-accounting factor. This potential confound to earnings is differenced away because *NA* does not appear in Eq. (3). Nevertheless, this does not mean that company characteristics such as size have no impact on audit adjustments. For example, if auditors are more conservative when auditing larger companies this would mean that $A_{AUD,\,L} < A_{AUD,\,S}$, where the subscript L (S) denotes large (small) companies. Similarly, if auditors are more careful when auditing larger companies they would make fewer sampling errors, which would mean that $|\varepsilon_{AUD,\,L}| < |\varepsilon_{AUD,\,S}|$. Thus, we allow for the possibility that company characteristics can affect *accounting* choices while at the same time fully controlling for the effects of *non-accounting* factors (*NA*) on earnings.

2.2. Earnings smoothness, persistence, and accrual quality

A basic tenet of accrual-based accounting is that accruals help to smooth *transitory* fluctuations in cash flows (Dechow et al., 2010). This makes current earnings a better predictor of future earnings which helps investors to more accurately value the company (Subramanyam, 1996). However, earnings smoothing can also be used to artificially mask *permanent* revisions to cash flows. Therefore, smoothing can distort a company's true performance in which case it is indicative of low earnings quality (Leuz et al., 2003; Bhattacharya et al., 2003).

If managers use smoothing to opportunistically distort reported performance, we would expect pre-audit earnings to be smoother than audited earnings. In other words, audit adjustments would help undo managers' opportunistic smoothing in the pre-audit financial statements. On the other hand, managerial misreporting could make the time-series of pre-audit earnings more volatile. For example, a current-period overstatement could result in future earnings being understated due to the reversing nature of accruals. This would make the time-series of pre-audit earnings more volatile than the time-series of audited earnings. Given these alternative arguments, it is unclear whether the pre-audit earnings or the audited earnings would exhibit more smoothness and persistence. Our first hypothesis is stated in the null form as follows:

H1a:. *There is no significant difference between the audited earnings and the pre-audit earnings in terms of their smoothness and persistence.*

Because accruals can smooth *transitory* fluctuations in cash flows or artificially mask *permanent* revisions to cash flows, it is important to assess whether the accruals are supported by past, current, and future cash flows (Dechow and Dichev, 2002). Auditors test whether the pre-audit accruals are adequately supported by expected future cash flows (e.g., auditors test the collectability of accounts receivable). If accruals are not supported by cash flows, auditors are likely to require adjustments in order to improve the fair presentation of the financial statements. This gives the following prediction:

H1b:. *The audited accruals are of higher quality than the pre-audit accruals.*

2.3. Signed accruals versus absolute accruals

The signed accruals variable is one of the most widely used proxies for audit quality.[3] In addition, many studies use absolute accruals and/or they examine the absolute magnitudes of both positive and negative accruals. On the other hand, some auditing studies use absolute accruals without reporting any results for signed accruals (e.g., Ferguson et al., 2004; Johnson et al., 2002). Therefore, there is some inconsistency in the auditing literature's use of accruals to capture audit outcomes.

One reason for using absolute accruals is that auditors can correct *both* income-decreasing *and* income-increasing earnings management. Moreover, accruals have to reverse at some point during a company's lifetime, so an absolute measure of accruals can capture the effects of past as well as current earnings management. However, absolute accruals have two potential disadvantages relative to signed accruals. One is that an audit adjustment can cause the sign of net accruals to change. For example, a downward adjustment could cause the audited net accruals to become negative when the

[3] Studies include: Ashbaugh et al. (2003), Becker et al. (1998), Caramanis and Lennox (2008), Carey and Simnett (2006), Chen et al. (2008, 2011), Chi et al. (2009), Chung and Kallapur (2003), Francis and Wang (2008), Francis and Yu (2009), Francis et al. (2013), Frankel et al. (2002), Gul et al. (2009, 2013), Larcker and Richardson (2004), Menon and Williams (2004), Myers et al. (2003), Reichelt and Wang (2010), Reynolds and Francis (2001).

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manager's pre-audit net accruals were positive. Such sign changes are fully captured by the signed measure but not by the absolute measure. For example, if the pre-audit net accrual (scaled by assets) is +0.01 and the audited net accrual (scaled by assets) is −0.01, the absolute value does not change during the audit (|+0.01|=|−0.01|) whereas the signed value drops by 0.02.

Further, an audit adjustment could increase or decrease the absolute magnitude of negative net accruals. For example, if the pre-audit net accrual (scaled by assets) is −0.01, a conservative auditor might require a downward adjustment of −0.01, causing the audited net accrual to fall to −0.02. Auditing studies that rely on absolute rather than signed measures of accruals implicitly assume that larger negative accruals reflect income-decreasing earnings management rather than auditor conservatism. This assumption would be incorrect if large negative accruals are in fact attributable to auditor conservatism.

To assess these advantages and disadvantages, we examine whether audit adjustments have a bigger impact on signed accruals or absolute accruals. We test three hypotheses. The first hypothesis addresses the fact that audit adjustments can cause the sign of net accruals to change (from positive to negative or vice versa). Prior research shows that downward adjustments are more common than upward adjustments (Kinney and Martin, 1994), so we expect that net accruals switch from positive to negative more often than they switch from negative to positive. H2a is as follows:

H2a. *The frequency of having positive pre-audit net accruals together with negative audited net accruals is higher than the frequency of having negative pre-audit net accruals together with positive audited net accruals.*

Next, we consider how audit adjustments affect negative net accruals. There are two possibilities. On one hand, auditors require upward adjustments in order to correct income-decreasing earnings management. On the other hand, auditors require downward adjustments when they are more conservative than managers in their accounting estimates. Given these alternative possibilities, it is unclear whether negative accruals are larger in the pre-audit accounts or the audited accounts. Therefore, H2b is expressed in the null form:

H2b. *The magnitude of negative net accruals is not significantly different between the audited accounts and the pre-audit accounts.*

Finally, we examine how audit adjustments affect positive net accruals. We expect auditors have strong incentives to prevent income-increasing earnings management. Moreover, auditors tend to be more conservative than managers in their accounting estimates. Both arguments would mean that audit adjustments reduce the magnitude of positive net accruals, so H2c is as follows:

H2c. *The magnitude of positive net accruals is smaller in the audited accounts than in the pre-audit accounts.*

2.4. The incidence of losses and small profits

The discontinuity in the earnings distribution around zero is another widely used measure of audit quality for studies in China (Chen et al., 2001; Gul et al., 2013) and other countries (Carey and Simnett, 2006; Caramanis and Lennox, 2008; Francis and Wang, 2008; Francis and Yu, 2009; Francis et al., 2013). In China, managers have particularly strong incentives to avoid reporting losses because companies are downgraded by the stock exchanges to the "special treatment" status if they report two consecutive years of losses and are forced to de-list if they report three consecutive years of losses. [4] However, these serious consequences may also mean that Chinese auditors prefer to avoid adjustments that change the sign of earnings.[5]

In the US, there is significant controversy about whether earnings management causes a discontinuity in the earnings distribution around zero. Dechow et al. (2003) find no evidence that companies use accruals to meet or beat the zero earnings benchmark. Beaver et al. (2007) argue that the discontinuity is partly explained by the asymmetric tax treatments of profits and losses. Further, Durtschi and Easton (2005, 2009) argue that the discontinuity is explained by statistical and sample bias issues related to scaling by price, although this is disputed by Burgstahler and Chuk (2015). If the earnings discontinuity around zero is not caused by opportunistic earnings management, we would not expect audit adjustments to have any effect on the size of the discontinuity. On the other hand, if the discontinuity is caused by earnings management *and* if auditors require adjustments to mitigate this form of earnings management, we would expect a smaller discontinuity in the audited earnings distribution than in the pre-audit earnings distribution.[6] Given these competing arguments, H3 is written in the null form:

[4] Dechow et al. (2003) find the discontinuity in the earnings change distribution for US companies disappears by 2001. For the Chinese companies in our sample (2006–2012), we find no evidence of a discontinuity in the earnings change distribution.

[5] Kerstein and Rai (2007) and Jacob and Jorgensen (2007) find the zero earnings discontinuity is *more* pronounced in annual (i.e., audited) earnings than quarterly (i.e., unaudited) earnings. Their findings are consistent with two explanations: (1) auditors have little impact on the discontinuity, or (2) managers have stronger incentives to avoid losses in the annual accounts than the quarterly accounts. Rather than compare quarterly and annual earnings, we compare the annual pre-audit earnings with the annual audited earnings in order to focus on the impact of audit adjustments.

[6] According to Article 5 of Chinese Auditing Standard (CAS) No. 10 (effective since January 1, 1997), a small misstatement should be regarded as qualitatively material if it converts a loss into a profit. Therefore, auditors in China are supposed to mitigate loss avoidance, just as auditors are required to do in the US.

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H3. *There is no difference in the frequency of small profits (small losses) between the pre-audit earnings versus the audited earnings.*

3. Research setting and sample

3.1. Auditing in China

China's auditing profession was established in 1980 and most audit firms were initially affiliated with local governments. The development of the audit market accelerated following the opening of stock exchanges in Shanghai and Shenzhen in 1990 and 1991. Due to investor demands for greater audit quality, the MOF and China Securities Regulatory Commission introduced reforms to separate audit firms from the government. The reforms began in 1998 and were completed by early 2000. Chinese audit firms are now independent of the government and operate under competitive market forces (Chen et al., 2011).

There are three sources of incentives for audit quality in China. First, legal reforms in 2002 and 2005 significantly increased auditors' legal responsibilities and litigation risk (Firth et al., 2012). Second, the MOF and the Chinese Institute of Certified Public Accountants (CICPA) provide close regulatory oversight of audit firms, with the Inspection Bureau of the MOF conducting regular inspections. Tough sanctions have been imposed on errant auditors. For example, China's regulators withdrew the licenses of 18 audit firms and punished a further 60 audit firms with fines and reform orders in 2005. Finally, Chinese auditors suffer adverse reputational consequences when they are associated with audit scandals (He et al., 2013).

Nevertheless, there are important differences between China and other countries. One is that about half of the companies traded on China's stock exchanges have the central or local government as the ultimate shareholder. The reporting incentives of State-owned enterprises (SOEs) are likely different from those of non-SOEs and conceivably this might affect the differences between pre-audit and audited earnings. Therefore, we report results separately for the SOE and non-SOE companies as well as for the full sample. Accounting scandals have shown that audit firms in China do not always conduct high quality audits and, conceivably, our results could be different between low and high quality audit firms. Prior research finds that the Big 10 audit firms in China supply higher quality audits (DeFond et al., 2000; Chen et al., 2001). We therefore report results separately for the Big 10 and non-Big 10 audit firms, where the Big 10 are identified using an annual ranking of all listed clients' total assets. However, we acknowledge that the split between Big 10 and non-Big 10 auditors could partly capture the effect of client size as larger clients are more likely to employ Big 10 auditors.

3.2. Sample

Since 2006, Chinese audit firms have been required to report the pre-audit and audited values of pre-tax earnings and total assets of their listed clients to the MOF. Since 2012, audit firms have also been required to report the pre-audit and audited values of total liabilities and shareholder equity. One of the study's authors has been authorized to use the audit adjustment data for academic research because he previously worked for the CICPA which is under the oversight of the MOF. We mainly focus on the audit adjustments to earnings (scaled by total assets) in 2006–2012. However, in a supplementary analysis (Section 5) we also examine the adjustments to liabilities and equity that were reported in 2012 only.

We expect audit firms to report accurate data to the MOF because the audit inspectors can easily compare the audit firms' self-reported data with the information contained in audit working papers. Audit firms are not told which engagements will be examined by the inspectors, so it would not be feasible for audit firms to doctor the working papers in advance of an inspection.

Audit firms are not required to report the pre-audit values of operating cash flows or working capital accounts to the MOF. Therefore, we use operating cash flows from the audited financial statements (*CFO*) when constructing the accruals variables. In doing so, we assume that audit adjustments affect earnings through accruals rather than through operating cash flows.[7] This assumption is only needed for the accruals and cash flow variables; it does not affect our comparisons of pre-audit and audited earnings. Data for operating cash flows are obtained from the CSMAR database, which is widely used in China research. Like COMPUSTAT/CRSP in the US, CSMAR provides stock price and accounting data for publicly traded companies in China. Panel A of Table 1 shows that from 2006 to 2012, there are 13,231 annual observations in CSMAR and 12,495 observations in the MOF database. Merging these two databases yields a sample of 12,258 observations.[8] We drop 772 observations where we find inconsistencies between the CSMAR and MOF databases, leaving a final sample of 11,486 observations.[9]

[7] Operating cash flows can contain accruals that are susceptible to misstatement. Therefore, in a supplementary analysis we follow Richardson et al. (2005) and Dechow et al. (2008) by constructing accruals using free cash flows, which are defined as the change in cash balance plus net cash distributions to equity holders and debt holders. Untabulated results using the alternative accrual variables are similar to those reported in the tables.

[8] There are 973 observations in the CSMAR database that are not in the MOF database (973 = 13,231–12,258). These 973 observations are not significantly different from the observations in the merged sample (N = 12,258) with respect to size (total assets) or profitability (return on assets).

[9] 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 ±5%. We manually check the annual reports of 10% of the observations with inconsistencies to

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Table 1
The sample.

Panel A: Sample selection (2006–2012)

	Observations
Observations in the CSMAR database	13,231
Observations in the Ministry of Finance database	12,495
Sample after merging the two databases	12,258
Less observations where there are inconsistencies between the two databases	−772
Final Sample	11,486

Panel B: Distribution by year

Year	Observations	% of sample	% with audit adjustments
2006	1,143	9.95%	78.74%
2007	1,452	12.64%	75.21%
2008	1,567	13.64%	72.56%
2009	1,659	14.44%	68.96%
2010	2,006	17.46%	67.80%
2011	1,854	16.14%	64.40%
2012	1,805	15.71%	57.12%
Total	11,486		

Panel C: Distribution by industry

Industry	Observations	% of sample	% with audit adjustments
Agriculture	236	2.05%	78.81%
Mining	303	2.64%	49.50%
Manufacturing	6,589	57.37%	71.36%
Electricity, gas, and water	420	3.66%	55.48%
Construction	245	2.13%	63.27%
Transport, storage, and post	439	3.82%	58.31%
IT and computer services	813	7.08%	67.90%
Wholesale and retail trade	658	5.73%	72.80%
Finance	205	1.78%	52.68%
Real estate	687	5.98%	61.57%
Public utilities	368	3.20%	61.14%
Culture, sport & entertainment	128	1.11%	59.38%
Conglomerates	395	3.44%	79.24%
Total	11,486		

3.3. Descriptive statistics

Panels B and C of Table 1 partition the sample by year and industry. Panel B shows that the audit adjustment frequency declines from 78.74% in 2006 to 57.12% in 2012. The downward trend in adjustments could be because the reporting requirement incentivized companies to improve the quality of their pre-audit financial statements after 2006. Panel C shows that more than half the observations come from the manufacturing sector, which is unsurprising given the structure of China's economy. The industries with the highest rates of audit adjustments are conglomerates (79.24%) and agriculture (78.81%), whereas the lowest rates of audit adjustments are in mining (49.50%) and finance (52.68%).

3.4. Pre-audit earnings, audited earnings, and audit adjustments

Panel A of Table 2 reports descriptive statistics for the pre-audit and audited earnings. Panel A shows the audited earnings are consistently less than the pre-audit earnings. For example, the mean value of unscaled pre-audit earnings

(*footnote continued*)
identify which database is in error. We find the inconsistencies are due to errors in the MOF database rather than CSMAR. Nearly one third are due to the data entry person using the parent company accounts rather than the group accounts when entering data into the MOF database. We are unable to explain the remaining data entry errors in the MOF database. In untabulated analyses, we find that our conclusions remain the same when we use a stricter definition for dropping the observations with inconsistencies (e.g., a $\pm$1% cut-off instead of $\pm$5%). To determine whether there are systematic errors in the dropped observations, we compare the incidence of audit adjustments between the dropped observations and our final sample. We find that downward audit adjustments occur in 47.16% of observations in our final sample and in 46.50% of the dropped observations. The difference between 47.16% and 46.50% is not statistically significant, suggesting no significant difference in downward adjustments. On the other hand, we do find a significant difference in upward audit adjustments, which occur in 21.25% of observations in our final sample and in 30.44% of the dropped observations. One explanation is that the companies in our final sample are significantly larger than the companies that are dropped and larger companies have significantly fewer upward adjustments.

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Table 2
Descriptive statistics for pre-audit earnings, audited earnings, and audit adjustments (N=11,486 company-year observations).

Panel A: Descriptive statistics

Unscaled earnings:	Mean	P1	P25	P50	P75	P99
Pre_E$_{it}$ (RMB million)	494.90	−517.44	31.73	94.95	275.66	13,155.47
Post_E$_{it}$ (RMB million)	468.28	−588.02	29.06	91.63	270.73	12,113.83
Earnings scaled by total assets:						
Pre_ROA$_{it}$	0.055	−0.244	0.019	0.048	0.083	0.502
Post_ROA$_{it}$	0.048	−0.292	0.018	0.046	0.081	0.294

Panel B: The relative frequency of downward and upward audit adjustments

The downward adjustments sample comprises observations where the pre-audit earnings exceed the audited earnings (i.e., *Pre_E$_{it}$* > *Post_E$_{it}$*). The no adjustments sample comprises observations where there is no difference between pre-audit earnings and audited earnings (i.e., *Pre_E$_{it}$*=*Post_E$_{it}$*). The upward adjustments sample comprises observations where the pre-audit earnings are less than the audited earnings (i.e., *Pre_E$_{it}$* < *Post_E$_{it}$*).

	Downward adjustments (*Pre_E$_{it}$* > *Post_E$_{it}$*)		No adjustments (*Pre_E$_{it}$*=*Post_E$_{it}$*)		Upward adjustments (*Pre_E$_{it}$* < *Post_E$_{it}$*)	
	N	%	*N*	%	*N*	%
Full sample	5,417	47.16%	3,628	31.59%	2,441	21.25%
SOEs	2,126	40.87%	1,976	37.99%	1,100	21.15%
Non-SOEs	3,291	52.37%	1,652	26.29%	1,341	21.34%
Big 10 auditors	1,599	40.94%	1,552	39.73%	755	19.33%
Non-Big 10	3,818	50.37%	2,076	27.39%	1,686	22.24%

Panel C: The effects of audit adjustments on earnings: |ADJUST$_{it}$|=|Pre_E$_{it}$−Post_E$_{it}$|/|Pre_E$_{it}$|

	Downward adjustments (*Pre_E$_{it}$* > *Post_E$_{it}$*)		No adjustments (*Pre_E$_{it}$*=*Post_E$_{it}$*)		Upward adjustments (*Pre_E$_{it}$* < *Post_E$_{it}$*)	
	Mean	Median	Mean	Median	Mean	Median
Full sample	0.146	0.052	0.000	0.000	0.090	0.026
SOEs	0.148	0.050	0.000	0.000	0.087	0.026
Non-SOEs	0.145	0.054	0.000	0.000	0.093	0.027
Big 10 auditors	0.141	0.047	0.000	0.000	0.085	0.020
Non-Big 10	0.148	0.055	0.000	0.000	0.092	0.029

Panel D: The relative frequency of audit adjustments after sorting companies by total assets (quintile 1=smallest; quintile 5=largest)

	Downward adjustments (*Pre_E$_{it}$* > *Post_E$_{it}$*)		No adjustments (*Pre_E$_{it}$*=*Post_E$_{it}$*)		Upward adjustments (*Pre_E$_{it}$* < *Post_E$_{it}$*)	
Quintile 1	1,194	51.98%	629	27.38%	474	20.64%
Quintile 2	1,221	53.16%	570	24.81%	506	22.03%
Quintile 3	1,153	50.20%	645	28.08%	499	21.72%
Quintile 4	1,047	45.58%	709	30.87%	541	23.55%
Quintile 5	802	34.90%	1,075	46.78%	421	18.32%

Variable definitions:
Pre_E$_{it}$=pre-audit earnings. *Post_E$_{it}$*=audited earnings. *Pre_TA$_{it}$*=pre-audit total assets. *Post_TA$_{it}$*=audited total assets. *Pre_ROA$_{it}$*=pre-audit return on assets (*Pre_E$_{it}$*/*Pre_TA$_{it}$*). *Post_ROA$_{it}$*=audited return on assets (*Post_E$_{it}$*/*Post_TA$_{it}$*). |*ADJUST$_{it}$*|=the absolute magnitude of the net audit-related adjustments to pre-audit earnings divided by the absolute magnitude of pre-audit earnings (i.e., |*ADJUST$_{it}$*|=|*Pre_E$_{it}$*−*Post_E$_{it}$*|/|*Pre_E$_{it}$*|). The variables are winsorized at the 1% and 99% percentiles to deal with outliers.

(*Pre_E$_{it}$*) is RMB 494.90 million whereas the mean value of unscaled audited earnings (*Post_E$_{it}$*) is RMB 468.28 million, implying a mean reduction of 5.3% in earnings during year-end audits. The percentile values in Panel A show that audit adjustments cause earnings to be lower across the entire earnings distribution. The scaled earnings variables (*Pre_ROA$_{it}$*, *Post_ROA$_{it}$*) confirm that audited profitability is typically lower than pre-audit profitability.

Panel B partitions the sample into engagements with net downward adjustments, net upward adjustments, and no net adjustment. Only 31.59% of engagements have no net adjustment. There are 5,417 engagements (47.16%) where earnings are adjusted downwards, compared with 2,441 engagements (21.25%) where earnings are adjusted upwards. Therefore, downward adjustments are much more common than upward adjustments. This finding also holds when we partition the sample into SOE and non-SOE companies, or Big 10 and non-Big 10 audit firms.

Panel C shows the absolute impact of audit adjustments on earnings (|*ADJUST$_{it}$*|=(|*Pre_E$_{it}$*−*Post_E$_{it}$*|)/|*Pre_E$_{it}$*|). The mean (median) net downward adjustment is −14.6% (−5.2%), while the mean (median) net upward adjustment is +9.0% (+2.6%). Consequently, not only are downward adjustments more common than upward adjustments, the downward adjustments are also larger. These findings are consistent with evidence from the US that audit adjustments have an overwhelmingly negative impact on earnings (Kinney and Martin, 1994). Panel C results are similar for SOE and non-SOE

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companies and Big 10 and non-Big 10 auditors. Finally Panel D shows that large companies have fewer audit adjustments compared with small companies. This is consistent with larger companies having higher quality pre-audit accounts such that audit adjustments are required less often.

4. Results

4.1. Earnings smoothness and earnings persistence (H1a)

We follow prior research when constructing the measures of earnings smoothness. Following Dechow et al. (2010), we examine yearly changes in profitability. That is, we compare the absolute change in pre-audit profitability ($|\Delta Pre\_ROA_{it}|$) with the absolute change in audited profitability ($|\Delta Post\_ROA_{it}|$). Further, we scale these variables by the annual changes in cash flows from operations because a company will tend to have a bigger change in profitability when it has a bigger change in operating cash flows. That is, we compare the pre-audit scaled variable ($|\Delta Pre\_ROA_{it}|/|\Delta Pre\_CFO_{it}|$) with the audited scaled variable ($|\Delta Post\_ROA_{it}|/|\Delta Post\_CFO_{it}|$). Further, we follow Leuz et al. (2003) and Lang et al. (2003, 2006) by computing the company-level standard deviations of these variables. That is, we compare $\sigma(\Delta Pre\_ROA_{it})$ with $\sigma(\Delta Post\_ROA_{it})$ and we compare $\sigma(\Delta Pre\_ROA_{it})/\sigma(\Delta Pre\_CFO_{it})$ with $\sigma(\Delta Post\_ROA_{it})/\sigma(\Delta Post\_CFO_{it})$.

The annual change variables require only two consecutive years of data, whereas we require at least four consecutive years to calculate the company-level standard deviations. Therefore, there is less sample attrition using the change variables but the window over which smoothing is measured is correspondingly shorter. Dechow et al. (2010) show that the annual change variables are highly correlated with the standard deviation variables, a finding that we corroborate in our sample. We report results using both the annual changes and standard deviations to verify that our results are robust.

Panel A of Table 3 compares the absolute annual changes in pre-audit and audited profitability; i.e., $|\Delta Pre\_ROA_{it}|$ vs. $|\Delta Post\_ROA_{it}|$ and $|\Delta Pre\_ROA_{it}|/|\Delta Pre\_CFO_{it}|$ vs. $|\Delta Post\_ROA_{it}|/|\Delta Post\_CFO_{it}|$. In both tests, the pre-audit profitability variables are significantly more volatile than the audited profitability variables. These findings hold for the full sample as well as the SOE, non-SOE, Big 10, and non-Big 10 sub-samples.

Table 3
Earnings smoothness: pre-audit earnings vs. audited earnings (scaled by pre-audit and audited assets, respectively).

Panel A: Mean absolute changes in profitability.					
	Full sample	SOEs	Non-SOEs	Big10	Non-Big10
Pre-audit: $\|\Delta Pre\_ROA_{it}\|$	0.043	0.037	0.047	0.038	0.045
Post-audit: $\|\Delta Post\_ROA_{it}\|$	0.038	0.033	0.043	0.034	0.041
Difference in means	0.005***	0.004***	0.004***	0.004***	0.004***
(*t*-stat.)	(10.27)	(6.99)	(7.51)	(6.59)	(8.26)
Pre-audit: $\|\Delta Pre\_ROA_{it}\|/\|\Delta Pre\_CFO_{it}\|$	1.703	1.646	1.769	1.641	1.743
Post-audit: $\|\Delta Post\_ROA_{it}\|/\|\Delta Post\_CFO_{it}\|$	1.610	1.521	1.687	1.510	1.674
Difference in means	0.093***	0.125***	0.082***	0.131***	0.069***
(*t*-stat.)	(4.77)	(4.57)	(2.87)	(4.10)	(2.70)
Company-year observations	8,569	4,109	4,460	3,174	5,395
Panel B: Mean standard deviations of the changes in profitability.					
	Full sample	SOEs	Non-SOEs	Big10	Non-Big10
Pre-audit: $\sigma(\Delta Pre\_ROA_{it})$	0.058	0.050	0.067	0.048	0.062
Post-audit: $\sigma(\Delta Post\_ROA_{it})$	0.052	0.044	0.061	0.042	0.056
Difference in means	0.006***	0.006***	0.006***	0.006***	0.006***
(*t*-stat.)	(9.45)	(6.49)	(6.81)	(5.18)	(6.55)
Pre-audit: $\sigma(\Delta Pre\_ROA_{it})/\sigma(\Delta Pre\_CFO_{it})$	0.845	0.788	0.928	0.803	0.852
Post-audit: $\sigma(\Delta Post\_ROA_{it})/\sigma(\Delta Post\_CFO_{it})$	0.782	0.717	0.847	0.734	0.799
Difference in means	0.063***	0.071***	0.081***	0.069***	0.053***
(*t*-stat.)	(5.40)	(4.42)	(3.83)	(3.12)	(3.77)
Unique companies	1,392	720	662	426	804

*** denotes statistical significance at the 1 percent level (two-tailed). The standard errors in Panel A are corrected for time-series dependence by clustering on each company. To calculate the company-level standard deviations in Panel B, we restrict the sample to companies that have data for at least four consecutive years.

Variable definitions:

Pre_ROA_{it}=pre-audit return on assets (Pre_E_{it}/Pre_TA_{it}). $Post\_ROA_{it}$=audited return on assets ($Post\_E_{it}/Post\_TA_{it}$). Pre_E_{it}=pre-audit earnings. $Post\_E_{it}$=audited earnings. Pre_TA_{it}=pre-audit total assets. $Post\_TA_{it}$=audited total assets. Pre_CFO_{it}=cash flows from operations scaled by pre-audit total assets ($=CFO_{it}/Pre\_TA_{it}$). $Post\_CFO_{it}$=cash flows from operations scaled by audited total assets ($=CFO_{it}/Post\_TA_{it}$). $\sigma(\Delta Pre\_ROA_{it})$=standard deviation of the change in the pre-audit return on assets. $\sigma(\Delta Post\_ROA_{it})$=standard deviation of the change in the audited return on assets. $\sigma(\Delta Pre\_CFO_{it})$=standard deviation of the change in Pre_CFO_{it}. $\sigma(\Delta Post\_CFO_{it})$=standard deviation of the change in $Post\_CFO_{it}$.

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Table 4
Earnings persistence: pre-audit earnings vs. audited earnings (scaled by pre-audit and audited assets, respectively).

Estimating the earnings persistence model using pre-audit earnings: $Pre\_ROA_{it+1}=a_0+a_1\ Pre\_ROA_{it}+e_{PRE,\ it}$					
	Full sample	SOEs	Non-SOEs	Big10	Non-Big10
	Coef.	Coef.	Coef.	Coef.	Coef.
	(*t*-stat.)	(*t*-stat.)	(*t*-stat.)	(*t*-stat.)	(*t*-stat.)
Constant (a_0)	0.035***	0.029***	0.041***	0.033***	0.037***
	(23.09)	(13.59)	(18.69)	(11.69)	(19.31)
Pre_ROA_{it} (a_1)	0.333***	0.388***	0.295***	0.366***	0.317***
	(14.31)	(10.04)	(10.22)	(8.87)	(11.46)
Company-year observations	8,569	4,109	4,460	3,174	5,395
Adj. R^2	0.11	0.15	0.09	0.14	0.10
Estimating the earnings persistence model using post-audit earnings: $Post\_ROA_{it+1}=b_0+b_1 Post\_ROA_{it}+e_{POST,\ it}$					
	Full sample	SOEs	Non-SOEs	Big10	Non-Big10
	Coef.	Coef.	Coef.	Coef.	Coef.
Constant (b_0)	0.028***	0.021***	0.033***	0.024***	0.029***
	(22.29)	(11.65)	(18.89)	(10.47)	(18.09)
$Post\_ROA_{it}$ (b_1)	0.413***	0.506***	0.359***	0.482***	0.379***
	(17.90)	(13.16)	(12.93)	(12.00)	(13.56)
Company-year observations	8,569	4,109	4,460	3,174	5,395
Adj. R^2	0.18	0.26	0.14	0.25	0.15
Testing null hypothesis: $a_1=b_1$.					
Chi^2	55.38	75.62	16.48	61.99	20.39
(*p*-Value)	(< 0.001)	(< 0.001)	(< 0.001)	(< 0.001)	(< 0.001)

*** denotes statistical significance at the 1 percent level (two-tailed). The standard errors are corrected for clustering on each company. The persistence models are restricted to companies that have data for at least two consecutive years.
Variable definitions:
Pre_ROA_{it}=pre-audit return on assets (Pre_E_{it}/Pre_TA_{it}). $Post\_ROA_{it}$=audited return on assets ($Post\_E_{it}/Post\_TA_{it}$). Pre_E_{it}=pre-audit earnings. $Post\_E_{it}$=audited earnings. Pre_TA_{it}=pre-audit total assets. $Post\_TA_{it}$=audited total assets.

While Panel A measures volatility using annual changes, Panel B examines volatility using the company-level standard deviations; i.e., $\sigma(\Delta Pre\_ROA_{it})$ vs. $\sigma(\Delta Post\_ROA_{it})$ and $\sigma(\Delta Pre\_ROA_{it})/\sigma(\Delta Pre\_CFO_{it})$ vs. $\sigma(\Delta Post\_ROA_{it})/\sigma(\Delta Post\_CFO_{it})$. Once again, we find that earnings volatility is significantly greater in the pre-audit accounts than the audited accounts. Thus, the evidence clearly points toward the audited earnings being smoother than the pre-audit earnings.[10] This suggests that managerial misreporting creates time-series volatility in earnings and audit adjustments help to reduce the volatility by correcting the misreporting.

Next, we examine whether the pre-audit and audited profits exhibit significant differences in persistence. We estimate the following persistence models for pre-audit ROA and audited ROA:

$$Pre\_ROA_{it+1} = a_0 + a_1\ Pre\_ROA_{it} + e_{PRE,it}$$

$$Post\_ROA_{it+1} = b_0 + b_1\ Post\_ROA_{it} + e_{POST,it}$$

The persistence coefficients are a_1 and b_1, respectively. Table 4 shows that these two persistence coefficients are highly significant. More importantly, we find greater persistence for audited profits than pre-audit profits ($a_1 < b_1$). The differences between the persistence coefficients are statistically significant in the full sample and each of the sub-samples (*p*-value < 0.001). These results indicate that audit adjustments help to improve the predictability of future earnings. They are also consistent with the evidence in Table 3 that audited earnings are less volatile than pre-audit earnings. In other words, audit adjustments reduce earnings volatility and increase earnings persistence.

4.2. Accrual quality (H1b)

Following Dechow and Dichev (2002), we measure accrual quality by modelling accruals as a function of past, present, and future cash flows:

$$Pre\_Accruals_{it} = a_0 + a_1\ Pre\_CFO_{it-1} + a_2\ Pre\_CFO_{it} + a_3\ Pre\_CFO_{it+1} + u_{PRE,it}$$

$$Post\_Accruals_{it} = b_0 + b_1\ Post\_CFO_{it-1} + b_2\ Post\_CFO_{it} + b_3\ Post\_CFO_{it+1} + u_{POST,it}$$

The residuals ($u_{PRE,\ it}$ and $u_{POST,\ it}$) represent the estimation errors in pre-audit and audited accruals. If audit adjustments result in higher accrual quality, we would expect the residuals to be smaller and less volatile for audited accruals than pre-

[10] In untabulated tests, we examine the standard deviations in the profitability *levels* variables; i.e., $\sigma(Pre\_ROA_{it})$ vs. $\sigma(Post\_ROA_{it})$ and $\sigma(Pre\_ROA_{it})/\sigma(Pre\_CFO_{it})$ vs. $\sigma(Post\_ROA_{it})/\sigma(Post\_CFO_{it})$. Consistent with our tabulated results, these volatility variables are significantly smaller for the audited accounts than the pre-audit accounts.

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Table 5
Accruals quality: pre-audit accruals vs. audited accruals (scaled by pre-audit and audited assets, respectively).

Panel A: Estimating the Dechow and Dichev (2002) model using pre-audit accruals (dependent variable = $Pre\_Accruals_{it}$).

	Full sample	SOEs	Non-SOEs	Big10	Non-Big10
	Coef.	Coef.	Coef.	Coef.	Coef.
	(*t*-stat.)	(*t*-stat.)	(*t*-stat.)	(*t*-stat.)	(*t*-stat.)
Constant (a_0)	0.030***	0.018***	0.040***	0.029***	0.031***
	(15.12)	(6.89)	(14.17)	(8.73)	(12.03)
Pre_CFO_{it-1} (a_1)	0.150***	0.166***	0.143***	0.135***	0.154***
	(9.04)	(7.59)	(5.91)	(4.15)	(7.86)
Pre_CFO_{it} (a_2)	−0.795***	−0.723***	−0.849***	−0.716***	−0.834***
	(−37.74)	(−24.44)	(−29.40)	(−17.86)	(−34.59)
Pre_CFO_{it+1} (a_3)	0.083***	0.078***	0.088***	0.075*	0.085***
	(4.19)	(2.72)	(3.28)	(1.94)	(3.64)
Company-year observations	6,336	3,196	3,140	2,280	4,056
Adj. R^2	0.37	0.39	0.37	0.34	0.39

Panel B: Estimating the Dechow and Dichev (2002) model using post-audit accruals (dependent variable = $Post\_Accruals_{it}$).

	Full sample	SOEs	Non-SOEs	Big10	Non-Big10
	Coef.	Coef.	Coef.	Coef.	Coef.
	(*t*-stat.)	(*t*-stat.)	(*t*-stat.)	(*t*-stat.)	(*t*-stat.)
Constant (b_0)	0.022***	0.013***	0.029***	0.022***	0.022***
	(11.70)	(5.25)	(10.76)	(7.03)	(9.26)
$Post\_CFO_{it-1}$ (b_1)	0.163***	0.185***	0.150***	0.149***	0.166***
	(10.57)	(9.05)	(6.74)	(5.11)	(9.09)
$Post\_CFO_{it}$ (b_2)	−0.762***	−0.709***	−0.800***	−0.687***	−0.798***
	(−41.07)	(−27.44)	(−31.02)	(−20.34)	(−38.26)
$Post\_CFO_{it+1}$ (b_3)	0.094***	0.080***	0.103***	0.088**	0.094***
	(5.14)	(2.99)	(4.22)	(2.44)	(4.63)
Company-year observations	6,336	3,196	3,140	2,280	4,056
Adj. R^2	0.38	0.40	0.37	0.35	0.40

Panel C: Tests for differences in accrual quality between the pre-audit accruals and the post-audit accruals.
Mean absolute values of the accrual estimation errors.

	Full sample	SOEs	Non-SOEs	Big10	Non-Big10
Pre-audit: $\lvert u_{PRE,\ it}\rvert$	0.052	0.044	0.059	0.048	0.054
Post-audit: $\lvert u_{POST,\ it}\rvert$	0.050	0.043	0.057	0.047	0.052
Difference in means	0.002***	0.001	0.002**	0.001	0.002***
(*t*-stat.)	(3.17)	(1.52)	(2.47)	(0.91)	(3.37)
Company-year observations	6,336	3,196	3,140	2,280	4,056

Mean standard deviations of the accrual estimation errors.

	Full sample	SOEs	Non-SOEs	Big10	Non-Big10
Pre-audit: σ ($u_{PRE,\ it}$)	0.052	0.041	0.063	0.040	0.053
Post-audit: σ ($u_{POST,\ it}$)	0.048	0.038	0.059	0.037	0.050
Difference in means	0.004***	0.003**	0.004***	0.003*	0.003***
(*t*-stat.)	(3.69)	(2.34)	(3.07)	(1.72)	(2.60)
Unique companies	982	540	436	285	542

***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively (two-tailed). The standard errors are corrected for clustering on each company. To calculate the company-level standard deviations in Panel C, we restrict the sample to companies that have data for at least four consecutive years.

Variable definitions:

$Pre\_Accruals_{it}$ = pre-audit accruals (= $Pre\_ROA_{it} - Pre\_CFO_{it}$). $Post\_Accruals_{it}$ = audited accruals (= $Post\_ROA_{it} - Post\_CFO_{it}$). Pre_ROA_{it} = pre-audit return on assets (Pre_E_{it}/Pre_TA_{it}). $Post\_ROA_{it}$ = audited return on assets ($Post\_E_{it}/Post\_TA_{it}$). Pre_E_{it} = pre-audit earnings. $Post\_E_{it}$ = audited earnings. Pre_TA_{it} = pre-audit total assets. $Post\_TA_{it}$ = audited total assets. Pre_CFO_{it} = cash flows from operations scaled by pre-audit total assets (= CFO_{it}/Pre_TA_{it}). $Post\_CFO_{it}$ = cash flows from operations scaled by audited total assets (= $CFO_{it}/Post\_TA_{it}$). $u_{PRE,\ it}$ = residuals from regressing pre-audit accruals on past, current, and future cash flows. $u_{POST,\ it}$ = residuals from regressing audited accruals on past, current, and future cash flows. $\sigma(u_{PRE,\ it})$ = standard deviation of $u_{PRE,\ it}$. $\sigma(u_{POST,\ it})$ = standard deviation of $u_{POST,\ it}$.

audit accruals. Following Dechow et al. (2010), we examine both the absolute magnitudes of accrual estimation errors ($\lvert u_{PRE,\ it}\rvert$ vs. $\lvert u_{POST,\ it}\rvert$) and their standard deviations (i.e., $\sigma(u_{PRE,\ it})$ vs. $\sigma(u_{POST,\ it})$).

The results for the Dechow and Dichev (2002) models are reported in Panels A and B of Table 5. The results for the accrual estimation errors are shown in Panel C. The accrual estimation errors are smaller for the audited accruals than the pre-audit accruals. In the full sample, the mean value of $\lvert u_{POST,\ it}\rvert$ is significantly smaller than the mean value of $\lvert u_{PRE,\ it}\rvert$. Likewise, the mean value of $\sigma(u_{POST,\ it})$ is significantly smaller than the mean value of $\sigma(u_{PRE,\ it})$. These findings suggest that audit adjustments help to reduce the estimation errors in accruals.

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4.3. Signed accruals and absolute accruals (H2a, H2b, H2c)

In this section, we examine the effect of audit adjustments on signed and absolute net accruals. The results are reported in Table 6. Panel A shows that the pre-audit signed accruals are significantly larger than the audited signed accruals. Panel B shows that the pre-audit absolute accruals are significantly larger than the audited absolute accruals. Therefore, audit adjustments result in smaller signed net accruals and smaller absolute net accruals. More importantly, Panels A and B show that audit adjustments have a larger negative impact on signed accruals than absolute accruals. For example, in the full sample the difference between $Pre\_Accruals_{it}$ and $Post\_Accruals_{it}$ is 0.005, whereas the difference between $|Pre\_Accruals_{it}|$ and $|Post\_Accruals_{it}|$ is only 0.002. To explain why audit adjustments have a larger negative impact on the signed accruals than the absolute accruals, we now turn to H2a and H2b.

First, we test H2a which predicts that the frequency of having positive pre-audit accruals together with negative audited accruals is higher than the frequency of having negative pre-audit accruals together with positive audited accruals. In other words, an audit adjustment is more likely to change the sign of net accruals from positive to negative than from negative to positive. The results for H2a are shown in Panel C of Table 6. In the full sample, the signs switch from positive to negative in 1.8% of audits whereas the signs switch from negative to positive in only 1.3% of audits. The difference between these

Table 6
Signed accruals and absolute accruals: pre-audit accruals vs. audited accruals (scaled by pre-audit and audited assets, respectively).

Panel A: The mean values of signed accruals.

	Full sample	SOEs	Non-SOEs	Big10	Non-Big10
Pre-audit signed accruals: $Pre\_Accruals_{it}$	0.009	−0.006	0.020	0.008	0.009
Post-audit signed accruals: $Post\_Accruals_{it}$	0.004	−0.009	0.014	0.004	0.003
Difference in means	0.005***	0.003***	0.006***	0.004***	0.006***
(*t*-stat.)	(10.50)	(4.75)	(9.58)	(5.78)	(9.03)
Company-year observations	11,486	5,202	6,284	3,906	7,580

Panel B: The mean values of absolute accruals.

	Full sample	SOEs	Non-SOEs	Big10	Non-Big10
Pre-audit absolute accruals: $\|Pre\_Accruals_{it}\|$	0.071	0.061	0.079	0.065	0.074
Post-audit absolute accruals: $\|Post\_Accruals_{it}\|$	0.069	0.060	0.076	0.063	0.072
Difference in means	0.002***	0.001**	0.003***	0.002**	0.002***
(*t*-stat.)	(5.39)	(2.04)	(5.27)	(2.23)	(5.08)
Company-year observations	11,486	5,202	6,284	3,906	7,580

Panel C: The frequencies of sign changes for pre-audit accruals and audited accruals, H2a.

	Full sample	SOEs	Non-SOEs	Big10	Non-Big10
$Pre\_Accruals_{it} > 0$ & $Post\_Accruals_{it} < 0$	0.018	0.014	0.021	0.017	0.018
$Pre\_Accruals_{it} < 0$ & $Post\_Accruals_{it} > 0$	0.013	0.018	0.009	0.022	0.008
Difference in frequencies	0.005**	−0.004	0.012***	−0.005	0.010***
(*z*-stat.)	(2.21)	(−0.89)	(5.02)	(−1.07)	(5.10)
Company-year observations	11,486	5,202	6,284	3,906	7,580

Panel D: The mean absolute values of negative accruals, H2b.

	Full sample	SOEs	Non-SOEs	Big10	Non-Big10
Pre-audit: $\|Pre\_Accruals_{it}\|$	0.067	0.061	0.074	0.060	0.071
Post-audit: $\|Post\_Accruals_{it}\|$	0.069	0.062	0.077	0.062	0.073
Difference in means	−0.002***	−0.001**	−0.003***	−0.002***	−0.002***
(*t*-stat.)	(−5.00)	(−2.56)	(−4.41)	(−3.81)	(−3.68)
Company-year observations	5,317	2,829	2,488	1,833	3,484

Panel E: The mean absolute values of positive accruals, H2c.

	Full sample	SOEs	Non-SOEs	Big10	Non-Big10
Pre-audit: $\|Pre\_Accruals_{it}\|$	0.077	0.063	0.086	0.073	0.079
Post-audit: $\|Post\_Accruals_{it}\|$	0.071	0.059	0.078	0.067	0.073
Difference in means	0.006***	0.004***	0.008***	0.006***	0.006***
(*t*-stat.)	(10.74)	(5.21)	(9.44)	(5.69)	(9.37)
Company-year observations	5,817	2,206	3,611	1,922	3,895

*** and ** denote statistical significance at the 1 and 5 percent levels, respectively (two-tailed). The standard errors are corrected for clustering on each company. The samples in Panel D comprise company-year observations in which pre-audit accruals and audited accruals are both negative (i.e., $Pre\_Accruals_{it} < 0$ & $Post\_Accruals_{it} < 0$). The samples in Panel E comprise company-year observations in which pre-audit accruals and audited accruals are both positive (i.e., $Pre\_Accruals_{it} > 0$ & $Post\_Accruals_{it} > 0$).

Variable definitions:

$Pre\_Accruals_{it}$=pre-audit accruals (=Pre_ROA_{it}–Pre_CFO_{it}). $Post\_Accruals_{it}$=audited accruals (=$Post\_ROA_{it}$–$Post\_CFO_{it}$). Pre_ROA_{it}=pre-audit return on assets (Pre_E_{it}/Pre_TA_{it}). $Post\_ROA_{it}$=audited return on assets ($Post\_E_{it}/Post\_TA_{it}$). Pre_CFO_{it}=cash flows from operations scaled by pre-audit total assets (=CFO_{it}/Pre_TA_{it}). $Post\_CFO_{it}$=cash flows from operations scaled by audited total assets (=$CFO_{it}/Post\_TA_{it}$). Pre_E_{it}=pre-audit earnings. $Post\_E_{it}$=audited earnings. Pre_TA_{it}=pre-audit total assets. $Post\_TA_{it}$=audited total assets.

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frequencies is statistically significant. The effect of sign switches is fully captured in signed accruals but not in absolute accruals. This is the first reason why audit adjustments affect signed accruals more than they affect absolute accruals.

Next, we test H2b by examining how audit adjustments affect negative net accruals. We do not make a signed prediction for H2b because there are two possible outcomes. On one hand, an audit adjustment may increase the magnitude of negative accruals (e.g., a conservative auditor may require a larger write-off than management had booked in the pre-audit financials). On the other hand, an audit adjustment may reduce the magnitude of negative accruals (e.g., the auditor may reverse the effects of income-decreasing earnings management). To distinguish this test from the sign switching test in H2a, we restrict the sample to observations where the pre-audit and audited net accruals are both negative (i.e., there are no sign changes in this sample). Panel D shows that the negative accruals are smaller in magnitude in the pre-audit accounts compared with the audited accounts (e.g., 0.067 vs. 0.069 in the full sample). The differences between pre-audit and audited negative accruals have the same sign and are statistically significant in each sub-sample, indicating that audit adjustments have a *positive* impact on the absolute magnitude of negative accruals. In other words, negative accruals tend to be larger in the audited accounts than the pre-audit accounts because audit adjustments usually have a conservative impact on earnings even when pre-audit accruals are negative. This is the second reason why audit adjustments have a larger negative impact on signed accruals than absolute accruals.

Finally, we test H2c which predicts smaller positive net accruals in the audited accounts than the pre-audit accounts. To distinguish this test from H2a, the sample comprises observations where the pre-audit and audited net accruals are both positive. Consistent with H2c, Panel E shows that the positive net total accruals are larger in the pre-audit accounts than the audited accounts (e.g., 0.077 vs. 0.071 in the full sample). Moreover, the differences between the pre-audit and audited positive accruals are highly significant in the full sample and each sub-sample. Hence, audit adjustments have a conservative impact on both positive and negative net accruals, which means that audit adjustments affect signed accruals more than they affect absolute accruals.

4.4. Small profits and small losses (H3)

Prior studies sometimes use benchmark beating to gauge the impact of auditing on reported earnings. Two benchmarks have been used: (i) zero earnings, and (ii) analysts' earnings forecasts. We focus on the zero earnings threshold for two reasons. First, Chinese Auditing Standard (CAS) No. 10 does not state that meeting/beating analysts' forecasts is something that auditors need to consider when determining whether a misstatement is material, whereas CAS No. 10 does state that a misstatement should be considered material if it converts a loss into a profit. Second, audit firms are required to report pre-tax earnings to the MOF but analysts rarely issue forecasts of pre-tax earnings.

We therefore focus on the discontinuity in the earnings distribution around zero. Specifically, we examine whether the audited earnings exhibit lower frequencies of small profits and higher frequencies of small losses compared with the pre-audit earnings (H3). These results would be expected if auditing mitigates the tendency of companies to avoid reporting losses, which is the maintained assumption of many auditing researchers including studies of China (Chen et al., 2001; Gul et al., 2013).

Fig. 1 presents histograms for the pre-audit return on assets (Pre_ROA_{it}) and the audited return on assets ($Post\_ROA_{it}$). We find large discontinuities around zero in both distributions, but the discontinuities are not noticeably different between the pre-audit and audited distributions. This is inconsistent with auditors requiring adjustments in order to reduce the incidence of loss avoidance.[11]

Table 7 provides formal statistical tests on the relative frequencies of small profits and small losses in the Pre_ROA_{it} and $Post\_ROA_{it}$ distributions. Panel A uses cut-offs of 0.01 and −0.01 to define small profits and small losses, respectively; panel B uses cut-offs of +0.005 and −0.005; panel C uses +0.02 and −0.02. In each panel, the frequency of small profits is slightly *higher* for audited profits than pre-audit profits. This is opposite to what would be expected if auditors reduce the tendency of companies to report small profits. Instead, it is consistent with more companies reporting small profits in their audited accounts because audit adjustments cause more companies to report small (but still positive) profits. In other words, there are downward adjustments at all levels of pre-audit profits, and these downward adjustments shift the entire earnings distribution to the left.

Further, Panels A to C show that the frequency of small pre-audit losses is slightly *higher* than the frequency of small audited losses. Again, this is opposite to what would be expected if auditors are forcing companies to report small losses instead of small profits. Instead, it is consistent with companies reporting larger losses in their audited accounts than in their pre-audit accounts because the downward audit adjustments increase the magnitude of the reported losses.

Finally, Panel D tests for a difference in the overall frequencies of losses versus profits. It shows that losses are reported more often in the audited financial statements than the pre-audit financial statements (e.g., 9.6% versus 9.3% in the full sample). This is consistent with Table 2 Panel A, which shows that audit adjustments usually reduce reported earnings. These downward adjustments make it more likely that a company reports losses in its audited financial statements. Overall,

[11] In an untabulated test we scale pre-audit earnings per share and audited earnings per share by the opening stock price. Again, we find large discontinuities around zero in both distributions but the discontinuities are not significantly different. We also find similar results when the earnings per share variables are not scaled by the opening stock price.

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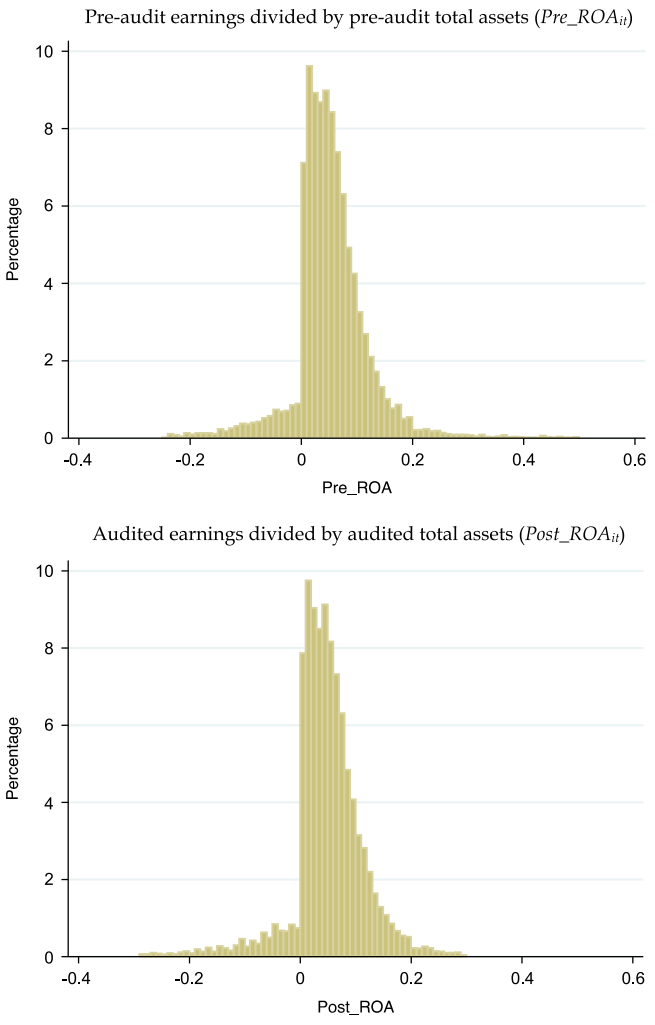

Fig. 1. Discontinuities in the pre-audit and the audited return on assets distributions. ($N = 11{,}486$ company-year observations).

Table 7 and Fig. 1 show that audit adjustments reduce earnings but do not reduce the magnitude of the discontinuity in the earnings distribution around zero.

Table 8 provides further evidence on audit adjustments by reporting a transition matrix for the Pre_ROA_{it} and $Post\_ROA_{it}$ distributions. It shows there are only 56 observations (0.5% of the sample) where companies move from a pre-audit loss to a post-audit profit, while there are only 96 observations (0.8% of the sample) where companies move from a pre-audit profit to a post-audit loss. This confirms that transitions from profit to loss (or loss to profit) during the course of a year-end audit are rare. Further, Table 8 shows that audit adjustments have little impact on the incidence of small positive profits. For example, there are only 38 observations (0.3% of the sample) where pre-audit ROA is between 0% and 1% and audited ROA is negative. This suggests that the small pre-audit profit group is not a dominant place where auditors focus their attention when making downward adjustments. Instead, downward adjustments occur at all areas of the earnings distribution. Therefore, downward adjustments shift the entire earnings distribution to the left but have little impact on the magnitude of the earnings discontinuity around zero.

There are various explanations for these findings. One is that the discontinuity in the earnings distribution may not be a reliable indicator of earnings management. If the discontinuity does not capture earnings management, we would not expect auditors to focus their downward adjustments on companies that have small pre-audit profits. Further, even if the discontinuity does reliably capture earnings management, auditors may do little to prevent this form of earnings management. For example, the discontinuity may be attributable to real earnings management decisions, which audit adjustments are unlikely to affect. Another possibility is that the zero earnings benchmark is so important to the managers of Chinese companies that auditors are reluctant to require any audit adjustments that would change the sign of earnings.

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Table 7
Discontinuities in the earnings distributions: pre-audit ROA vs. audited ROA.

Panel A: The frequencies of small profits (ROA∈[0, 0.01]) and small losses (ROA∈[−0.01,0))					
	Full sample	SOEs	Non-SOEs	Big10	Non-Big10
Small pre-audit profits: Pre_ROA_{it}∈[0, 0.01]	0.070	0.089	0.054	0.071	0.069
Small post-audit profits: $Post\_ROA_{it}$∈[0, 0.01]	0.077	0.099	0.059	0.075	0.078
Difference in frequencies	−0.007***	−0.010***	−0.005**	−0.004	−0.009***
(*z*-stat.)	(−4.52)	(−3.86)	(−2.51)	(−1.19)	(−4.59)
Small pre-audit losses: Pre_ROA_{it}∈[−0.01, 0)	0.009	0.008	0.010	0.007	0.009
Small post-audit losses: $Post\_ROA_{it}$∈[−0.01, 0)	0.007	0.008	0.007	0.007	0.007
Difference in frequencies	0.002*	0.000	0.003**	0.000	0.002*
(*z*-stat.)	(1.83)	(0.00)	(2.50)	(0.23)	(1.91)
Company-year observations	11,486	5,202	6,284	3,906	7,580
Panel B: The frequencies of small profits (ROA∈[0, 0.005]) and small losses (ROA∈[−0.005,0))					
	Full sample	SOEs	Non-SOEs	Big10	Non-Big10
Small pre-audit profits: Pre_ROA_{it}∈[0, 0.005]	0.027	0.035	0.021	0.030	0.026
Small post-audit profits: $Post\_ROA_{it}$∈[0, 0.005]	0.029	0.039	0.021	0.030	0.029
Difference in frequencies	−0.002	−0.004**	0.000	0.000	−0.003*
(*z*-stat.)	(−1.58)	(−2.13)	(−0.10)	(0.00)	(−1.89)
Small pre-audit losses: Pre_ROA_{it}∈[−0.005, 0)	0.005	0.005	0.005	0.004	0.006
Small post-audit losses: $Post\_ROA_{it}$∈[−0.005, 0)	0.004	0.005	0.003	0.005	0.004
Difference in frequencies	0.001*	0.000	0.002**	−0.001	0.002**
(*z*-stat.)	(1.81)	(0.36)	(2.19)	(−0.84)	(2.41)
Company-year observations	11,486	5,202	6,284	3,906	7,580
Panel C: The frequencies of small profits (ROA∈[0, 0.02]) and small losses (ROA∈[−0.02,0))					
	Full sample	SOEs	Non-SOEs	Big10	Non-Big10
Small pre-audit profits: Pre_ROA_{it}∈[0, 0.02]	0.164	0.198	0.136	0.167	0.162
Small post-audit profits: $Post\_ROA_{it}$∈[0, 0.02]	0.173	0.207	0.143	0.176	0.171
Difference in frequencies	−0.009***	−0.009***	−0.007***	−0.009***	−0.009***
(*z*-stat.)	(−4.83)	(−3.23)	(−3.60)	(−2.82)	(−3.95)
Small pre-audit losses: Pre_ROA_{it}∈[−0.02, 0)	0.017	0.018	0.016	0.015	0.018
Small post-audit losses: $Post\_ROA_{it}$∈[−0.02, 0)	0.015	0.018	0.013	0.014	0.016
Difference in frequencies	0.002*	0.000	0.003**	0.001	0.002*
(*z*-stat.)	(1.72)	(0.13)	(2.12)	(0.54)	(1.65)
Company-year observations	11,486	5,202	6,284	3,906	7,580
Panel D: The frequencies of losses (ROA < 0)					
	Full sample	SOEs	Non-SOEs	Big10	Non-Big10
Pre-audit losses: $Pre\_ROA_{it} < 0$	0.093	0.090	0.095	0.079	0.100
Post-audit losses: $Post\_ROA_{it} < 0$	0.096	0.095	0.097	0.083	0.103
Difference in frequencies	−0.003***	−0.005***	−0.002*	−0.004**	−0.003**
(*z*-stat.)	(−3.30)	(−2.85)	(−1.93)	(−2.48)	(−2.27)
Company-year observations	11,486	5,202	6,284	3,906	7,580

***, ** and * denote statistical significance at the 1, 5 and 10 percent levels, respectively (two-tailed). The standard errors are corrected for clustering on each company.
Variable definitions:
Pre_ROA_{it}=pre-audit return on assets (Pre_E_{it}/Pre_TA_{it}). $Post\_ROA_{it}$=audited return on assets ($Post\_E_{it}/Post\_TA_{it}$). Pre_E_{it}=pre-audit earnings. $Post\_E_{it}$=audited earnings. Pre_TA_{it}=pre-audit total assets. $Post\_TA_{it}$=audited total assets.

5. Supplementary analysis

Between 2006 and 2011 audit firms reported the pre-audit and audited values of pre-tax earnings and total assets but they did not report other financial statement items to the MOF. In 2012 audit firms began reporting the pre-audit and audited values of total liabilities and shareholders' equity as well. These new data allow us to investigate how audit adjustments affect the balance sheet as well as the income statement.

Using the 2012 data, we find the mean adjustment to total assets is RMB −54.2 million, the mean adjustment to total liabilities is RMB −25.0 million, and the mean adjustment to shareholder equity is RMB −29.2 million. Therefore, audit adjustments have a large negative effect on balance sheet accounts as well as pre-tax earnings. The mean adjustment to pre-tax earnings during 2012 is RMB −21.2 million, which is somewhat smaller than the mean adjustment of RMB −29.2 million to shareholder equity. There are three reasons for the difference (i.e., RMB −21.2 million vs. RMB −29.2 million). First, any adjustments to the tax expense would affect shareholder equity but not pre-tax earnings. Second, any adjustments to the capital surplus account would not affect pre-tax earnings. Third, an audit in year *t* can reveal an earnings misstatement pertaining to a prior fiscal year. In such cases, accounting standards require adjustments to past earnings which are reflected in an adjustment to opening-period retained earnings rather than current-period earnings. Unfortunately, we cannot quantify the relative importance of these three factors because audit firms are not required to disclose the adjustments to these individual accounts.

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Table 8
A transition matrix of profit and loss observations for pre-audit ROA and audited ROA ($N=11{,}486$ company-year observations).

		Post-audit ROA ($Post\_ROA_{it}$)								
		$(-\infty, -0.03]$	$(-0.03, -0.02]$	$(-0.02, -0.01]$	$(-0.01, 0.00)$	$[0.00, +0.01]$	$(+0.01, +0.02]$	$(+0.02, +0.03]$	$(+0.03, +\infty)$	Totals
Pre-audit ROA (Pre_ROA_{it})	$(-\infty, -0.03]$	756	4	2	3	5	7	1	11	789
	$(-0.03, -0.02]$	32	44	2	0	1	0	1	0	80
	$(-0.02, -0.01]$	13	12	60	0	3	1	3	4	96
	$(-0.01, 0.00)$	13	5	13	50	10	4	1	4	100
	$[0.00, +0.01]$	10	4	8	16	673	54	11	24	800
	$(+0.01, +0.02]$	7	2	3	11	141	847	44	26	1,081
	$(+0.02, +0.03]$	3	1	2	1	29	134	750	84	1,004
	$(+0.03, +\infty)$	21	2	3	2	23	50	205	7,230	7,536
	Totals	855	74	93	83	885	1,097	1,016	7,383	11,486

Variable definitions:
Pre_ROA_{it}=pre-audit return on assets (Pre_E_{it}/Pre_TA_{it}). $Post\_ROA_{it}$=audited return on assets ($Post\_E_{it}/Post\_TA_{it}$). Pre_E_{it}=pre-audit earnings. $Post\_E_{it}$=audited earnings. Pre_TA_{it}=pre-audit total assets. $Post\_TA_{it}$=audited total assets.

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6. Conclusions

There are four major conclusions from our investigation of audit adjustments in China.

First, earnings smoothness reflects high earnings quality rather than low earnings quality when the smoothness comes about as a result of adjustments that are booked during year-end audits. This finding is important given the controversy and disagreement in the extant literature as to whether smoothness reflects high or low earnings quality.

Second, auditors are more likely to require downward adjustments than upward adjustments, and this tendency for auditors to be conservative seems to improve rather than impair earnings quality. Specifically, the audited earnings are significantly smoother and more persistent than the pre-audit earnings, thus making future earnings more predictable. Moreover, the audited earnings contain higher quality accruals than the pre-audit earnings.

Third, audit adjustments reduce signed accruals more than they reduce absolute accruals. This is for two reasons: (1) audit adjustments sometimes change the sign of net accruals, and (2) audit adjustments have a positive impact on the absolute magnitude of negative net total accruals. Therefore, there is a larger reduction to signed accruals than absolute accruals during the course of a year-end audit.

Finally, audit adjustments do not reduce the frequency of small profits or increase the frequency of small losses. These findings indicate that audit adjustments do not affect the discontinuity in the earnings distribution around zero.

A limitation of our study is that the audit adjustments in China may be different from those found in other countries. We take comfort from the fact that the audit adjustments in our sample are similar to those reported in prior US studies. In particular, audit adjustments occur on approximately 70% of audits and downward adjustments are far more common than upward adjustments. Nevertheless, we encourage future researchers to assess the generalizability of our findings by examining audit adjustments in other countries.

References

Ashbaugh, H., LaFond, R., Mayhew, B., 2003. Do non-audit services compromise auditor independence? Further evidence. The Accounting Review 78, 611–639.
Beaver, W., McNichols, M., Nelson, K., 2007. An alternative interpretation of the discontinuity in earnings distributions. Review of Accounting Studies 12, 525–556.
Becker, C., DeFond, M., Jiambalvo, J., Subramanyam, K.R., 1998. The effect of audit quality on earnings management. Contemporary Accounting Research 15, 1–24.
Bhattacharya, U., Daouk, H., Welker, M., 2003. The world price of earnings opacity. The Accounting Review 78, 641–678.
Burgstahler, D., Dichev, I., 1997. Earnings management to avoid earnings decreases and losses. Journal of Accounting and Economics 24, 99–126.
Burgstahler, D., Chuk, E., 2015. Do scaling and selection explain earnings discontinuities? Journal of Accounting and Economics 60, 168–186.
Caramanis, C., Lennox, C., 2008. Audit effort and earnings management. Journal of Accounting and Economics 45, 116–138.
Carey, P., Simnett, R., 2006. Audit partner tenure and audit quality. The Accounting Review 81, 653–676.
Chen, C.J.P., Chen, S., Su, X., 2001. Profitability regulation, earnings management and modified audit opinions: evidence from China. Auditing: A Journal of Practice and 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? Contemporary Accounting Research 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. Contemporary Accounting Research 28, 892–925.
Chi, W., Huang, H., Liao, Y., Xie, H., 2009. Mandatory audit partner rotation, audit quality, and market perception: evidence from Taiwan. Contemporary Accounting Research 26, 359–391.
Chung, H., Kallapur, S., 2003. Client importance, nonaudit services, and abnormal accruals. The Accounting Review 78, 931–955.
Dechow, P., Dichev, I., 2002. The quality of accruals and earnings: the role of accrual estimation errors. The Accounting Review 77 (Suppl.), S35–S59.
Dechow, P., Ge, W., Schrand, C., 2010. Understanding earnings quality: a review of the proxies, their determinants and their consequences. Journal of Accounting and Economics 50, 344–401.
Dechow, P., Richardson, S., Sloan, R., 2008. The persistence and pricing of the cash component of earnings. Journal of Accounting Research 46, 537–566.
Dechow, P., Richardson, S., Tuna, I., 2003. Why are earnings kinky? An examination of the earnings management explanation. Review of Accounting Studies 8, 355–384.
DeFond, M.L., Francis, J.R., 2005. Audit research after Sarbanes-Oxley. Auditing: A Journal of Practice & Theory 24 (Suppl.), S5–S30.
DeFond, M.L., Wong, T.J., Li, S., 2000. The impact of improved auditor independence on audit market concentration in China. Journal of Accounting and Economics 28, 269–305.
DeFond, M.L., Zhang, J., 2014. A review of archival auditing research. Journal of Accounting and Economics 58, 275–326.
Degeorge, F., Patel, J., Zeckhauser, Z., 1999. Earnings management to exceed thresholds. Journal of Business 72, 1–33.
Durtschi, C., Easton, P., 2005. Earnings management? The shapes of the frequency distributions of earnings metrics are not evidence ipso facto. Journal of Accounting Research 43, 557–592.
Durtschi, C., Easton, P., 2009. Earnings management? Erroneous inference based on earnings frequency distributions. Journal of Accounting Research 47, 1249–1281.
Ferguson, M., Seow, G., Young, D., 2004. Nonaudit services and earnings management: UK evidence. Contemporary Accounting Research 21, 813–841.
Firth, M., Mo, P., Wong, R., 2012. Auditors' organizational form, legal liability, and reporting conservatism: evidence from China. Contemporary Accounting Research 29, 57–93.
Francis, J.R., Michas, P.N., Seavey, S., 2013. Does audit market concentration harm the quality of audited earnings? Evidence from audit markets in 42 countries. Contemporary Accounting Research 30, 325–355.
Francis, J.R., Wang, D., 2008. The joint effect of investor protection and big 4 audits on earnings quality around the world. Contemporary Accounting Research 25, 157–191.
Francis, J.R., Yu, M.D., 2009. Big 4 office size and audit quality. The Accounting Review 84, 1521–1552.
Frankel, R., Johnson, M., Nelson, K., 2002. The relation between auditors' fees for nonaudit services and earnings management. The Accounting Review 77 (Suppl.), S71–S105.

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Gilliam, T.A., Hefflin, F., Paterson, J.S., 2015. Evidence that the zero-earnings discontinuity has disappeared. Journal of Accounting and Economics 60, 117–132.
Gul, F., Fung, S., Jaggi, B., 2009. Earnings quality: some evidence on the role of auditor tenure and auditors' industry expertise. Journal of Accounting and Economics 47, 265–287.
Gul, F., Wu, D., Yang, Z., 2013. Do individual auditors affect audit quality? Evidence from archival data. The Accounting Review 88, 1993–2023.
Hand, J., 1989. Did firms undertake debt-equity swaps for an accounting paper profit or true financial gain? The Accounting Review 64, 587–623.
He, X., Pittman, J., Rui, O.M., 2013. Reputational Implications for Partners After a Major Audit Failure: Evidence from China. Working Paper: ssrn.com/abstract=2013104.
Hribar, P., Nichols, D.C., 2007. The use of unsigned earnings quality measures in tests of earnings management. Journal of Accounting Research 45, 1017–1053.
Jacob, J., Jorgensen, B., 2007. Earnings management and accounting income aggregation. Journal of Accounting and Economics 43, 369–390.
Johnson, V., Khurana, I., Reynolds, J.K., 2002. Audit-firm tenure and the quality of financial reports. Contemporary Accounting Research 19, 637–660.
Kerstein, J., Rai, A., 2007. Intra-year shifts in the earnings distribution and their implications for earnings management. Journal of Accounting and Economics 44, 399–419.
Kinney, W.R., Martin, R.D., 1994. Does auditing reduce bias in financial reporting? A review of audit-related adjustment studies. Auditing: A Journal of Practice & Theory 13, 149–156.
Lang, M., Raedy, J., Yetman, M.H., 2003. How representative are firms that are cross-listed in the United States? An analysis of accounting quality. Journal of Accounting Research 41, 363–386.
Lang, M., Raedy, J., Wilson, W., 2006. Earnings management and cross-listing: are reconciled earnings comparable to US earnings? Journal of Accounting and Economics 42, 255–283.
Larcker, D., Richardson, S., 2004. Fees paid to audit firms, accrual choices, and corporate governance. Journal of Accounting Research 42, 625–658.
Leuz, C., Nanda, D., Wysocki, P., 2003. Earnings management and investor protection: an international comparison. Journal of Financial Economics 69, 505–527.
Menon, K., Williams, D., 2004. Former audit partners and abnormal accruals. The Accounting Review 79, 1095–1118.
Myers, J., Myers, L., Omer, T., 2003. Exploring the term of the auditor-client relationship and the quality of earnings: a case for mandatory auditor rotation? The Accounting Review 78, 779–799.
Reichelt, K., Wang, D., 2010. National versus office-specific measures of auditor industry expertise and effects on client earnings quality. Journal of Accounting Research 48, 647–686.
Reynolds, K., Francis, J.R., 2001. Does size matter? The influence of large clients on office-level auditor reporting decisions. Journal of Accounting and Economics 30, 375–400.
Richardson, S., Sloan, R., Soliman, M., Tuna, I., 2005. Accrual reliability, earnings persistence and stock prices. Journal of Accounting and Economics 39, 437–485.
Sankar, M.R., Subramanyam, K.R., 2001. Reporting discretion and private information communication through earnings. Journal of Accounting Research 39, 365–386.
Srivasta, A., 2014. Why have measures of earnings quality changed over time? Journal of Accounting and Economics 57, 196–217.
Subramanyam, K.R., 1996. The pricing of discretionary accruals. Journal of Accounting and Economics 22, 249–281.
Tucker, J., Zarowin, P., 2006. Does income smoothing improve earnings informativeness? The Accounting Review 81, 251–270.

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