



*Distinguished Lecture Series  
School of Accountancy  
W. P. Carey School of Business  
Arizona State University*

Clive Lennox  
of  
Nanyang Technological University  
will present

“Audit adjustments and earnings quality”

on

November 13, 2013

1:30pm in MCRD456

# Audit adjustments and earnings quality \*

*Clive Lennox*  
*Nanyang Technological University*

*Xi Wu*  
*Central University of Finance and Economics*

*Tianyu Zhang*  
*The Chinese University of Hong Kong*

---

\* This paper has benefited from the comments of Miao Bin, Robert Knechel, Huai Zhang, and seminar participants at Nanyang Technological University. Xi Wu thanks the Inspection Bureau of the Chinese Ministry of Finance for providing data support. Clive Lennox thanks Nanyang Technological University for providing research funding (New Silk Road grant number M5801003).

# Audit adjustments and earnings quality

---

**Abstract:** While there are many alternative proxies for “earnings quality”, there is little evidence as to what auditors consider to be indicative of high earnings quality. To answer this, we examine the adjustments that auditors require companies to make to earnings during year-end audits. There are three findings. First, audit adjustments serve to increase earnings persistence, smoothness, and accrual quality. This is consistent with auditors helping to make earnings more useful for the purposes of valuation. Second, audit adjustments have a larger effect on signed accruals than absolute accruals. Third, audit adjustments have no effect on the discontinuity in the earnings distribution around zero. These findings should prove useful to future researchers intending to use earnings quality metrics as proxies for audit quality.

---

## 1. Introduction

Earnings quality has been measured using various earnings attributes such as persistence, smoothness, accrual quality, signed accruals, absolute accruals, and benchmark beating. However, there is some disagreement among researchers about how to interpret these measures. For example, smoothness has sometimes been used as a proxy for managers' opportunistic earnings management (e.g., Leuz et al. 2003; Bhattacharya et al. 2003), while others argue that smoothness can be beneficial for shareholders (e.g., Trueman and Titman 1988; Hand 1989; Demski 1998; Sankar and Subramanyam 2001; Tucker and Zarowin 2006). As another example, some argue that the earnings discontinuity around zero is an indicator of opportunistic earnings management (e.g., Burgstahler and Dichev 1997; Degeorge et al. 1999), whereas others argue that it is not (Durtshi and Easton 2005, 2009; Beaver et al. 2007). One reason the earnings quality proxies have proved so contentious is that they are context specific (Dechow et al. 2010). Research founded on financial statement analysis generally views accounting earnings as an input into equity valuation models, whereas research based on a contracting perspective tends to view accounting earnings as a means of ameliorating agency conflicts (Frankel and Litov 2009).

In principle, an audit is supposed to improve earnings quality. However, it is unclear which earnings attributes are considered by auditors as being indicative of high earnings quality and it is unclear which financial statement users benefit the most from having an audit. Indeed, DeFond and Francis (2005, p.7) point out that auditing could improve earnings quality from the perspective of creditors, but impair earnings quality from the perspective of 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."*

Although this call for research went out several years ago, we are unaware of any studies providing evidence on what auditors consider to be high earnings quality.

To help answer this, we examine the adjustments that auditors require to earnings during year-end audits. An adjustment occurs when the auditor considers that the manager's pre-audit earnings number needs to be altered. In contrast, there is no adjustment when the auditor considers the pre-audit earnings number to be fairly stated. We assess auditors' perceptions of earnings quality by comparing the attributes of pre-audit earnings and audited earnings. For example, if auditors consider persistence to be indicative of higher earnings quality, we would expect the audited earnings numbers to be more persistent than the pre-audit earnings numbers. The logic for comparing the attributes of pre-audit and audited earnings is that auditors require adjustments to pre-audit earnings when they believe that the quality of the pre-audit earnings needs to be improved. Therefore, according to auditors' perceptions, the quality of the audited earnings numbers would be higher than the quality of the pre-audit earnings numbers.

Answering the question as to which earnings attributes are altered during year-end audits is important because the auditing literature has used various earnings quality metrics as proxies for "audit quality" (e.g., accruals, loss avoidance), but there is no direct evidence that such earnings metrics are really changed during the course of an audit. Indeed, there is a heated debate as to whether these variables are reliable indicators of earnings quality, much less whether they are altered during the course of an audit (Bamber and Bamber 2009). Therefore, an important objective of our study is to determine how (if at all) the earnings metrics used in prior auditing studies are altered during year-end audits. If an earnings metric is not affected, then it is unlikely to be a good proxy for audit quality.

A unique feature of the study is our access to information on year-end audit adjustments for a large sample of public company audit engagements. Since 2006, the Ministry of Finance (MOF) in China has required audit firms to report to it the pre-audit and

audited annual earnings of all publicly traded clients. The pre-audit information is not publicly disclosed, but one of the study's authors previously worked for the Chinese Institute of Certified Public Accountants (CICPA) under the MOF and has been allowed to use the data for academic research. Using this information we compare the attributes of pre-audit earnings and audited earnings. This allows us to directly infer how earnings properties change during the course of a year-end audit. Moreover, because auditors require adjustments in order to improve the presentation of the financial statements, it also allows us to draw inferences about auditors' perceptions of earnings quality.<sup>1</sup>

The sample comprises 10,114 audits of publicly traded companies in China between 2006 and 2011. For each audit, we have both the audited earnings number and the manager's pre-audit earnings number for the same fiscal period and the net audit adjustment equals the difference between the two. We begin by checking whether these adjustments are typical of those found in prior US research. Kinney and Martin (1994) find audit adjustments occur on between 60-90% of US engagements and earnings are more likely to be adjusted downwards than upwards. We find similar results for China. In our sample, the frequency of audit adjustments is 70.69% and downward adjustments occur more than twice as often as upward adjustments (47.97% versus 22.72%). Consistent with Kinney and Martin's (1994) evidence for the US, audit adjustments have an overwhelmingly negative effect on earnings in China.

DeFond and Francis (2005) observe that auditor conservatism could impair earnings quality from the perspective of shareholders by making earnings a less useful input in valuation models. Therefore, we compare the audited earnings and the manager's pre-audit earnings on this dimension. We find audited earnings are significantly more persistent and

---

<sup>1</sup> Researchers have also measured audit quality using non-earnings metrics, such as audit opinions and audit litigation (see Francis (2011) and DeFond and Zhang (2013) for reviews of the audit quality literature). Our focus is on earnings metrics because the adjustments data reveal how earnings are altered during audits.

smoother than pre-audit earnings. Using the Dechow and Dichev (2002) measure of accrual quality, we also find that the audited earnings contain less estimation errors than the pre-audit earnings. These findings are consistent with audit adjustments helping to make earnings more useful for the purpose of valuation. Specifically, auditing helps to offset the upward bias in managers' pre-audit earnings and consequently audited earnings are more sustainable and repeatable compared with the pre-audit earnings.<sup>2</sup>

Next, we examine other earnings metrics that prior research has used as proxies for audit quality (e.g., signed accruals, absolute accruals, the earnings discontinuity at zero). Our objective is to determine how, if at all, these earnings metrics are altered during audits. If they are not altered, then they are unlikely to reflect auditor behaviour in which case they would not be good proxies for audit quality.

We start by looking at signed and absolute accruals as these are among the most common proxies for audit quality. We find the audited signed accruals are significantly smaller than the pre-audit signed accruals, and the audited absolute accruals are significantly smaller than the pre-audit absolute accruals. This is consistent with studies using signed accruals and absolute accruals as proxies for audit quality. More importantly, we find audit adjustments have a bigger impact on signed accruals than absolute accruals. This is for two reasons. First, audit adjustments increase the frequency with which accruals switch sign from positive to negative. These sign switches are fully captured by the signed accruals measure but not by the absolute accruals measure.<sup>3</sup> Second, audit adjustments have a large *negative* impact on income-increasing accruals, whereas they have a small *positive* impact on the absolute magnitude of income-decreasing accruals. Consequently, audit

---

<sup>2</sup> Because pre-audit earnings are not publicly disclosed, it is not possible to examine the market reaction to pre-audit earnings independently of the market reaction to the audited earnings number. Thus, we do not estimate earnings response coefficients for pre-audit and audited earnings.

<sup>3</sup> For example, when the pre-audit accrual is +0.01 and the audited accrual 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 properly account for sign changes.

adjustments affect signed accruals more than they affect absolute accruals. The main takeaway from this analysis is that the signed accruals measure is likely to be better than the absolute accruals measure when researchers are interested in how auditors affect accruals.

Finally, we look at the discontinuity in the earnings distribution around zero because this is another commonly-used proxy for audit quality. When using this measure, auditing researchers have been making two assumptions: 1) the discontinuity is a valid measure of earnings management, *and* 2) auditors are effective in preventing such earnings management. However, contrary to this, we find no evidence that audit adjustments reduce the frequency of small profits or increase the frequency of small losses. In fact, the audited earnings distribution and the pre-audit earnings distribution display nearly identical discontinuities around zero. Therefore, at least one of the two maintained assumptions is not true. Either the zero earnings benchmark is not a reliable indicator of earnings management (Durtschi and Easton 2005, 2009; Beaver et al. 2007), or auditors do not prevent this type of earnings management; e.g., because the required corrections are quantitatively small (Libby and Kinney 2000; Legoria et al. 2013). In either case, our results suggest that one (or both) of these maintained assumptions cannot be true. Accordingly, the zero earnings benchmark is unlikely to be a good measure of audit quality.<sup>4</sup>

This study makes two contributions to the literature. We are the first to show that audit adjustments make earnings smoother and more persistent, and audited earnings contain higher quality accruals than do the pre-audit earnings. We conclude that auditors help to make earnings a more useful input into corporate valuation models. Second, this is the first study to examine whether the earnings metrics that are commonly used in prior

---

<sup>4</sup> Some studies measure audit quality using: 1) the tendency of companies to just meet or beat the analyst consensus forecast, or 2) the degree of conditional conservatism. As further explained in Section 5.2, we are unable to examine the meet/beat analyst forecast benchmark because the earnings that are forecasted by analysts and the earnings that are reported to the MOF are defined differently. In addition, prior studies find no evidence of conditional conservatism for audited earnings in China (Ball et al. 2000; Liu et al. 2011; Eng and Lin 2012). Therefore, it would not make sense to test whether the audited earnings exhibit more conditional conservatism than the pre-audit earnings in China.

studies as proxies for audit quality are in fact altered during year-end audits. We find that audit adjustments have a larger impact on signed accruals than absolute accruals. However, we find no evidence that auditors reduce the frequency of small profits or increase the frequency of small losses. These findings should prove useful for future auditing researchers intending to use earnings attributes as proxies for audit outcomes.

Section 2 discusses the relevant literature and develops the hypotheses. Section 3 shows that the audit adjustments in our sample are similar in direction and magnitude to prior US research on adjustments. Section 4 shows that audit adjustments increase earnings smoothness, persistence, and accrual quality. Section 5 examines how audit adjustments affect: i) signed and absolute accruals, and ii) the relative incidence of small profits and small losses. Section 6 provides supplementary analyses, while Section 7 concludes.

## **2. Prior literature and hypothesis development**

### *2.1 Alternate measures of “earnings quality”*

In their review of the earnings quality literature, Dechow et al. (2010) group earnings quality measures into three broad categories:

- i) investor responsiveness to earnings,
- ii) external indicators of misstatements, and
- iii) the properties of earnings.

Only the third category (“earnings properties”) is applicable to our study. The first category (“investor responsiveness to earnings”) is not relevant because the pre-audit earnings are not publicly disclosed and therefore cannot affect stock prices independently of the publicly disclosed audited earnings number. The second category (“external indicators of misstatements”) refers to regulatory enforcement actions and restatement announcements. These are also not relevant for our study because only the audited earnings can be affected

by enforcement actions or restatements; the pre-audit earnings are not subject to restatements or enforcement actions given that they are not publicly disclosed.

Our focus then is on the different properties of pre-audit earnings and audited earnings. Earnings properties are of interest because earnings are used by multiple financial statements users who have differing informational needs (e.g., valuation versus contracting). Thus, an accounting system that produces a single earnings number may not equally satisfy the needs of all the users of financial statements (Dechow et al. 2010). As no-one can say for sure which of the alternative uses for reported earnings are more important or which type of financial statement user should receive the highest priority, it is not possible to answer the normative question as to how audit adjustments *should* affect reported earnings. Rather, our study addresses the positive question as to how audit adjustments do *in fact* affect reported earnings.

## 2.2 Earnings smoothness and persistence

Economic theory suggests that shareholders can benefit from earnings smoothness. In the theoretical model of Trueman and Titman (1988), earnings smoothing reduces the variance of observed earnings, which in turn lowers the likelihood of bankruptcy.<sup>5</sup> This is beneficial for shareholders because it decreases the company's cost of borrowing and improves the company's terms of trade with its customers, employees, and suppliers. In the model of Demski (1998), a manager who works hard is better able to run the company and predict future earnings. A hard-working manager is therefore able to signal his high effort to

---

<sup>5</sup> In the model of Trueman and Titman (1988), earnings smoothing reduces the expected likelihood of bankruptcy because, after observing a smooth stream of earnings, outsiders are unable to determine whether the company has low volatility or the company has high volatility but engaged in earnings smoothing. Rational outsiders understand that managers smooth earnings in order to affect their perceptions of earnings volatility and in equilibrium they are not fooled. Nevertheless, earnings smoothing persists in equilibrium because if the manager were to choose no smoothing when the market expects smoothing then the company's stock price would be lower than its true value (e.g., Goel and Thakor 2003).

shareholders by reporting smoothed earnings. Shareholders benefit from this signal of managerial effort because it reduces the cost to them of incentivizing the manager to work. Furthermore, earnings smoothing can help investors to value companies. Accountants and auditors are able to do some of the valuation work for investors because they have access to private information about the company's future cash flows (Sankar and Subramanyam 2001; Frankel and Litov 2009). Accordingly, smoothed earnings can provide more informative signals to outside investors about corporate values.

The above arguments are consistent with recent survey evidence showing that managers perceive earnings to be of higher quality when earnings are sustainable and repeatable (Dichev et al. 2013). However, earnings smoothing may not necessarily indicate high earnings quality. Instead of smoothing transitory fluctuations in cash flows, managers may smooth earnings for the purpose of artificially concealing permanent downward revisions to future cash flows (Leuz et al. 2003; Bhattacharya et al. 2003; Dechow et al. 2010). It is therefore an open question whether earnings persistence and smoothness are indicative of high earnings quality.

Managers sometimes attempt to overstate earnings due to a variety of incentives, including career concerns and management compensation and overstated earnings tend to be less sustainable in the long-run compared with earnings that are fairly stated (Hui et al. 2013). If an auditor believes the manager's pre-audit earnings are overstated, the auditor should require a downward adjustment. This would correct the overstatement and could cause the audited earnings to be more persistent and smoother compared with the pre-audit earnings.

Alternatively, rather than merely correcting managers' tendency to overstate earnings, auditors may impart a *downward bias* to audited earnings. Auditors are motivated to be conservative due to the asymmetry in their loss functions. Specifically, auditors are typically sued and/or lose reputation when they fail to correct overstatements, whereas

auditors are not generally sued or sanctioned when they fail to correct understatements. Therefore, auditors may find understatements to be less costly than overstatements, causing them to prefer conservatively-reported earnings. In addition, auditors care about the verifiability of accounting information. This is relevant to financial statement users because a lack of verifiability can compromise the usefulness of earnings from a contracting perspective even if the unverifiable information would be relevant for valuation purposes. Because auditors have asymmetric loss functions, they are likely to apply a higher verification standard for accounting choices that are income-increasing than accounting choices that are income-decreasing. In contrast, managers may try to signal value relevant information about future cash flows in the pre-audit financial statements even if such information is difficult for auditors to verify. Thus, the audited earnings numbers may be more reliable but less relevant for valuation purposes than the manager's pre-audit earnings numbers.

In short, we expect managers tend to overstate rather than understate earnings whereas auditors prefer earnings to be reported conservatively. If auditing simply offsets the upward bias in managers' pre-audit earnings, then the audited earnings may be more persistent and smoother compared with pre-audit earnings. On the other hand, auditors may apply a higher verification standard for income-increasing accounting choices, thereby making the audited earnings more reliable from a contracting perspective but less useful for valuation.<sup>6</sup> Given these different possibilities, our first hypothesis is presented in the null form without a directional prediction:

*H1a: There are no significant differences in smoothness and persistence between the pre-audit earnings and the audited earnings.*

---

<sup>6</sup> Prior research emphasizes the potential trade-off between the relevance of accounting information for valuation purposes and the reliability of accounting information for contracting (e.g., Barth 1994; Kallapur and Kwan 2004).

### 2.3 Accrual quality

A basic principle of an accrual-based accounting system is that accruals help to smooth temporary fluctuations in cash flows, which arise from a mismatch in the timing of cash receipts and payments (Hand 1989). Accruals can make earnings a more informative signal of value by smoothing transitory cash flow fluctuations. However, accruals can also be used to artificially mask permanent changes in cash flows, thereby making earnings a lower quality measure. Therefore, the key issue is whether the accruals number is supported by past, current, and future cash flows. Based on this logic, Dechow and Dichev (2002) measure accrual quality using the residuals from a regression of current period accruals on past, current, and future cash flows.

While it is natural to expect that auditing would help to improve accruals quality, this is by no means obvious. Rather than simply correcting managers' overstated accruals, auditors may impart a downward bias to the audited accruals number due to the aforementioned asymmetry in their loss functions. Auditors may also require a higher level of verifiability for income-increasing accruals than income-decreasing accruals. This could make the audited accruals less relevant for the purposes of valuation but, at the same time, it could make the audited accruals more reliable from a contracting perspective. Given these alternative possibilities H1b is stated without a directional prediction:

*H1b: There are no significant differences between the pre-audit accruals and the audited accruals in terms of their mapping to past, current, and future cash flows.*

### 2.4 Earnings metrics as proxies for audit outcomes

In the auditing literature, researchers often use earnings metrics as proxies for audit quality. Several measures have been used including signed accruals, absolute accruals, and benchmark beating. Most auditing studies select a sub-sample of earnings metrics and many do not explain the decision process used for selecting their preferred measures (DeFond and

Zhang 2013). Further, there seems to be some uncertainty as to which measures work best. For example, researchers often employ both the signed and absolute measures of accruals, suggesting some uncertainty as to whether the signed or absolute measure is more likely to be affected. Thus, we are eager to find out which earnings metrics are most strongly affected by audit adjustments and which are unaffected.

#### *2.4.1 Signed accruals versus absolute accruals*

The signed accruals variable is one of the most widely used measures of quality in the auditing literature. Studies have examined how signed accruals are affected by:

- the auditor's provision of non-audit services (Frankel et al. 2002; Ashbaugh et al. 2003; Chung and Kallapur 2003; Larcker and Richardson 2004),
- audit firm size (Becker et al. 1998; Francis et al. 1999; Francis and Wang 2008; Chen et al. 2011),
- audit office size (Francis and Yu 2009),
- audit firm tenure (Myers et al. 2003; Gul et al. 2009),
- audit partner tenure (Carey and Simnett 2006; Chen et al. 2008),
- audit partner rotation (Chi et al. 2009),
- audit partner characteristics (Gul et al. 2013),
- auditor industry expertise (Reichelt and Wang 2010; Gul et al. 2009),
- client importance (Reynolds and Francis 2001),
- auditor effort (Caramanis and Lennox 2008),
- auditors taking employment positions at clients (Menon and Williams 2004), and
- audit market concentration (Francis et al. 2013).

In addition to using signed accruals, most of the above studies also use absolute accruals and/or they examine the absolute magnitudes of both positive and negative accruals.<sup>7</sup>

A few auditing studies use absolute accruals without reporting results for signed accruals. Such studies include Ferguson et al. (2004), who examine the effect of non-audit services on absolute accruals, and Johnson et al. (2002) who examine the effect of audit firm tenure on absolute accruals. The authors justify their focus on absolute accruals by explaining that they are unable to make a signed prediction for the direction of earnings management.

*A priori*, it is unclear whether it is better to use signed accruals or absolute accruals as proxies for audit outcomes. An advantage of using absolute accruals is that managers may engage in income-decreasing earnings management. For example, managers sometimes take “big baths” (Healy 1985) or create “cookie-jar” reserves (Levitt 1998). To the extent that auditors prevent both income-decreasing and income-increasing earnings management, an absolute measure of accruals may be preferable. Moreover, accruals have to reverse at some point during a company’s lifetime, so an absolute measure can capture the effects of past as well as current earnings management (Francis et al. 1999).

On the other hand, signed accruals have two potential advantages over absolute accruals. First, an audit can cause the sign of accruals to change. For example, a manager may opportunistically reduce the bad debt expense in an attempt to hide a decline in profitability, but the auditor may decide that the bad debt expense needs to be increased in order to reflect doubts about the collectability of receivables. Thus, a manager’s pre-audit accruals may be positive whereas the audited accruals may be negative. Such sign changes are fully captured by the signed accruals measure but not by the absolute measure.

---

<sup>7</sup> Similar to studies of US companies, researchers in China frequently use accruals to measure earnings quality or audit quality in Chinese companies (e.g., Aharony et al. 2000; Haw et al. 2005; Chen et al. 2011; Wang and Yung 2011; Gul et al. 2013).

Second, a larger absolute negative accrual could reflect either auditor conservatism or opportunistic income-decreasing earnings management. For example, a manager may increase the bad debt expense when receivables are unlikely to be collected, but an auditor may conclude on the basis of audit tests that the bad debt expense needs to be increased by a larger amount. In this case, the increase in the bad debt expense would be larger in the audited financial statements than in the pre-audit financial statements but this would be due to the effects of audit adjustments rather than the manager's choice of income-decreasing earnings management.

To empirically examine these advantages and disadvantages of using signed accruals versus absolute accruals, we test three hypotheses. The first hypothesis is founded on the aforementioned idea that an audit can cause the sign of accruals to change (from positive to negative or *vice versa*). Prior research shows that downward audit adjustments are more common than upward adjustments (Kinney and Martin 1994; Nelson et al. 2002), so we expect the sign of accruals is more likely to switch from positive to negative than negative to positive. For example, the pre-audit accrual may be +0.01 while the audited accrual is -0.01 following a downward audit adjustment. The opposite scenario is also possible (i.e., the pre-audit accrual is -0.01 and the audited accrual is +0.01) but this occurs less often because upward adjustments are less common than downward adjustments. Therefore, H2a is as follows:

*H2a: 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.*

Finding significant evidence for H2a would support using signed accruals rather than absolute accruals to measure audit outcomes. This is because the signed accruals measure would capture the higher frequency with which accruals switch sign from positive to negative during the course of an audit.

Next, we consider how audit adjustments affect the absolute magnitude of negative accruals. There are two competing possibilities. On one hand, auditors might correct opportunistic income-decreasing earnings management by requiring upward adjustments to pre-audit earnings. In this case, audit adjustments would reduce the absolute magnitude of negative accruals (e.g., the pre-audit accrual is -0.02 while the audited accrual is -0.01). This would support using absolute accruals rather than signed accruals. On the other hand, auditors might require downward adjustments if they are more conservative than managers in their accounting estimates. In this case, the downward adjustments would increase the absolute magnitude of negative accruals (e.g., the pre-audit accrual is -0.02 while the audited accrual is -0.03). This would support using signed accruals rather than absolute accruals. Given these competing arguments, H2b is expressed in the null form:

*H2b: The absolute magnitude of audited negative accruals is not significantly different from the absolute magnitude of pre-audit negative accruals.*

Finally, we consider how adjustments affect the magnitude of positive accruals. We expect auditors have strong incentives to prevent income-increasing earnings management because the costs of failing to make a necessary downward adjustment are high due to the threat of litigation and reputation loss. This would mean that audit adjustments are expected to reduce the absolute magnitude of positive accruals (e.g., the pre-audit accrual is +0.02 while the audited accrual is +0.01). Therefore, we expect audited income-increasing accruals are significantly smaller than pre-audit income-increasing accruals (H2c).

*H2c: Audited positive accruals are smaller in magnitude than pre-audit positive accruals.*

#### 2.4.2 Small profits and small losses

Some auditing researchers have used the incidence of small profits and small losses to measure quality. Specifically, studies have examined how managers' tendency to avoid reporting losses is affected by:

- audit partner tenure (Carey and Simnett 2006),

- audit partner characteristics (Gul et al. 2013),
- auditor industry expertise (Francis and Wang 2008),
- auditor effort (Caramanis and Lennox 2008),
- audit office size (Francis and Yu 2009), and
- audit market concentration (Francis et al. 2013).

Some studies combine the incidence of small profits with their estimates of discretionary accruals. For example, Caramanis and Lennox (2008) construct a dummy variable equal to one if reported profits are less than 1% of total assets *and* discretionary accruals are positive *and* unmanaged profits are negative. Other studies do not incorporate accruals into their measures of loss avoidance. For example, Carey and Simnett (2006) construct a small profits indicator equal to one if profits are less than 2% of total assets (zero otherwise).<sup>8</sup>

An unusually high frequency of small profits relative to small losses is a commonly conjectured indicator of earnings management (Burgstahler and Dichev 1997; DeGeorge et al. 1999). However, this is controversial. For example, 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 in the earnings distribution around zero is partly explained by the asymmetric tax treatments of profits versus losses. Further, Durtschi and Easton (2005, 2009) argue that the discontinuity is explained by statistical and sample bias issues related to scaling by price. Accordingly, the discontinuity in the earnings distribution around zero may not be indicative of earnings management. If the discontinuity is not indicative of earnings management, then auditing would not be expected to affect the magnitude of the discontinuity. In this case, the pre-audit earnings distribution and the audited earnings distribution would display similar discontinuities around zero. On the other hand, if the discontinuity in the earnings distribution is attributable to earnings

---

<sup>8</sup> In addition to studies of non-Chinese companies, researchers in China often use the relative incidence of small profits and small losses to measure earnings quality or audit quality in Chinese companies (e.g., Chen et al. 2001; Wang et al. 2008a; Gul et al. 2013).

management, and if auditors require year-end adjustments to prevent this kind of earnings management, then we would expect to find a smaller discontinuity in the audited earnings distribution than in the pre-audit earnings distribution.

Managers in China have particularly strong incentives to avoid reporting losses because Chinese companies are downgraded by the stock exchanges to the “special treatment” status if they report two consecutive years of losses and they are forced to de-list if they report three consecutive years of losses (e.g., Chen et al. 2001). Therefore, our setting provides a particularly powerful test of the loss avoidance hypothesis.

It is also necessary to consider whether auditors are likely to prevent loss avoidance. In the US, Staff Accounting Bulletin No. 99 (SAB-99) states that auditors should consider qualitative factors such as whether or not a misstatement converts a reported loss into a profit when determining whether a misstatement needs to be corrected. Similar requirements are in force for auditors in China. According to Article 5 of Chinese Auditing Standard (CAS) No. 10 (effective since January 1, 1997), auditors should consider both the quantitative magnitude and the qualitative nature of misstatements when implementing the materiality principle. Elaborating on Article 5, the CAS No. 10 Guidance notes state that a small misstatement should be regarded as qualitatively material when it converts a loss into a profit. Therefore, auditors in China are supposed to prevent opportunistic loss avoidance, just as auditors are required to do in the US.

Nevertheless, it is not clear that auditors really consider these qualitative characteristics when determining whether an audit adjustment is required. Libby and Kinney (2000) find US auditors are willing to waive adjustments for misstatements that are quantitatively small despite being qualitatively material. Similarly, Legoria et al. (2013) conclude that, contrary to the intent of SAB-99, US auditors rely on quantitative materiality thresholds to the exclusion of qualitative materiality thresholds. We are unaware of similar evidence in the case of China but, because the risk of litigation is lower than in the US, it

might be expected that Chinese auditors would be even less effective in preventing loss avoidance.

Overall, it is an open question whether auditors affect the relative frequency of small profits and small losses through audit adjustments. H2d is therefore written in the null form:

*H2d: There is no difference in the frequency of small profits (small losses) between the pre-audit earnings versus the audited earnings.*

Finding significant evidence for H2d would support the maintained assumption of prior studies that the relative incidence of small profits (small losses) aligns with the way that auditors try to improve earnings quality.

### **3. Research setting and sample**

#### *3.1 The audit profession in China*

Starting in 1979, China introduced a series of economic reforms with the aim of transitioning to a more market-based economy. China's auditing profession was established in 1980 and in the early years most audit firms were sponsored by and connected to local governments and universities. The market development of the auditing profession accelerated following the opening of two stock exchanges in Shanghai and Shenzhen during 1990 and 1991. Responding to increased demands for audit quality and auditor independence, the MOF and China Securities Regulatory Commission introduced reforms to separate the audit firms both financially and operationally from the government. These 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).

These are at least four reasons why audit firms in China have incentives to improve earnings quality by requiring companies to make adjustments to pre-audit earnings. First, low quality audits carry a risk of litigation, particularly since legal reforms were passed in 2002 and 2005 which significantly increased auditors' legal responsibilities to investors (Firth

et al. 2012). Second, the MOF and CICPA provide close regulatory oversight, with the Inspection Bureau of the MOF conducting regular inspections of audit firms. Tough sanctions have been imposed on audit firms found to have conducted low quality audits. For example, the Chinese authorities withdrew the practicing licenses of 18 audit firms and punished a further 60 audit firms with fines and reform orders in 2005. Third, there is emerging evidence that auditors in China suffer adverse reputation consequences when they are associated with audit scandals, particularly after the failure of China's then-largest audit firm, Zhongtianqin, in 2001. The Zhongtianqin scandal became known as the "Chinese Enron" due to its large size and wide publicity. Consistent with adverse reputation consequences, He et al. (2013) document that the former partners of Zhongtianqin suffered falls in market shares and found it harder to secure employment at reputable audit firms following the scandal. Finally, Chinese audit firms have been required to follow International Auditing Standards since 2005 and these standards have helped to improve audit quality.

For all these reasons, we expect auditors in China have incentives to improve earnings quality by requiring adjustments to be booked during year-end audits.

### *3.2 Pre-audit earnings and audited earnings*

Many studies measure audit quality by examining the quality of the audited earnings number. However, this is potentially problematic as audited earnings are determined by the reporting choices made by the manager as well as the auditor. For example, when a manager reports high signed accruals in the pre-audit financial statements this could reflect opportunistic earnings management or it could be that the accruals are fairly stated. In the former case a downward adjustment is required to correct the overstatement, whereas in the latter case the auditor would not require an adjustment because the pre-audit earnings are fairly stated. The audited signed accruals would be lower in the former case than in the

latter even though the auditor is ensuring that the financial statements are fairly stated in both cases.

To better identify how auditors affect reported earnings, our analysis exploits information on *both* the manager's pre-audit earnings number ( $E_{PRE}$ ) and the audited earnings number ( $E_{AUD}$ ). The individual components of these two earnings numbers can be expressed as follows:

$$E_{PRE} = NE + DE_{PRE} + \varepsilon_{PRE} \quad (1)$$

$$E_{AUD} = NE + DE_{AUD} + \varepsilon_{AUD} \quad (2)$$

where:

$NE$  = the non-discretionary component of earnings,

$DE_{PRE}$  = the discretionary component of the manager's pre-audit earnings,

$\varepsilon_{PRE}$  = a random error in the manager's pre-audit earnings,

$DE_{AUD}$  = the discretionary component of the audited earnings,

$\varepsilon_{AUD}$  = a random error in the audited earnings.

The non-discretionary component of earnings ( $NE$ ) comprises factors such as the company's fundamental performance, accounting standards, etc. The two discretionary components ( $DE_{PRE}$  and  $DE_{AUD}$ ) reflect the manager's and auditor's reporting choices. The two error components ( $\varepsilon_{PRE}$  and  $\varepsilon_{AUD}$ ) reflect any unintended errors in the reporting process; e.g., an inventory counting error by the client would affect  $\varepsilon_{PRE}$ , while sampling errors by the auditor could affect  $\varepsilon_{AUD}$ .

The audit adjustment for company  $i$  in year  $t$  is obtained by subtracting eq. (1) from eq. (2) which gives the difference between audited earnings and pre-audit earnings:

$$E_{AUD} - E_{PRE} = (DE_{AUD} - DE_{PRE}) + (\varepsilon_{AUD} - \varepsilon_{PRE}) \quad (3)$$

An audit adjustment occurs when the auditor requires a correction to the manager's pre-audit earnings (i.e.,  $E_{AUD} \neq E_{PRE}$ ). Conversely, there is no adjustment when the auditor concludes that the manager's pre-audit earnings are fairly stated ( $E_{AUD} = E_{PRE}$ ). We infer

auditors' perceptions of earnings quality by directly comparing the properties of  $E_{AUD}$  and  $E_{PRE}$ . The logic for this is that auditors require managers to adjust the earnings number in order to improve earnings quality. This implies that auditors would perceive the quality of  $E_{AUD}$  to be at least as high as the quality of  $E_{PRE}$ . Therefore, auditors' perceptions of earnings quality can be inferred from a comparison of  $E_{AUD}$  and  $E_{PRE}$ . For example, if auditors perceive that loss avoidance is indicative of lower earnings quality, we would expect to find a smaller discontinuity around zero in the audited earnings distribution than in the pre-audit earnings distribution.<sup>9</sup>

Importantly, it is not our intention to examine how the *threat* of an audit affects managers' pre-audit reporting choices. For example, a manager may refrain from overstating earnings if the manager anticipates that the auditor would detect the misstatement and require a downward correction. As we do not observe what  $E_{PRE}$  would be in the absence of an audit, it is not our objective to identify how the threat of an audit affects earnings. Instead we are using the audit adjustments data to gauge auditors' perceptions of earnings quality. Specifically, our maintained assumption is that an adjustment is more (less) likely to occur when the auditor believes that the manager's pre-audit earnings are low (high) quality. In other words, auditors require adjustments in order to improve earnings quality.

---

<sup>9</sup> Note that we compare the attributes of audited earnings ( $E_{AUD}$ ) and pre-audit earnings ( $E_{PRE}$ ). An alternative approach would be to compare audited earnings in the sub-sample where audit adjustments occur ( $E_{AUD} \neq E_{PRE}$ ) and the sub-sample where audit adjustments do not occur ( $E_{AUD} = E_{PRE}$ ). We do not undertake this cross-sectional comparison because it is unclear which of the two sub-samples would contain the higher quality audited earnings. The no adjustments sub-sample could have the lower quality audited earnings if adjustments should have been made but were not required by auditors; on the other hand, the no adjustments sub-sample could have the higher quality audited earnings if pre-audit earnings were already fairly stated and therefore did not require any adjustments.

### 3.3 Controlling for the non-discretionary component of earnings

In most research settings, it is difficult to disentangle the discretionary and non-discretionary components of earnings because neither component is directly observable. Moreover, attempts to disentangle them have had limited success. For example, models of non-discretionary accruals explain only 10-12% of the total variation in accruals, raising concerns that the residuals may capture non-discretionary factors such as fundamental performance rather than accounting discretion (Dechow et al. 2010).<sup>10</sup>

An important advantage of our research setting is that any difference between the pre-audit earnings and the audited earnings cannot be attributable to non-discretionary factors. In particular, we fully control for the non-discretionary component of earnings (*NE*) by examining the *differences* between pre-audit earnings and audited earnings. This can be seen from inspection of eqs. (1) to (3). In particular, *NE* appears in eqs. (1) and (2) but does not appear in eq. (3) because *NE* is differenced out once we focus on audit adjustments.

This has two important advantages. First, we do not need a regression model to disentangle the discretionary and non-discretionary components of earnings. For example, we simply compare the differences between pre-audit and audited accruals without any need to estimate a model of non-discretionary accruals. Second, we directly control for non-discretionary interpretations of the discontinuity in the earnings distribution around zero. This is important because the discontinuity could be attributable to non-discretionary factors such as sample selection biases, scaling effects, and asymmetric tax rules (Durtschi and Easton 2005, 2009; Beaver et al. 2007). These non-discretionary factors cannot contaminate our analyses which rely on differences between the pre-audit earnings distribution and the audited earnings distribution. In short, any difference between the pre-audit earnings and

---

<sup>10</sup> Some studies attempt to control for performance by constructing performance-matched discretionary accruals (Kothari et al. 2005). However, Dechow et al. (2010) point out that performance matching can extract too much discretion when performance also affects the discretionary component of earnings.

audited earnings cannot be attributed to non-discretionary factors as those factors would affect both earnings measures equally (as shown in eqs. (1) and (2)).

### *3.4 Sample and descriptive statistics*

Our sample comes from the MOF database and comprises 10,114 annual audits of publicly traded companies (2006-2011). The MOF database yields information on pre-audit earnings, pre-audit total assets, audited earnings, and audited total assets. Audit firms have been required to report these numbers to the MOF for every public company audit since 2006.<sup>11</sup>

We believe the MOF data are reliable for two reasons. First, it would be risky for an audit firm to report inaccurate information because the MOF inspectors can easily compare audit firms' self-reported data with the information found in audit firms' working papers during the course of an inspection. Moreover, audit firms are not told which engagements will be examined by the inspectors and it would be impractical for audit firms to doctor all their working papers in advance of an inspection. Second, we understand that any inconsistency between the information reported to the MOF prior to the inspection and the information found during the inspection would likely result in disciplinary action. We understand from the MOF that no auditors have so far had to be disciplined for misreporting the information.

Audit firms are not required to report other pre-audit financial statement items to the MOF; e.g., there is no pre-audit cash flow statement. Given that we do not observe pre-audit cash flows, we use operating cash flows from the audited financial statements (*CFO*) when constructing the accruals variables. In doing so, we assume audit adjustments affect

---

<sup>11</sup> The purpose of reporting this information is to aid the MOF's inspections of audit firms. By comparing the pre-audit and audited numbers, the MOF inspectors identify whether a company booked an audit adjustment and the inspectors use this information when deciding which audit engagements to examine. Similarly, the Public Company Accounting Oversight Board looks for signs of potential misreporting when it decides which engagements to sample in its inspections of US audit firms.

earnings through accruals but not through cash flows. This seems reasonable given that cash flows do not involve significant accounting judgements. Moreover, this assumption is only needed for our accruals and cash flow variables; it does not affect our comparisons of pre-audit earnings and audited earnings. The data for operating cash flows, stock prices, and stock returns are obtained from the CSMAR database.

Panel A of Table 1 reports descriptive statistics for pre-audit earnings and audited earnings. Specifically, it presents the unscaled earnings variables ( $Pre\_E_{it}$  and  $Post\_E_{it}$ ), earnings scaled by total assets ( $Pre\_ROA_{it}$  and  $Post\_ROA_{it}$ ), and earnings per share ( $Pre\_EPS_{it}$  and  $Post\_EPS_{it}$ ). Consistent with audit adjustments having a mostly negative impact on reported earnings, the audited earnings numbers are consistently lower than the pre-audit earnings numbers. For example, the mean value of unscaled pre-audit earnings ( $Pre\_E_{it}$ ) is RMB 459 million whereas the mean value of unscaled audited earnings ( $Post\_E_{it}$ ) is RMB 430 million, implying a mean reduction in reported earnings of 6.3% during the year-end audit. The percentile values in Panel A show that audit adjustments cause a leftward shift in the entire earnings distribution, implying that audit adjustments result in lower reported earnings. Similar patterns are observed in Panel A for the scaled earnings variables ( $Pre\_ROA_{it}$ ,  $Post\_ROA_{it}$ ,  $Pre\_EPS_{it}$  and  $Post\_EPS_{it}$ ).

[INSERT TABLE 1 HERE]

In Panel B, we partition the sample into downward adjustments, upward adjustments, and no adjustments. Only 29.31% of the 10,114 engagements have no adjustments to pre-audit earnings. There are 4,852 engagements (47.97%) where earnings are adjusted downwards, compared with 2,298 engagements (22.72%) where earnings are adjusted upwards. Therefore, downward adjustments are much more common than upward adjustments. Panel C presents the quantitative magnitudes of the downward and upward adjustments. The mean (median) downward adjustment is -15.7% (-5.6%), while the mean (median) upward adjustment is +10.5% (+2.9%). Consequently, not only are downward

adjustments more common than upward adjustments, but also the downward adjustments are larger. Overall, these findings are consistent with evidence from the US that audit adjustments have an overwhelmingly negative impact on reported earnings (Kinney and Martin 1994).

#### 4. Earnings smoothness, persistence, and accrual quality (H1)

##### 4.1 Earnings smoothness

We follow prior research when constructing our measures of smoothness (e.g., Leuz et al. 2003; Lang et al. 2003, 2006).<sup>12</sup> To begin, we calculate the company-level standard deviations of the pre-audit and audited profitability ratios (i.e.,  $\sigma(Pre\_ROA_{it})$  and  $\sigma(Post\_ROA_{it})$ ). Further, we scale these two profitability variables by the company-level standard deviations of operating cash flows. This helps to control for the fact that a company will tend to have higher earnings volatility if it has higher cash flow volatility.

Panel A of Table 2 compares the pre-audit earnings and audited earnings using these measures of smoothness (i.e.,  $\sigma(Pre\_ROA_{it})$  vs.  $\sigma(Post\_ROA_{it})$  and  $\sigma(Pre\_ROA_{it})/\sigma(Pre\_CFO_{it})$  vs.  $\sigma(Post\_ROA_{it})/\sigma(Post\_CFO_{it})$ ). For both sets of comparisons, we find the audited earnings are significantly less volatile than the pre-audit earnings (t-stats. = 4.493 and 2.787). This suggests that auditors consider less volatile earnings to be indicative of higher earnings quality.

[INSERT TABLE 2 HERE]

While Panel A focuses on the volatility in profitability *levels*, we also consider the volatility in profitability *changes*. Examining changes in reported profitability helps to

---

<sup>12</sup> Lang et al. (2003, 2006) regress their earnings volatility variables on a set of controls for fundamental performance and they then use the regression residuals as their measures of smoothness. This is unnecessary in our setting because we are using each company-year observation as a control for itself. In other words, the effects of performance and other non-discretionary factors are held constant as we are examining the *difference* between pre-audit earnings and audited earnings for the *same company-year observation*. See Section 3.3 for further details.

account for any upward or downward trends in profitability that are not temporary. Panel B of Table 2 reports results for the profitability change variables (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.  $\sigma(\Delta Post\_ROA_{it})/\sigma(\Delta Post\_CFO_{it})$ ). The differences in volatility between the audited and pre-audit numbers are even larger for the profitability change variables. Specifically, the differences in the volatility of pre-audit and audited profitability changes are 0.063 vs. 0.054 and 0.942 vs. 0.845, respectively. Again, these differences in smoothness are highly significant (t-stats. = 10.577, 6.567) indicating that audited profits are smoother than pre-audit profits.

Given that the sample period is only six years (2006-2011), we also examine smoothness using the absolute magnitudes of profitability changes rather than the company-level standard deviations; i.e., we compare  $|\Delta Pre\_ROA_{it}|$  vs.  $|\Delta Post\_ROA_{it}|$  and  $|\Delta Pre\_ROA_{it} / \Delta Pre\_CFO_{it}|$  vs.  $|\Delta Post\_ROA_{it} / \Delta Post\_CFO_{it}|$ . The results from these untabulated tests are very similar to the standard deviation results reported in Table 2. Overall, the evidence clearly points toward the audited earnings being significantly smoother than the pre-audit earnings.

To compare the extent to which pre-audit accruals and audited accruals are used to smooth earnings, we follow prior research by examining the correlation between accruals and cash flows (e.g., Leuz et al. 2003; Lang et al. 2003, 2006). Smoothness naturally leads to a negative correlation between accruals and cash flows, so the primary issue here is whether the correlation is more negative for audited accruals than pre-audit accruals. The two correlations are reported in Panel C of Table 2. The correlation is -0.605 for audited accruals and -0.589 for pre-audit accruals. Thus, the audited accruals result in smoother earnings than do the pre-audit accruals. We return to this point later when we look at the Dechow and Dichev (2002) measure of accrual quality.

Overall, we find the audited earnings are significantly smoother than the pre-audit earnings, suggesting that auditors perceive smooth earnings to be indicative of high earnings quality.

#### 4.2 Earnings persistence

We now examine whether auditors perceive persistent earnings to be indicative of high earnings quality. Specifically, we test whether there are significant differences in persistence between pre-audit earnings and audited earnings:

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

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

The persistence coefficients for pre-audit earnings and audited earnings are  $a_1$  and  $b_1$ , respectively.

The results for these two regressions are shown in Panel D of Table 2. Both regressions show significant persistence in profitability (t-stats. = 11.70 and 16.73, respectively). More importantly, persistence is found to be considerably higher for audited profits than for pre-audit profits (0.389 vs. 0.277). The difference between these persistence coefficients is not only large, it is also statistically significant ( $\text{Chi}^2 = 72.46$ ; p-value < 0.001). As audited profits are significantly more persistent than pre-audit profits, this evidence suggests that auditors perceive repeatable and sustainable earnings as being indicative of high earnings quality.

#### 4.3 Accrual quality

Following Dechow and Dichev (2002), we model pre-audit accruals and post-audit accruals as a function of past, present, and future cash flows by estimating the following models:

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

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

The residuals from these models ( $u_{PRE,it}$  and  $u_{POST,it}$ ) represent the estimation errors in pre-audit accruals and audited accruals, respectively. If auditors perceive that smaller estimation errors are indicative of higher earnings quality, the residuals would be less volatile for audited accruals than for pre-audit accruals. The  $\sigma(u_{PRE,it})$  variable is the standard deviation of the estimated residual from regressing pre-audit accruals on past, current, and future cash flows. The  $\sigma(u_{POST,it})$  variable is defined analogously for the audited accruals regression.

Panel E of Table 2 shows that the mean value of  $\sigma(u_{POST,it})$  is significantly smaller than the mean value of  $\sigma(u_{PRE,it})$  (t-stat. = 5.003). This is consistent with auditors perceiving that earnings quality is higher when there are smaller estimation errors in accruals. Again, because we have only six years of data to calculate the standard deviations, we do the same test for the absolute magnitudes of the residuals (i.e.,  $|u_{POST,it}|$  and  $|u_{PRE,it}|$ ). Consistent with Panel E, the audited residuals are found to be significantly smaller in absolute magnitude than the pre-audit residuals (t-stat. = 4.359).

In sum, Table 2 reveals that year-end audit adjustments result in higher earnings smoothness, earnings persistence, and accrual quality. Because these attributes are more apparent in the audited earnings than in the managers' pre-audit earnings, we conclude that audit adjustments help to make earnings more useful for the purposes of valuation.

## **5. Earnings metrics commonly used as proxies for audit outcomes (H2)**

Only a handful of auditing studies have used earnings smoothness, persistence, or accrual quality as proxies for audit outcomes (Johnson et al. 2002; Srinidhi and Gul 2007; Lim and Tan 2010).<sup>13</sup> Therefore, in this section, we examine the earnings metrics that are more commonly used in audit research. Our objective is to determine whether auditors perceive

---

<sup>13</sup> Knechel et al. (2013) measure audit quality by examining the ability of current operating cash flows and current accruals to predict one year ahead operating cash flows. The same measure has also been used by Minnis (2011).

these earnings metrics to be indicative of high earnings quality. We assess this by examining how (if at all) the earnings metrics are altered during year-end audits.

### *5.1 Signed accruals and absolute accruals*

Audited accruals are often used in the literature as a barometer for audit quality. However, studies differ in how they measure accruals. Most studies examine both signed and absolute accruals. On the other hand, some studies examine signed accruals but not absolute accruals, while others examine absolute accruals but not signed accruals. The objective of this section is to determine whether audit adjustments affect absolute and signed accruals equally and, if not, the reasons for this. (As explained in Section 3.3, there is no need to estimate a model of non-discretionary accruals because non-discretionary factors are automatically differenced out when we examine the differences between the pre-audit and audited numbers.)

The results are reported in Panels A and B of Table 3. Panel A shows the pre-audit signed accruals are significantly larger than the audited signed accruals (0.009 vs. 0.003; t-stat. = 10.606). Further, Panel B shows that the pre-audit absolute accruals are significantly larger than the audited absolute accruals (0.075 vs. 0.071; t-stat. = 7.576). Therefore, audit adjustments result in smaller signed accruals and smaller absolute accruals. Moreover, Panels A and B show that audit adjustments have a larger impact on signed accruals than absolute accruals. Therefore, we now investigate the reasons for this by testing H2a to H2c.

[INSERT TABLE 3 HERE]

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 is more likely to convert an income-increasing accrual into an income-decreasing accrual, than *vice versa*. These sign switches are important because they can explain why audit adjustments have a bigger impact on signed accruals than absolute accruals.

The results for H2a are shown in Panel C of Table 3. We find 1.9% of audits result in positive pre-audit accruals being transformed into negative audited accruals, whereas only 1.3% of audits result in negative pre-audit accruals being transformed into positive audited accruals. The difference in frequencies is statistically significant ( $z\text{-stat.} = 3.552$ ). Therefore, signed accruals better capture the effect of audit adjustments in transforming positive pre-audit accruals into negative audited accruals. This is the first reason why audit adjustments affect signed accruals more than they affect absolute accruals.

Next, we test H2b which does not make a signed prediction for the difference between audited negative accruals and pre-audit negative accruals. We make no signed prediction because there are two competing effects. On one hand, an audit adjustment may increase the absolute magnitude of negative accruals (e.g., the 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 absolute magnitude of negative accruals (e.g., the auditor may prevent the company's management from taking a "big bath"). To distinguish this test from the sign switching test in H2a, we restrict the sample to 4,667 observations in which the pre-audit accruals and the audited accruals are both negative (i.e., in this sub-sample audit adjustments do not change the sign of accruals).

Panel D shows the mean absolute pre-audit negative accrual is 0.070 while the mean absolute audited negative accrual is 0.072 and the difference is statistically significant ( $t\text{-stat.} = -2.412$ ). Therefore, audit adjustments have a small *positive* impact on the absolute magnitude of negative accruals. This is inconsistent with studies which assume that auditing has a negative impact on the absolute magnitude of negative accruals. This is the second reason why audit adjustments have a bigger impact on signed accruals than absolute accruals.

Finally, we test H2c which predicts that audited positive accruals are smaller in magnitude than pre-audit positive accruals. In other words, audit adjustments help to

mitigate income-increasing earnings management. To distinguish this test from H2a, the sample comprises 5,115 observations in which the pre-audit accruals and audited accruals are both positive. Consistent with H2c, Panel E shows that the mean value of positive pre-audit accruals is considerably larger than the mean value of positive audited accruals (0.082 vs. 0.072). Moreover, the difference is highly significant (t-stat. = 11.633). Therefore, the main impact of audit adjustments is on reducing the magnitude of income-increasing accruals.

Overall, we conclude that audit adjustments have a larger negative impact on signed accruals than absolute accruals. Accordingly, the signed accruals metric is better than the absolute accruals metric in capturing how audit adjustments affect accruals.

### *5.2 Small profits and small losses*

Prior auditing studies also use benchmark beating to gauge how auditors affect reported earnings. Two benchmarks have been used: i) reporting a small profit instead of a small loss, and ii) meeting/beating the consensus analyst forecast.

We focus on the zero earnings benchmark for two reasons. First, Chinese Auditing Standard No. 10 does not state that meeting/beating analysts' forecasts is a qualitative factor that auditors need to consider when determining whether a misstatement is material, whereas CAS No. 10 does state that a misstatement is qualitatively material if it converts a loss into a profit. Second, the earnings that are forecast by analysts are defined differently from the earnings reported to the MOF. Consequently, differences between the pre-audit analyst forecast error and the audited analyst forecast error could be due to the different definitions of earnings rather than audit adjustments.

We therefore focus on the discontinuity in the earnings distribution around zero. We examine whether the pre-audit earnings distribution and the audited earnings distribution exhibit significant differences in the frequencies of small profits and small losses (H2d). A

significant difference would be expected if auditing mitigates the tendency of companies to avoid reporting losses, which is the maintained assumption of many auditing studies.

[INSERT FIGURE 1 HERE]

The histograms for the two earnings distributions are shown in Figure 1. We find large discontinuities around zero in both distributions, but the discontinuities are not noticeably different between the pre-audit and audited earnings. This is inconsistent with auditors requiring adjustments in order to reduce the incidence of loss avoidance.

Table 4 provides formal statistical tests on the relative frequencies of small profits and small losses. Panel A uses cut-offs of 0.01 and -0.01 to define small profits and small losses, respectively; Panel B uses +0.005 and -0.005 as the cut-offs; Panel C uses +0.02 and -0.02. In each case, the frequency of small profits is slightly *higher* for audited profits than for pre-audit profits. This is opposite to what would be expected if auditors mitigate the tendency of companies to meet or just beat the zero earnings benchmark. Further, Panels A to C show that small pre-audit losses do not occur significantly less frequently than small audited losses. Finally, Panel D tests for a significant difference in the overall frequencies of losses versus profits. We find losses are reported in 9.1% of pre-audit financial statements compared with 9.5% of audited financial statements. The difference between these frequencies is small and not statistically significant (z-stat. = -0.895).

[INSERT TABLE 4 HERE]

Overall, Table 4 fails to support the assumption of many studies that auditors reduce the discontinuity in the earnings distribution around zero. There are two possible explanations for this. First, the discontinuity in the earnings distribution may not be a reliable indicator of earnings management as some researchers argue that the discontinuity is due to non-discretionary factors such as scaling effects and tax rules (Durtschi and Easton 2005, 2009; Beaver et al. 2007). If the discontinuity does not capture earnings management, then auditing would not be expected to have any effect. Second, even if the earnings

discontinuity does reliably capture earnings management, it could be that auditors are doing little to prevent this form of qualitative earnings management (Libby and Kinney 2000; Legoria et al. 2013). In either case, the key implication for audit researchers is that the earnings discontinuity does not seem to be altered during the course of a year-end audit.

## 6. Supplementary analyses

### 6.1 Downward adjustments vs. upward adjustments

As discussed earlier, an audit adjustment equals the difference between audited earnings and pre-audit earnings:

$$E_{AUD} - E_{PRE} = (DE_{AUD} - DE_{PRE}) + (\varepsilon_{AUD} - \varepsilon_{PRE}) \quad (3)$$

Eq. (3), shows that an adjustment arises when there is a difference between the auditor's and manager's discretionary components of earnings ( $DE_{AUD} - DE_{PRE}$ ) or a difference in their errors ( $\varepsilon_{AUD} - \varepsilon_{PRE}$ ).

If adjustments were entirely due to reporting errors ( $\varepsilon_{AUD} - \varepsilon_{PRE}$ ) we would expect an approximately equal frequency of upward and downward adjustments. On the other hand, we would expect a higher frequency of downward adjustments to the extent that adjustments are partly due to non-random discretionary factors. This is because managers have a tendency to overstate the pre-audit earnings, while auditors have a tendency to require downward adjustments. We have already seen in Panel B of Table 1 that downward adjustments occur more than twice as often as upward adjustments (47.97% vs. 22.72%). This suggests that many of the downward adjustments are due to differences in managers' and auditors' discretionary accounting choices ( $DE_{AUD} - DE_{PRE}$ ), whereas relatively more of the upward adjustments are likely due to accidental reporting errors ( $\varepsilon_{AUD} - \varepsilon_{PRE}$ ).

While downward (upward) adjustments naturally result in lower (higher) earnings, it is unclear how these two types of adjustment affect other earnings properties, such as smoothness and persistence. For example, downward adjustments might lead to higher

persistence and smoothness due to the correction of managers' overstatements, but the same might be true of upward adjustments if they are made to correct managers' understatements. We investigate this by re-running all our tests on the sub-samples of downward adjustments ( $N = 4,852$ ) and upward adjustments ( $N = 2,298$ ).

In the downward adjustments sub-sample, we find audited earnings are significantly smoother, more persistent, and contain higher quality accruals, compared with the managers' pre-audit earnings. Not surprisingly, the downward adjustments also result in larger negative accruals, smaller positive accruals, and a higher frequency of reported losses. In the upward adjustments sub-sample, we continue to find that the audited earnings are smoother and contain higher quality accruals compared with the pre-audit earnings. However, there is no significant difference in persistence between the audited earnings and the pre-audit earnings when earnings are adjusted upwards. Not surprisingly, the upward adjustments result in smaller negative accruals, larger positive accruals, and a lower incidence of losses.

Overall, the results for earnings smoothness and accrual quality are similar for both downward and upward adjustments. The main differences are for accruals and the frequencies of profits (losses) because upward adjustments shift the earnings distribution to the right, whereas downward adjustments shift the earnings distribution to the left.

## *6.2 Top 10 versus non-top 10 auditors*

Thus far, we have found that the audited earnings do not contain a higher (lower) proportion of small losses (small profits) compared with the pre-audit earnings. Accordingly, for the sample as a whole, we find no evidence that these earnings attributes are indicative of higher earnings quality according to auditors' perceptions.

However, it is possible that high-quality and low-quality auditors behave differently in which case their adjustments could have different effects on the attributes of earnings. For

example, it is possible that high-quality auditors are more likely than low-quality auditors to ensure that managers truthfully report losses. In this case, the audited earnings would contain a relatively higher (lower) proportion of small losses (small profits) when the earnings are audited by high-quality auditors. As our full sample tests co-mingle the audits of high-quality and low-quality auditors, these tests may fail to detect any impact that is confined to the high-quality auditors alone.

Prior research in China finds that the “top 10” auditors supply higher quality audits than do smaller audit firms (e.g., DeFond et al. 2000; Chen et al. 2001; Wang et al. 2008b). We therefore re-run our tests after splitting the sample according to whether the audits are performed by “top 10” (N = 4,836) or “non-top 10” audit firms (N = 5,278). In the “top 10” sub-sample we continue to find no significant differences in the frequencies of small profits (small losses) between the audited earnings and the pre-audit earnings. This is inconsistent with the “top 10” auditors perceiving that the earnings discontinuity around zero is a reliable indicator of earnings quality. Similarly, we find no significant differences in the frequencies of small profits (small losses) between the audited earnings and the pre-audit earnings in the “non-top 10” sub-sample. As our results for loss avoidance are the same for both groups of auditor, we conclude that the full sample tests are not confounded by a co-mingling of high-quality and low-quality auditors.

To further test whether the results are different for the “top 10” and “non-top 10” auditors we re-run our tests for earnings smoothness, persistence, and accrual quality (Table 2). For both sub-samples, we find significant results running in the same direction as those already tabulated. Both types of auditor are associated with smoother earnings, more persistent earnings, and higher quality accruals. Moreover, for each test, the magnitudes of the differences between the pre-audit earnings and the audited earnings are found to be at least as large for the “top 10” auditors as for the “non-top 10” auditors. This is consistent with the “top 10” auditors providing higher quality audits.

Finally, we re-run our accruals tests for H2a-H2c (Table 3). Consistent with H2a, we find the “top 10” auditors are associated with a higher likelihood of accruals switching from positive to negative, rather than in the opposite direction. While H2a is statistically significant for the “top 10” auditors, it is not significant for the “non-top 10” auditors. For H2b, we find that both types of auditor are associated with the absolute magnitude of negative accruals becoming larger in the audited accounts than in the pre-audit accounts. For H2c, we find that both types of auditor are associated with positive accruals becoming much smaller in the audited accounts than in the pre-audit accounts.

Overall, these findings suggest that the “top 10” and “non-top 10” audit firms exhibit similar perceptions about earnings quality. For both auditor groups, the audited earnings are significantly smoother and more persistent, and the audited accruals contain fewer estimation errors. Moreover, for both types of auditor, the income-increasing accruals are much smaller in the audited accounts than in the pre-audit accounts.

## **7. Discussion and conclusions**

There are two major conclusions from the study. First, auditors have a tendency to require downward rather than upward adjustments to earnings, but this conservative “bias” does not impair the usefulness of earnings for valuation purposes. Rather, the audited earnings are significantly smoother and more persistent than the pre-audit earnings, and the audited earnings contain higher quality accruals. These findings are consistent with auditors requiring adjustments in order to offset the upward bias in managers’ pre-audit earnings. The major takeaway is that audit adjustments help to make earnings more useful for the purposes of valuation.

Second, to evaluate how auditing affects reported earnings prior studies have used: i) signed and absolute accruals, and ii) the discontinuity in the earnings distribution around zero. We find some – but not all – of these earnings metrics are altered during year-end

audits. Specifically, audit adjustments have a negative impact on both signed and absolute accruals and their impact is larger for signed accruals than absolute accruals. However, we find no evidence that auditors reduce the frequency of small profits or increase the frequency of small losses. This is inconsistent with the maintained assumption in some studies that auditors consider the discontinuity in the earnings distribution to be indicative of low earnings quality. The major takeaway is that some - but not all - of the earnings metrics used in prior auditing studies are reliably affected during year-end audits.

On a more constructive note, we find that audit adjustments have a large positive impact on earnings smoothness, persistence, and accrual quality, suggesting that auditors care about these earnings attributes. Interestingly, relatively few auditing studies use these earnings attributes as proxies for the effects of auditing. We suggest that future auditing studies may wish to consider smoothness, persistence, and accrual quality when choosing earnings metrics as proxies for the consequences of auditing.

Finally, an important caveat is that our analysis is restricted to China because this is the only country where we have access to a large sample of companies' pre-audit earnings. We take some comfort from the fact that the descriptive statistics on audit adjustments in our sample are very similar to those reported in smaller-scale US studies. In particular, audit adjustments occur on approximately 70% of audits and downward adjustments are far more common than upward adjustments. These descriptive statistics do not indicate major differences between the US and China in terms of how audit adjustments affect reported earnings. Nevertheless, we encourage future researchers to compare the attributes of audited earnings and pre-audit earnings in other countries.

## References

- Aharony, J., Lee, C-W. J., Wong, T. J., 2000. Financial packaging of IPO firms in China. *Journal of Accounting Research* 38(1): 103-126.
- Ashbaugh, H, LaFond, R., Mayhew, B., 2003. Do non-audit services compromise auditor independence? *The Accounting Review* 78: 611-39.
- Ball, R., Robin, A., Wu, J., 2000. Accounting standards, the institutional environment and issuer incentives: Effect on timely loss recognition in China. *Asia-Pacific Journal of Accounting and Economics* 7: 71-96.
- Bamber, E. M., and L. S. Bamber. 2009. Discussion of "Mandatory audit partner rotation, audit quality, and market perception: Evidence from Taiwan." *Contemporary Accounting Research* 26(2): 393-402.
- Barth, M., 1994. Fair value accounting: Evidence from investment securities and the market valuation of banks. *The Accounting Review* 69: 1-25.
- 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., M. DeFond, J. Jiambalvo, and K. R. Subramanyam. 1998. The effect of audit quality on earnings management. *Contemporary Accounting Research* (1): 1-24.
- Bhattacharya, U., Daouk, H., Welker, M., 2003. The world price of earnings opacity. *The Accounting Review* 78(3): 641-678.
- Burgstahler, D., Dichev, I., 1997. Earnings management to avoid earnings decreases and losses. *Journal of Accounting and Economics* 24: 99-126.
- 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(3), 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(2): 415-445.
- Chen, H., J. Z. Chen, G. J. Lobo, and Y. Wang. 2011. Effects of audit quality on earnings management and cost of equity capital: Evidence from China. *Contemporary Accounting Research* 28 (3): 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(2): 359-391.
- Chung, H., Kallapur, S., 2003. Client importance, nonaudit services, and abnormal accruals. *The Accounting Review* (October), 931-955.
- Dechow, P., Dichev, I., 2002. The quality of accruals and earnings: The role of estimation errors. *The Accounting Review* (Supplement): 35-59.
- 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., 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 and Theory* 24 (Supplement): 5-30.
- 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., 2013. A review of archival auditing research. Working paper.
- DeGeorge, F., Patel, J., Zeckhauser, R., 1999. Earnings management to exceed thresholds. *Journal of Business* 72: 1-33.
- Demski, J., 1998. Performance measure manipulation. *Contemporary Accounting Research* 15: 261-285.
- Dichev, I., Graham, J., Harvey, C., Rajgopal, S., 2013. Earnings quality: Evidence from the field. *Journal of Accounting and Economics*, forthcoming.
- 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: 1249-1282.
- Eng, L., Lin, Y., 2012. Accounting quality, earnings management and cross-listings: Evidence from China. *Review of Pacific Basin Financial Markets and Policies* 15: 1-25.
- Ferguson, M., Seow, G., Young, D., 2004. Nonaudit services and earnings management: UK evidence. *Contemporary Accounting Research* 21: 813-841.
- Firth, M., P. Mo, and R. Wong. 2012. Auditors' organizational form, legal liability, and reporting conservatism: Evidence from China. *Contemporary Accounting Research* 29(1): 57-93.

- Francis, J. R., 2011. A framework for understanding and researching audit quality. *Auditing: A Journal of Practice and Theory* 30(2): 125-152.
- Francis, J. R., L. E. Maydew, Sparks, H. C. 1999. The role of Big 6 auditors in the credible reporting of accruals. *Auditing: A Journal of Practice and Theory* 18 (2): 17-34.
- 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 (1): 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 (1): 157-191.
- Francis, J. R., Yu, M. D., 2009. Big 4 office size and audit quality. *The Accounting Review* 84(5): 1521-1552.
- Frankel, R., Johnson, M., Nelson, K., 2002. The relation between auditors' fees for nonaudit services and earnings management. *The Accounting Review (Supplement)*: 71-105.
- Frankel, R., Litov, L., 2009. Earnings persistence. *Journal of Accounting and Economics* 47: 182-190.
- Goel, A. M., Thakor, A. V., 2003. Why do firms smooth earnings? *The Journal of Business* 76: 151-192.
- 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., Yang, Z., Wu, D., 2013. Do individual auditors affect audit quality? Evidence from archival data. *The Accounting Review*, forthcoming.
- Hand, J., 1989. Did firms undertake debt-equity swaps for an accounting paper profit or true financial gain? *The Accounting Review* 64: 587-623.
- Haw, I.-M., D. Qi, D. Wu, and W. Wu. 2005. Market Consequences of Earnings Management in Response to Security Regulations in China. *Contemporary Accounting Research* 22 (1): 95-140.
- He, X., Pittman, J., Rui, O. M., 2013. Reputational implications for partners after a major audit failure: Evidence from China. Available at <http://ssrn.com/abstract=2013104>.
- Healy, P., 1985. The effect of bonus schemes on accounting decisions. *Journal of Accounting and Economics* 7: 85-107.
- Hui, K.W., Lennox, C., Zhang, G., 2013. The market's valuation of fraudulently reported earnings. *Journal of Business, Finance and Accounting*, forthcoming.

- Johnson, V., Khurana, I., Reynolds, J. K., 2002. Audit-firm tenure and the quality of financial reports. *Contemporary Accounting Research* 19 (4): 637-660.
- Kallapur, S., Kwan, S., 2004. The value relevance and reliability of brand assets recognized by UK firms. *The Accounting Review* 79 (1): 151-172.
- Kinney, W. R., Jr., Martin, R. D., 1994. Does auditing reduce bias in financial reporting? A review of audit-related adjustment studies. *Auditing: A Journal of Practice and Theory* 13(1): 149-156.
- Knechel, R., Vanstraelen, A., Zerni, M., 2013. Does the identity of engagement partners matter? An analysis of the persistence and economic consequences of low audit partner quality. Working paper.
- 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.
- Legoria, J., Melendrez, K. D., Reynolds, J. K., 2013. Qualitative audit materiality and earnings management. *Review of Accounting Studies* 18: 414-442.
- Leuz, C., Nanda, D., Wysocki, P., 2003. Earnings management and investor protection: an international comparison. *Journal of Financial Economics* 69: 505-527.
- Levitt, A., 1998. The "numbers game". Remarks by Chairman Arthur Levitt (Securities and Exchange Commission) at the NYU Center for Law and Business (September 28, 1998).
- Libby, R., Kinney, W., 2000. Does mandated audit communication reduce opportunistic corrections to manage earnings to forecasts? *The Accounting Review* 75(4): 383-404.
- Lim, C. Y., Tan, H. T., 2010. Does auditor tenure improve audit quality? Moderating effects of industry specialization and fee dependence. *Contemporary Accounting Research* 27 (3): 923-957.
- Liu, C., Yao, L. J., Hu, N., Liu, L., 2011. The impact of IFRS on accounting quality in a regulated market: An empirical study of China. *Journal of Accounting, Auditing and Finance* 26: 659-676.
- Menon, K., Williams, D., 2004. Former audit partners and abnormal accruals. *The Accounting Review* 79(4): 1095-1118.
- Minnis, M., 2011. The value of financial statement verification in debt financing: Evidence from private US firms. *Journal of Accounting Research* 49(2): 457-506.

- 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* (July): 779-799.
- Nelson, M., Elliott, J. A., Tarpley, R. L., 2002. Evidence from auditors about managers' and auditors' earnings management decisions. *The Accounting Review* 77(Supplement): 175-202.
- 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(3): 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.
- Sankar, M. R., Subramanyam, K. R., 2001. Reporting discretion and private information communication through earnings. *Journal of Accounting Research* 39 (2): 365-386.
- Srinidhi, B., Gul, F., 2007. The differential effects of auditors' non-audit and audit fees on accrual quality. *Contemporary Accounting Research* 24: 595-629.
- Trueman, B., Titman, S., 1988. An explanation for accounting income smoothing. *Journal of Accounting Research* 26 (Supplement): 127-139.
- Tucker, J., Zarowin, P., 2006. Does income smoothing improve earnings informativeness? *The Accounting Review* 81: 251-270.
- Wang Y., Chen S. K., Lin, B-X., Wu, L. 2008a. The frequency and magnitude of earnings management in China, *Applied Economics* 40: 3213-3225.
- Wang, Q., Wong, T. J., Xia, L., 2008b. State ownership, the institutional environment, and auditor choice: Evidence from China. *Journal of Accounting and Economics* 46: 112-134.
- Wang, L., Yung, K., 2011. Do state enterprises manage earnings more than privately owned firms. *Journal of Business, Finance and Accounting* 38: 794-812.

**Table 1**Pre-audit earnings, audited earnings, and audit adjustments ( $N = 10,114$ ).*Panel A: Descriptive statistics*

	Mean	P1	P25	P50	P75	P99
Unscaled earnings:						
$Pre\_E_{it}$ (RMB million)	459.207	-436.172	31.711	92.678	265.686	837.597
$Post\_E_{it}$ (RMB million)	430.416	-487.186	28.957	89.480	258.595	820.899
Earnings scaled by assets:						
$Pre\_ROA_{it}$	0.059	-0.275	0.020	0.049	0.086	0.136
$Post\_ROA_{it}$	0.050	-0.305	0.019	0.048	0.083	0.130
Earnings per share:						
$Pre\_EPS_{it}$	0.495	-1.022	0.120	0.357	0.709	1.215
$Post\_EPS_{it}$	0.471	-1.116	0.109	0.346	0.695	1.186

*Panel B: The relative frequency of downward audit adjustments 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.,  $Pre\_E_{it} < Post\_E_{it}$ ).

<u>Downward adjustments</u> ( $Pre\_E_{it} > Post\_E_{it}$ )		<u>No adjustments</u> ( $Pre\_E_{it} = Post\_E_{it}$ )		<u>Upward adjustments</u> ( $Pre\_E_{it} < Post\_E_{it}$ )	
N	%	N	%	N	%
4,852	47.97%	2,964	29.31%	2,298	22.72%

*Panel C: The absolute magnitudes of audit adjustments ( $|ADJUST_{it}|$ )*

<u>Downward adjustments</u> ( $N = 4,852$ )		<u>No adjustments</u> ( $N = 2,964$ )		<u>Upward adjustments</u> ( $N = 2,298$ )	
Mean	Median	Mean	Median	Mean	Median
-0.157	-0.056	0.000	0.000	0.105	0.029

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 ( $Post\_E_{it} / Post\_TA_{it}$ ).  $Pre\_EPS_{it}$  = pre-audit earnings per share.  $Post\_EPS_{it}$  = audited earnings per share.  $|ADJUST_{it}|$  = the absolute magnitude of the net audit-related adjustments to pre-audit earnings divided by the absolute magnitude of pre-audit earnings ( $|ADJUST_{it}| = (|Pre\_E_{it} - Post\_E_{it}|) / |Pre\_E_{it}|$ ).

**Table 2**

Smoothness, persistence, and accrual quality: pre-audit earnings vs. audited earnings  
(N = 10,114).

*Panel A: Smoothness of profitability levels*

	Mean	Difference in means
$\sigma(Pre\_ROA_{it})$	0.043	4.493***
$\sigma(Post\_ROA_{it})$	0.041	
$\sigma(Pre\_ROA_{it}) / \sigma(Pre\_CFO_{it})$	0.874	2.787***
$\sigma(Post\_ROA_{it}) / \sigma(Post\_CFO_{it})$	0.846	

*Panel B: Smoothness of profitability changes*

	Mean	Difference in means
$\sigma(\Delta Pre\_ROA_{it})$	0.063	10.577***
$\sigma(\Delta Post\_ROA_{it})$	0.054	
$\sigma(\Delta Pre\_ROA_{it}) / \sigma(\Delta Pre\_CFO_{it})$	0.942	6.567***
$\sigma(\Delta Post\_ROA_{it}) / \sigma(\Delta Post\_CFO_{it})$	0.845	

*Panel C: The contemporaneous correlations between accruals and cash flows*

Correlation between $Pre\_Accruals_{it}$ and $Pre\_CFO_{it}$	Corr. = -0.589	p-value < 0.001
Correlation between $Post\_Accruals_{it}$ and $Post\_CFO_{it}$	Corr. = -0.605	p-value < 0.001

*Panel D: The persistence of pre-audit profits and audited profits*

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

$a_0 =$	0.047	$a_1 =$	0.277	
t-stat. =	6.21***	t-stat. =	11.70***	$R^2 = 0.10$

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

$b_0 =$	0.032	$b_1 =$	0.389	
t-stat. =	5.56***	t-stat. =	16.93***	$R^2 = 0.20$

Hypothesis:  $a_1 \neq b_1$

Chi<sup>2</sup> = 72.46; p-value < 0.001.

*Panel E: Accrual estimation errors (Dechow and Dichev 2002).*

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

$a_0 =$	0.031	$a_1 =$	0.152	$a_2 =$	-0.808	$a_3 =$	0.053
t-stat. =	19.03***	t-stat. =	10.40***	t-stat. =	-54.80***	t-stat. =	3.63***

---

**Table 2 (cont.)**

Smoothness, persistence, and accrual quality: pre-audit earnings vs. audited earnings  
( $N = 10,114$ ).

---

Panel E: Accrual estimation errors (cont.)

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

$b_0 =$	0.020	$b_1 =$	0.175	$b_2 =$	-0.757	$b_3 =$	0.075
t-stat. =	13.63***	t-stat. =	13.14***	t-stat. =	-56.93***	t-stat. =	5.71***

Test for difference in accrual quality between the pre-audit accruals and audited accruals:

	Mean	Difference in means:
$\sigma(u_{PRE,it})$	0.054	t-stat. = 5.003***
$\sigma(u_{POST,it})$	0.051	

---

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  $Post\_CFO_{it}$ .  $Pre\_Accruals_{it}$  = pre-audit accruals ( $= Pre\_ROA_{it} - Pre\_CFO_{it}$ ).  $Post\_Accruals_{it}$  = audited accruals ( $= Post\_ROA_{it} - Post\_CFO_{it}$ ).  $u_{PRE,it}$  = 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

---

**Table 3**Signed accruals and absolute accruals: pre-audit accruals vs. audited accruals ( $N = 10,114$ ).

---

*Panel A: The mean values of signed accruals*

	Mean	Difference in means:
$Pre\_Accruals_{it}$	0.009	t-stat. = 10.606***
$Post\_Accruals_{it}$	0.003	

*Panel B: The mean values of absolute accruals*

	Mean	Difference in means:
$ Pre\_Accruals_{it} $	0.075	t-stat. = 7.576***
$ Post\_Accruals_{it} $	0.071	

*Panel C: Sign changes for pre-audit accruals and audited accruals (H2a)*

	Frequencies	Difference in frequencies:
$Pre\_Accruals_{it} > 0 \ \& \ Post\_Accruals_{it} < 0$	0.019	z-stat. = 3.552***
$Pre\_Accruals_{it} < 0 \ \& \ Post\_Accruals_{it} > 0$	0.013	

*Panel D: The absolute magnitudes of negative accruals (H2b)*

The sample comprises 4,667 observations in which pre-audit accruals and audited accruals are both negative (i.e.,  $Pre\_Accruals_{it} < 0 \ \& \ Post\_Accruals_{it} < 0$ ).

	Mean	Difference in means:
$ Pre\_Accruals_{it} $	0.070	t-stat. = -2.412***
$ Post\_Accruals_{it} $	0.072	

*Panel E: The absolute magnitudes of positive accruals (H2c)*

The sample comprises 5,115 observations in which pre-audit accruals and audited accruals are both positive (i.e.,  $Pre\_Accruals_{it} > 0 \ \& \ Post\_Accruals_{it} > 0$ ).

	Mean	Difference in means:
$ Pre\_Accruals_{it} $	0.082	t-stat. = 11.633***
$ Post\_Accruals_{it} $	0.072	

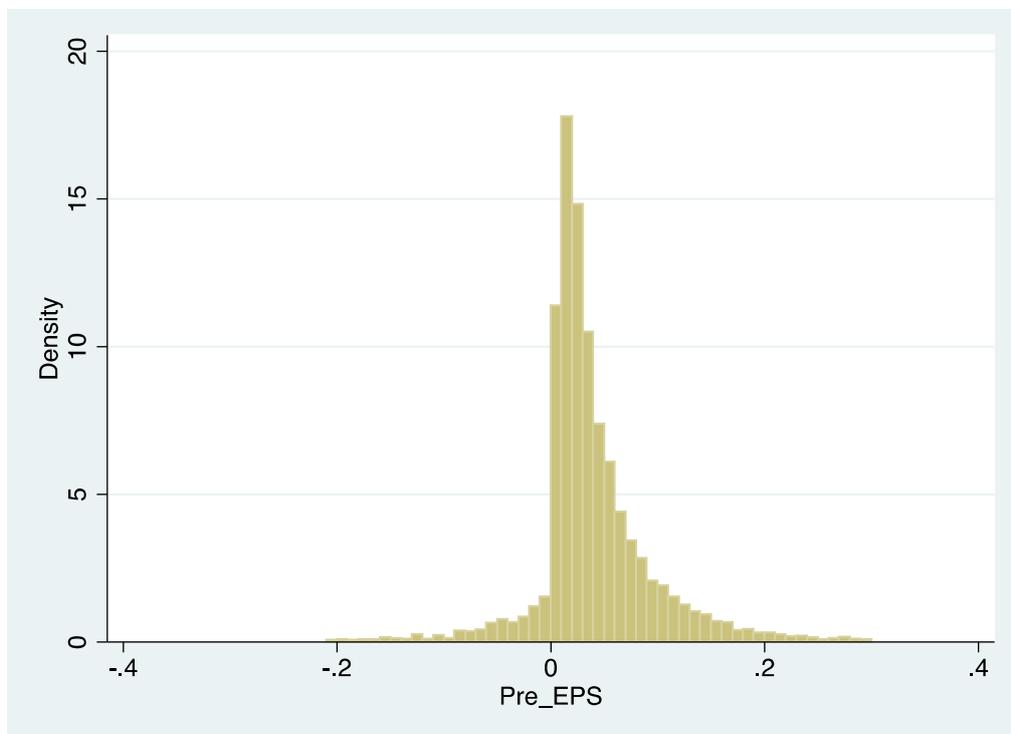
---

**Variable definitions:**

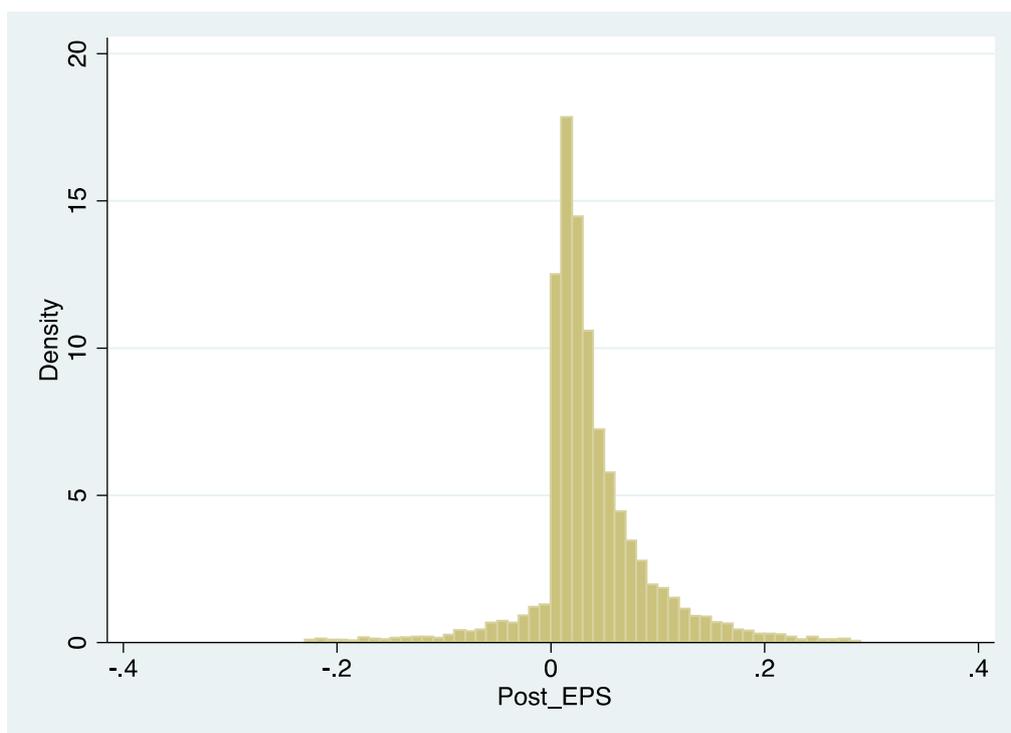
$Pre\_Accruals_{it}$  = pre-audit accruals (=  $Pre\_ROA_{it} - Pre\_CFO_{it}$ ).  $Post\_Accruals_{it}$  = audited accruals (=  $Post\_ROA_{it} - Post\_CFO_{it}$ ).  $Pre\_ROA_{it}$  = pre-audit return on assets ( $Pre\_E_{it} / Pre\_TA_{it}$ ).  $Post\_ROA_{it}$  = audited return on assets ( $Post\_E_{it} / Post\_TA_{it}$ ).  $Pre\_CFO_{it}$  = 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.

**Figure 1**  
**Discontinuities in the earnings distributions**

Pre-audit earnings per share ( $Pre\_EPS_{it}$ )



Audited earnings per share ( $Post\_EPS_{it}$ )



---

**Table 4**

Discontinuities in the earnings distributions: pre-audit earnings vs. audited earnings  
( $N = 10,114$ ).

---

*Panel A: The frequencies of small profits ( $EPS \in [0, 0.01]$ ) and small losses ( $EPS \in [-0.01, 0)$ )*

	Frequencies	Difference in frequencies:
$Pre\_EPS_{it} \in [0, 0.01]$	0.112	z-stat. = -2.372**
$Post\_EPS_{it} \in [0, 0.01]$	0.122	
$Pre\_EPS_{it} \in [-0.01, 0)$	0.015	z-stat. = 1.465
$Post\_EPS_{it} \in [-0.01, 0)$	0.013	

*Panel B: The frequencies of small profits ( $EPS \in [0, 0.005]$ ) and small losses ( $EPS \in [-0.005, 0)$ )*

	Frequencies	Difference in frequencies:
$Pre\_EPS_{it} \in [0, 0.005]$	0.048	z-stat. = -2.342**
$Post\_EPS_{it} \in [0, 0.005]$	0.056	
$Pre\_EPS_{it} \in [-0.005, 0)$	0.009	z-stat. = 1.394
$Post\_EPS_{it} \in [-0.005, 0)$	0.008	

*Panel C: The frequencies of small profits ( $EPS \in [0, 0.02]$ ) and small losses ( $EPS \in [-0.02, 0)$ )*

	Frequencies	Difference in frequencies:
$Pre\_EPS_{it} \in [0, 0.02]$	0.286	z-stat. = -1.740*
$Post\_EPS_{it} \in [0, 0.02]$	0.297	
$Pre\_EPS_{it} \in [-0.02, 0)$	0.028	z-stat. = 1.127
$Post\_EPS_{it} \in [-0.02, 0)$	0.025	

*Panel D: The frequencies of losses ( $EPS < 0$ )*

	Frequencies	Difference in frequencies:
$Pre\_EPS_{it} < 0$	0.091	z-stat. = -0.895
$Post\_EPS_{it} < 0$	0.095	

---

**Variable definitions:**

$Pre\_EPS_{it}$  = pre-audit earnings per share.  $Post\_EPS_{it}$  = audited earnings per share.