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# Does the transformation of accounting firms' organizational form improve audit quality? Evidence from China<sup>☆</sup>



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### ABSTRACT

In this study, we examine the effects of the transformation of accounting firms' organizational form on audit quality. We find that the transformation from limited liability to limited liability partnerships has a significant negative effect on the absolute value of discretionary accruals of audited companies. In particular, the transformation has a significant negative effect on positive discretionary accruals and no effect on negative discretionary accruals. We also find that CPAs are more likely to issue modified audit opinions in the year after the transformation, and that there is no evidence that accounting firm size and listed company ownership influence the relationship between the transformation and audit quality. Our conclusions provide empirical evidence for policy makers and enrich the literature on accounting firms' organizational forms. © 2014 Production and hosting by Elsevier B.V. on behalf of China Journal of Accounting Research. Founded by Sun Yat-sen University and City University of Hong Kong.

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## 1. Introduction

Along with the reforms to China's economy, Chinese accounting firms have undergone rapid development. At present, there are more than 7400 accounting firms, over 8.5 million CPAs and nearly 30 million employees in China. The scopes of the audit business and accounting firms have gradually increased, along with steady improvements in the special capabilities of CPAs and the CPA industry's regulatory standards, making CPAs an indispensable force for healthy economic and social development. However, due to CPAs' weak foundations, poor audit quality has attracted attention within the rapid development of accounting firms. In recent years, CPAs' credibility has been increasingly questioned due to frequent cases of accounting fraud.

To accelerate the healthy development of China's CPA industry, in 2010 the State Council and the Ministry of Finance issued "The Notice Regarding Several Opinions on Accelerating the Development of the Chinese CPA Industry" (Guo Ban Fa [2009] No. 56) and the Ministry of Finance and the General Administration for Industry and Commerce jointly issued "The Regulation on Promoting Large and Medium Accounting Firms to Transform to Limited Liability Partnerships" (Cai Kuai [2010] No. 12), hereafter referred to together as the "Regulations." In response, large accounting firms were the first to change their organizational form from limited liability to limited liability partnerships (LLPs). This change was expected to improve audit quality by increasing the legal liability of CPAs. In this study, we examine whether this unique transformation improves audit quality.

There have been no consistent conclusions made in extant theories on the correlation between such transformations and audit quality. From a risk perspective, the transformation from limited liability to LLPs increases partners' legal risks. According to the law, an accounting firm's partners must not only compensate for audit failures through the firm's total investment, they may also need to use their personal assets to compensate for audit failures. Therefore, partners may devote more time and effort to supervising the implementation of audit procedures to improve audit quality. From an organizational perspective, accounting firms can benefit from changes in organizational form that provide for sharing and insurance for audit risks and more opportunities for CPA promotion. However, because the entire transformation process is dominated by the government, accounting firms can receive other benefits from the transformation. For example, "The Notice of Accounting Firm Commitment of Central Governance Enterprises" requires that, under the same conditions, large accounting firms that have undergone the transformation are recommended to engage in H-share business and receive priority for audit work for central government business groups. In addition, to participate in H-share business, accounting firms must be organized as LLPs. Therefore, transformation is required to obtain these benefits, which may lead to increased internal conflict of interests and reduced audit quality.<sup>1</sup> Due to the complicated nature of the transformation's effect on audit quality, this remains an open question to be addressed.

We use A-share listed companies from 2007 to 2012 to examine the effect of the transformation of accounting firms' organizational form on audit quality. We find that the transformation has a significant negative effect on the absolute value of discretionary accruals of audited companies. The results also show that the transformation significantly decreases the level of positive discretionary accruals, but has no significant effect on negative discretionary accruals. We also find that the transformation's positive effect on audit opinions only lasts for one year.

We also examine the transformation's effect on audit quality from the perspective of accounting and client firms' characteristics. Unfortunately, we find that accounting firm size and listed company ownership have no significant effect on the relationship between the transformation and audit quality. The transformation increases audit risk due to greater legal obligations, which makes the partners more cautious about undertaking audit work. Meanwhile, the partners are also more cautious in dealing with upward earnings management behavior, as it is more prone to audit failures. However, given the transformation regulations, the transformed accounting firms tend to be larger, but we do not find that our results differ by accounting firm size and listed company ownership.

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<sup>1</sup> We appreciate the helpful suggestions of the chief editor, Professor Donghui Wu.

This study contributes to the literature in several ways. First, it enriches the literature on the organizational forms of accounting firms. [Firth et al. \(2012\)](#) study the effects of partnerships and limited liability on audit quality and find that auditors in partnership firms are more cautious than those in limited liability firms. [Lennox and Li \(2012\)](#) studies the effect of transformations from partnerships to LLPs on audit quality and finds that it does not reduce audit quality. In this study, we focus on the transformation from limited liability to a LLP, a transformative direction that differs significantly from those previously covered in the literature.

This study also contributes to the reform of the transformation of accounting firms in China. To meet firms' "bigger, stronger" strategy, the Ministry of Finance and Business Administration jointly issued the Regulations, requesting that larger accounting firms transform from limited liability to LLPs. Our study examines the effect that transformation has on audit quality and the results provide a theoretical reference for the improvement of the Regulations and the selection of organizational forms for accounting firms. In this study, we also make suggestions for the legal liability of CPAs that serve as a reference for situations such as the recent increase in discussions on the restricted legal liability of CPAs in Europe. In addition, the difference in difference (DID) model used here effectively estimates the Regulations' influence to ensure the robustness and reliability of the results.

The remainder of this paper proceeds as follows. Section 2 reviews the literature and develops our hypotheses. Section 3 describes the sample and presents the research design. We report the results and robustness tests in Section 4. Finally, Section 5 concludes the paper.

## 2. Institutional background and hypothesis development

### 2.1. Institutional background

Accounting firms require unity and coordination within their ranks and their main functions are realized through the intellectual input of employees. CPAs are reliant on their professional knowledge, experience and professional judgment to provide high-quality audit services. Before 1998, almost all of the accounting firms in China were state-owned, in that they belonged to the local or central government, universities or government departments ([DeFond et al., 2000](#); [Yi, 2003](#)). In 1998, there was a reorganization in which accounting firms were required to become independent legal entities without any affiliation with their original agencies. Once this reorganization was completed in 1999, the accounting firms each chose a form of organization based on their own conditions, such as limited liability or partnership. Some scholars have argued that in limited liability accounting firms, shareholders and auditors' maximum loss is their investment in the firm. As their risk is limited, they are more likely to spend less time and effort in the audit process, or to meet the inappropriate requests of customers to keep their clients, which can lead to lower audit quality ([Dye, 1993, 1995](#); [Chan and Pae, 1998](#)). Thus, some scholars have indicated that partnerships should be mandatory. However, this situation also has inherent defects, such as partners bearing unlimited and joint liability: any partner's negligence or malpractice in the practice leads to the punishment of all of the partners, which can result in bankruptcy. The partnership can prompt extremely mismatched gains and risks, making it unpopular among accounting firms. LLPs, however, not only avoid the risk caused by other partners' improper behavior, but also protect investors by allowing them to recover their losses from audit failures. Thus, most scholars suggest that LLPs should be promoted.

There have been many financial frauds and audit failure cases in recent years, such as Yinguangxia and Shenzhen Zhongtianqin (2001), Enron and Andersen (2002), and Kelong and Deloitte (2004). These events have not only bankrupted firms, or left them on the verge of bankruptcy, but also strongly compromised overall audit quality. These events have seriously damaged the CPA industry's reputation, prompting the Ministry of Finance and China Association of Certified Public Accountants to try and strengthen supervision, improve audit quality and enhance the protection of investors' interests. To realize the above mentioned goals, the State Council [2009] No. 56 and the Ministry of Finance [2010] No. 12 (the Regulations) explicitly require the transformation of large accounting firms from limited liability to LLPs.

The LLP, popular in the past 20 years, is a new form of business organization in the United States exclusively for professionals such as accountants, lawyers and doctors. A LLP and a partnership are approximately the same in that the auditor bears the results of audit failure by suffering losses of his own property (unlimited

liability). A LLP, however, can prevent the auditor from the joint liability caused by the faults of other auditors by overcoming the shortcomings of joint liability inherent in an unlimited liability partnership. The tentative “CPA LLP agreement” states that, “The debt of accounting firms caused by the mistake of a partner with intentional or gross negligence in the practice, should first be paid with the property of accounting firms, and accounting firms obtain the right of recourse after bearing the liability, and the partner should bear full liability for the loss of accounting firms. The debt of accounting firms caused by the mistake of a partner without intentional or gross negligence in the practice should be paid by all partners with unlimited liability.” In this study, based on unique events, we examine whether the transformation affects audit quality.

## 2.2. Literature and research hypotheses

The transformation of an accounting firm’s organizational form increases the risk faced by its partners, which can result in behavioral changes. Audit risk<sup>2</sup> means that an accounting firm must bear the economic and even criminal liability when mistakes in the conclusion of its audit report lead to investors or audit clients’ losses. If audit failure occurs, investors are entitled to appeal to the courts to force the listed company to compensate them for their losses. They can also require the accounting firm to take joint responsibility for the audit failure. The transformation from limited liability to LLP increases the loss suffered by the partner who experiences audit failure. The partners must take responsible for the liability, which is not limited to their investment in the accounting firm, but also includes their personal property.

Some studies have found that audit quality increases with debt risk (Geiger and Raghunandan, 2001; Geiger et al., 2006; Laux and Newman, 2010; Liu and Wang, 2006; Melumad and Thoman, 1990; Venkataraman et al., 2008). Chan and Pae (1998) find that a reduction in debt risk could reduce auditors’ effort, resulting in a lower level of audit quality. They argue that because the users of financial statements have no right to sue the auditor, the auditor fears nothing, resulting in a lack of demand for audit quality. Geiger and Raghunandan (2001) and Geiger et al. (2006) also find that a decline in auditors’ debt risk allows them to be less cautious in issuing reports, and makes them less likely to issue a going concern audit report. The work of Firth et al. (2012), based on the special setting of China, examines whether the difference in debt risk between two forms of organization (limited liability and partnership) affects auditors’ behavior. They find that the CPAs in partnerships were more cautious and more likely to issue modified audit opinions, whereas due to fixed debt risk, limited liability led to more aggressive behavior and the CPAs did not tend to issue modified audit opinions. Lennox and Li (2012) study the transformation from partnership to LLP in the United States and explore whether a reduction in debt risk changed auditors’ behavior. Their results show no significant difference before and after the change in organizational form, possibly because the essence of partnership did not change and investors still had the right to recover their losses from the auditors.

Based on the transformation of accounting firms from limited liability to LLPs in China, we analyze whether an increase in auditors’ debt risk improves audit quality. Debt liability generally comes from lawsuits against auditors. Legally, if the users of financial statements suffer losses due to improper audit opinions issued by auditors, they have the right to require compensation from the auditors. Thus, the debt risk is also closely associated with the national legal system. Studies have found that accounting firms in China actually assume a lower legal risk (Liu and Xu, 2002) because the Chinese audit market is mainly formed by government regulation (Liu and Lin, 2000). Meanwhile, the provisions on CPAs’ legal liability are still relatively vague in China and the operability is also poor, such as the lack of clear audit quality requirements. In seeking economic interests, some accounting firms do not adequately investigate the audited entity when facing fierce competition. Although some accounting firms are warned about, ordered to address, or reprimanded for corporate financial reporting irregularities, the processes are limited to administrative penalties, which makes the CPAs’ violation costs very low. As long as the accounting firms are not withdrawn, the firms can still earn money through IPO and annual audits. Lu and Chen (2005) analyze the relationship between legal risk and audit quality using a sequential game mode and find that legal risk has no significant effect on audit quality, possibly due to the defects in the Chinese judicial system. However, with the improvement of the environment of Chinese laws

<sup>2</sup> Chen (2006) suggested that audit risk has nine definitions, and we use the fourth interpretation here to define audit risk.

and regulations, the legal risk faced by auditors is also increasing. To avoid the risk of litigation and financial losses occurred by audit failure, auditors attempt to advance their own audit quality control, invest more resources and work more carefully in the auditing process to reduce the likelihood of audit failures and thereby reduce litigation risks. Especially when there are changes in an accounting firm's organizational form, the partners face greater debt service obligations when audit failure occurs, which increases audit quality requirements.

In addition, from an organizational form perspective, the transformation from limited liability to LLP is more suited to accounting firms because the integration of human and money capital is better, which helps improve their internal governance structure and provides a better organizational guarantee for risk management and employee promotion. However, because the entire transformation process is basically dominated by the government and the transformed firms gain additional benefits, "The Notice of Accounting Firm Commitment of Central Governance Enterprises" requires that, under the same conditions, large accounting firms that have undergone transformation are recommended to engage in H-share business and are prioritized to undertake audit work for central government business groups. In addition, to engage in H-share business, accounting firms must become LLPs. Accounting firms must transform to obtain these benefits, which may lead to increased internal conflict of interests and reduce audit quality. Thus, we obtain our first hypothesis (H1).

**H1.** The transformation of accounting firms' organizational form is unrelated to audit quality.

Although the development of the CPA industry in China is rapid, problems remain, such as a large number of small-scale accounting firms, extremely low audit fees, and even "low balling." The literature has shown that firm size correlates with independence and audit quality (DeAngelo, 1981; Subramanian, 1996; Zhang and Liu, 2002; Qi et al., 2004), such that the larger the accounting firm, the more independent the auditors and the higher the audit quality. However, the transformation starts among medium and large accounting firms and it may affect audit quality due to the high audit quality of these transformed accounting firms. Therefore, we argue that the size of the audit firm may have a positive effect on the level of audit quality.

**H2.** If the transformed accounting firm is a Big Four international accounting firm, the level of audit quality is higher.

The audit clients' characteristics might also effect audit quality. Most of the listed companies in the Chinese capital market are state-owned, which is a crucial factor for us to consider. Wang et al. (2008) suggest that state-owned listed companies have an advantage when dealing with financial difficulties due to governmental support. As listed companies that were once state-owned show signs of bankruptcy, the government makes an effort to support the listed companies so they can overcome their difficulties. Similarly, auditors face lower audit risk with state-owned listed companies than with other listed companies, because the probability of audit failure for the former is low. The transformation changes the debt liability faced by the partners in audit failure. The characteristics of state-owned listed companies mean that the transformation of accounting firms has a limited effect on the audit services for state-owned listed companies. Therefore, we obtain H3.

**H3.** The effect that the transformation of accounting firms has on audit quality is more positive for non-state-owned listed companies than state-owned listed companies.

### 3. Research design

#### 3.1. Variable definitions and models

##### 3.1.1. Accounting firm transformations

We define an accounting firm that has changed its organizational form from limited liability to LLP as a transformed firm (Change, equal to 1). An accounting firm whose organizational form has not been transformed is a non-transformed firm (Change, equal to 0). We also define variables to examine the subsequent effects of accounting firm transformations, such as the transformed year (Post0), one year after transformation (Post1), and two years after transformation (Post2). Given that the current observations only go to 2012, the



span from 2010 to 2012 is just two years, we find that Post0, Post1 and Post2 are sufficient to cover the effect of accounting firm transformations on audit quality.

### 3.1.2. Audit quality

We use the performance-matched Jones model advanced by Kothari et al. (2005) to find the paired company with the most similar performance for each sample company, with discretionary accruals (DA) gained through the following regression cross-sectionally within each year and industry. We consider DA as the proxy for audit quality. The model specification is as follows:

$$TA_{i,t} = \delta_0 + \delta_1(\Delta Sales_{i,t} - \Delta AR_{i,t}) + \delta_2 PPE_{i,t} + \delta_3 Roa_{i,t} + \varepsilon_{i,t} \quad (1)$$

where total accruals ( $TA_{i,t}$ ) equal net profit minus net cash flow from operations, the change in sales ( $\Delta Sales_{i,t}$ ) equals the sales for the current year minus those for the previous year, the change in accounts receivable ( $\Delta AR_{i,t}$ ) equals the accounts receivable for the current year minus those for the previous year, ( $PPE_{i,t}$ ) is the net amount of property, plant and equipment (PPE) for the current year, with each variable standardized by total assets for the previous year, and ( $Roa_{i,t}$ ) is the return on assets for the current year. In addition, based on previous research on audit quality, we use the audit opinion as another proxy for audit quality.

### 3.1.3. Models

According to Lennox and Li (2012), we use the DID model to examine whether the transformation of accounting firms affects audit quality. We focus on the relationship between the transformation (Change) and DA and further examine the subsequent effects of the transformation event on DA in the current and post-transformation years. The model specifications are as follows:

$$DA_{ijt} = \beta_0 + \delta_1 Change_{jt} + \beta_1 Lta_{it} + \beta_2 Size_{it} + \beta_3 Lev_{it} + \beta_4 Invrec_{it} + \beta_5 Roa_{it} + \beta_6 Loss_{it} + \beta_7 CFO_{it} + \beta_8 Tobinq_{it} + \mu_j + a_i + e_{ijt} \quad (2)$$

$$DA_{ijt} = \beta_0 + \delta_1 Post0_{jt} + \delta_2 Post1_{jt} + \delta_3 Post2_{jt} + \beta_1 Lta_{it} + \beta_2 Size_{it} + \beta_3 Lev_{it} + \beta_4 Invrec_{it} + \beta_5 Roa_{it} + \beta_6 Loss_{it} + \beta_7 CFO_{it} + \beta_8 Tobinq_{it} + \mu_j + a_i + e_{ijt} \quad (3)$$

Following Lennox and Li (2012), we control for accounting firm fixed effects ( $\mu_j$ ) and listed companies fixed effects ( $a_i$ ), and examine the difference in pre- and post-transformation audit quality to ensure that the result is more robust and reliable.

Following Ashbaugh et al. (2003) and Wang et al. (2010), our study includes several control variables, such as the total accruals for the previous year ( $Lta$ ), firm size ( $Size$ ), debt ratio ( $Lev$ ), inventories and receivables ratio ( $Invrec$ ), profitability ( $Roa$ ), loss ( $Loss$ ), cash ratio ( $CFO$ ) and growth opportunities ( $Tobinq$ ).

Model (2) is our basic model and is used to examine H1. We also add some relevant variables to model (2) to create models (4) and (5), which we use to examine H2 and H3. Model (4) tests whether an accounting firm's status as a Big Four accounting firm influences the relationship between the transformation and audit quality. Model (5) tests whether the clients' status as a state-owned listed company influenced the relationship between the transformation and audit quality. The model specifications are as follows:

$$DA_{ijt} = \beta_0 + \delta_1 Change_{jt} + \delta_2 Big4_{jt} + \delta_3 Change_{jt} * Big4_{jt} + \beta_1 Lta_{it} + \beta_2 Size_{it} + \beta_3 Lev_{it} + \beta_4 Invrec_{it} + \beta_5 Roa_{it} + \beta_6 Loss_{it} + \beta_7 CFO_{it} + \beta_8 Tobinq_{it} + \mu_j + a_i + e_{ijt} \quad (4)$$

$$DA_{ijt} = \beta_0 + \delta_1 Change_{jt} + \delta_2 State_{it} + \delta_3 Change_{jt} * State_{it} + \beta_1 Lta_{it} + \beta_2 Size_{it} + \beta_3 Lev_{it} + \beta_4 Invrec_{it} + \beta_5 Roa_{it} + \beta_6 Loss_{it} + \beta_7 CFO_{it} + \beta_8 Tobinq_{it} + \mu_j + a_i + e_{ijt} \quad (5)$$

The variables' specific definitions and calculations are detailed in Table 1.

## 3.2. Sample selection

Our study uses all of the A-share listed companies from 2007 to 2012 as our sample. The main variable (Change) is based on accounting firm transformations taken from the American Institute of CPAs' website, where accounting firms whose names have changed to LLPs are defined as transformed accounting firms, with

Table 1  
Variable definitions.

Variables	Definitions
<i>DA</i>	Discretionary accruals as a proxy for audit quality, calculated from the model developed by <a href="#">Kothari et al. (2005)</a>
<i>Opinion</i>	Audit opinion as a proxy for audit quality. The variable <i>Opinion</i> is coded from 0 to 3 for clean, unqualified by explanatory notes, qualified and disclaimed/adverse opinions, respectively
<i>Change</i>	Dummy variable that equals 1 if the accounting firm has been transformed and 0 otherwise
<i>Post0</i>	Dummy variable that equals 1 if the transformation occurs in the current year and 0 otherwise
<i>Post1</i>	Dummy variable that equals 1 if the year is one year after the transformation and 0 otherwise
<i>Post2</i>	Dummy variable that equals 1 if the year is two years after the transformation and 0 otherwise
<i>Big4</i>	Dummy variable that equals 1 if the accounting firm is a Big Four international accounting firm and 0 otherwise
<i>State</i>	Dummy variable that equals 1 for state-owned listed companies and 0 otherwise
<i>Lta</i>	Total accruals of the previous year, calculated as total accruals divided by total assets
<i>Lop</i>	Audit opinion of the previous year
<i>Size</i>	The size of the company, calculated as the logarithm of total assets
<i>Lev</i>	Debt ratio, calculated as total liabilities divided by total assets
<i>Invrec</i>	Inventories and receivables ratio, calculated as inventory and accounts receivable divided by total assets
<i>Roa</i>	Profitability, calculated as net profit divided by total assets
<i>Loss</i>	Dummy variable that equals 1 if the client makes a loss and 0 otherwise
<i>CFO</i>	Cash ratio, calculated as net cash flow from operating activities divided by total assets
<i>Tobinq</i>	Growth opportunities, calculated as follows: (tradable shares * closing price at the end of the year + non-tradable shares * net assets per share + book value of debt)/book value of assets
$\mu$	Dummy variable for accounting firm fixed effects
$\alpha$	Dummy variables for listed company fixed effects

all others defined as non-transformed accounting firms. The financial data of listed companies are sourced from the China Stock Market and Accounting Research and WIND (Wind Information Co., Ltd) databases.

We remove financial companies from our sample, along with newly listed companies, specially treated firms and firms with missing variables. We obtain 8705 observations. As many of the variables are the estimated values of the model that are influenced by outliers, all of the continuous variables are winsorized at the 1% and 99% levels to ensure the robustness of the results. [Table 2](#) displays details of the accounting firm transformations by the end of 2012.

The distribution of the final sample is shown in [Table 3](#).

## 4. Empirical results and analysis

### 4.1. Descriptive statistics

Panel A of [Table 4](#) reports the descriptive statistics for the full sample. The mean and median of DA are 0.001 and  $-0.002$ , respectively, indicating that there is no systematic bias in the observations. The mean and

Table 2  
Transformed accounting firms.

Transformed accounting firms	Transformation time
RSM China Certified Public Accountants	November 29, 2010
BDO China Shu Lun Pan Certified Public Accountants	December 31, 2010
Crowe Horwath China Certified Public Accountants	February 15, 2011
Pan-China Certified Public Accountants	July 7, 2011
PKF Daxin Certified Public Accountants	January 1, 2012
Da Hua Certified Public Accountants	February 16, 2012
Grant Thornton Certified Public Accountants	June 18, 2012
ShineWing Certified Public Accountants	June 21, 2012
Baker Tilly China Certified Public Accountants	June 29, 2012
CHY Certified Public Accountants	July 5, 2012
KPMG Certified Public Accountants	August 1, 2012
Ernst & Young Certified Public Accountants	September 11, 2012
Deloitte & Touche Certified Public Accountants	October 19, 2012

Table 3  
Annual distribution of transformed and non-transformed observations.

Year	Non-transformed	Transformed	Total
2007	1209		1209
2008	1253		1253
2009	1351		1351
2010	1249	204	1453
2011	1068	476	1544
2012	804	1091	1895
Total	6934	1771	8705

median of audit opinion (Opinion) are 0.064 and 0, respectively. The mean and median of the explanatory variable (Change) are 0.203 and 0, which is consistent with our sample because a minority of accounting firms transformed during the sample period.

Panel B of Table 4 reports the descriptive statistics for the transformed (Change = 1) and non-transformed (Change = 0) accounting firms. The mean and median of the absolute value of DA (|DA|) for the transformed

Table 4  
Descriptive statistics.

Variable name	N	Mean	Sd	Min	Median	Max
<i>Panel A: Descriptive statistics of the full sample</i>						
DA	8705	0.001	0.086	-0.436	-0.002	0.492
Opinion	8703	0.064	0.357	0	0	3
Change	8705	0.203	0.403	0	0	1
Post0	8705	0.084	0.277	0	0	1
Post1	8705	0.073	0.260	0	0	1
Post2	8705	0.047	0.211	0	0	1
Top 4	8703	0.063	0.243	0	0	1
State	8705	0.585	0.493	0	1	1
Lta	8705	-0.007	0.085	-0.314	-0.010	0.330
Size	8705	21.835	1.241	19.124	21.699	25.878
Lev	8705	0.493	0.197	0.047	0.505	0.917
Invrec	8705	0.268	0.181	0.002	0.242	0.824
Roa	8705	0.040	0.068	-2.746	0.035	0.532
Loss	8705	0.081	0.273	0	0	1
CFO	8705	0.048	0.081	-0.235	0.046	0.307
Tobinq	8705	2.037	1.248	0.896	1.635	10.726
		Mean		Median		
		Change = 1	Change = 0	Change = 1	Change = 0	
		(1)	(2)	(3)	(4)	(3)-(4)
<i>Panel B: Descriptive statistics for the transformed and non-transformed groups</i>						
DA	0.053	0.060	-0.007***	0.038	0.043	-0.005***
Opinion	0.036	0.064	-0.028***	0	0	0***
Big4	0.040	0.063	-0.023***	0	0	0***
State	0.518	0.585	-0.067***	1	1	0***
Lta	0.012	-0.007	0.019***	0.008	-0.010	0.018***
Size	22.015	21.835	0.180***	21.849	21.699	0.150***
Lev	0.472	0.493	-0.021***	0.486	0.505	-0.019***
Invrec	0.280	0.268	0.012***	0.254	0.242	0.012***
Roa	0.041	0.040	0.002	0.034	0.035	-0.001
Loss	0.076	0.081	-0.005	0	0	0
CFO	0.042	0.048	-0.006***	0.041	0.046	-0.005***
Tobinq	1.836	2.037	-0.201***	1.460	1.635	-0.175***

Note: The third and sixth columns in Panel B are *t*-tests for the mean and non-parametric tests for the median, respectively.



Table 5  
The effect of accounting firm transformations on audit quality.

Variable	(1)	(2)	(3)	(4)
<i>Panel A: Regression results for full sample</i>				
<i>Change</i>	-0.009*** (-4.19)		-0.010*** (-4.48)	
<i>Post0</i>		-0.005** (-2.08)		-0.007*** (-2.63)
<i>Post1</i>		-0.012*** (-3.93)		-0.014*** (-4.20)
<i>Post2</i>		-0.018*** (-4.23)		-0.019*** (-4.32)
<i>Lta</i>			0.013 (0.79)	0.013 (0.80)
<i>Size</i>			0.005** (2.43)	0.006*** (2.66)
<i>Lev</i>			0.041*** (4.26)	0.040*** (4.16)
<i>Invrec</i>			-0.017 (-1.64)	-0.017 (-1.63)
<i>Roa</i>			0.095*** (6.49)	0.094*** (6.41)
<i>Loss</i>			0.003 (1.16)	0.004 (1.18)
<i>CFO</i>			0.021 (1.19)	0.021 (1.16)
<i>Tobinq</i>			0.003*** (3.52)	0.003*** (3.44)
<i>Constant</i>	0.051*** (7.97)	0.051*** (7.97)	-0.090* (-1.96)	-0.101** (-2.18)
CPA firm fixed effect	Control	Control	Control	Control
Firm fixed effect	Control	Control	Control	Control
Observations	8608	8608	8608	8608
Adjusted R-squared	0.0157	0.0169	0.0282	0.0293
	<u>DA &gt; 0</u>		<u>DA &lt; 0</u>	
	(1)	(2)	(3)	(4)
<i>Panel B: Regression results for signed discretionary accruals</i>				
<i>Change</i>	-0.017*** (-4.16)		-0.002 (-0.63)	
<i>Post0</i>		-0.015*** (-3.13)		-0.000 (-0.011)
<i>Post1</i>		-0.020*** (-3.52)		-0.005 (-0.99)
<i>Post2</i>		-0.022*** (-2.80)		-0.006 (-1.02)
<i>Lta</i>	-0.024 (-0.86)	-0.024 (-0.84)	0.051** (2.03)	0.050** (2.01)
<i>Size</i>	0.013*** (3.63)	0.014*** (3.69)	-0.008** (-2.52)	-0.007** (-2.38)
<i>Lev</i>	0.007 (0.43)	0.007 (0.42)	0.075*** (5.35)	0.074*** (5.30)
<i>Invrec</i>	0.033* (1.88)	0.033* (1.89)	-0.100*** (-6.24)	-0.100*** (-6.23)
<i>Roa</i>	0.089*** (4.27)	0.089*** (4.26)	0.118*** (4.22)	0.117*** (4.21)
<i>Loss</i>	0.001 (0.20)	0.001 (0.24)	0.007 (1.52)	0.007 (1.53)

(continued on next page)

Table 5 (continued)

Variable	(1)	(2)	(3)	(4)
<i>CFO</i>	0.081 <sup>***</sup> (2.61)	0.081 <sup>***</sup> (2.60)	−0.043 <sup>*</sup> (−1.65)	−0.044 <sup>*</sup> (−1.67)
<i>Tobinq</i>	0.003 (1.64)	0.003 (1.60)	0.003 <sup>***</sup> (3.14)	0.003 <sup>***</sup> (3.09)
<i>Constant</i>	−0.258 <sup>**</sup> (−3.14)	−0.265 <sup>***</sup> (−3.20)	0.193 <sup>***</sup> (2.87)	0.185 <sup>***</sup> (2.74)
CPA firm fixed effect	Control	Control	Control	Control
Firm fixed effect	Control	Control	Control	Control
Observations	4181	4181	4427	4427
Adjusted <i>R</i> -squared	0.0603	0.0607	0.0538	0.0542

Note: The dependent variable is  $|DA|$ . The *t*-statistics are presented in brackets below the coefficients.

\* Significance at the 10% level, using two-tailed tests.

\*\* Significance at the 5% level, using two-tailed tests.

\*\*\* Significance at the 1% level, using two-tailed tests.

Table 6

The effect of accounting firm transformations on audit opinions.

Variable	(1)	(2)
<i>Change</i>	−0.001 (−0.12)	
<i>Post0</i>		−0.014 (−1.12)
<i>Post1</i>		0.026 <sup>*</sup> (1.69)
<i>Post2</i>		−0.007 (−0.33)
<i>Lta</i>	0.151 <sup>***</sup> (13.4)	0.152 <sup>***</sup> (13.5)
<i>Size</i>	−0.042 <sup>***</sup> (−4.27)	−0.042 <sup>***</sup> (−4.31)
<i>Lev</i>	0.292 <sup>**</sup> (6.60)	0.293 <sup>***</sup> (6.61)
<i>Invrec</i>	−0.250 <sup>***</sup> (−5.17)	−0.249 <sup>***</sup> (−5.16)
<i>Roa</i>	−0.646 <sup>***</sup> (−9.40)	−0.646 <sup>***</sup> (−9.40)
<i>Loss</i>	0.035 <sup>**</sup> (2.50)	0.035 <sup>**</sup> (2.54)
<i>CFO</i>	0.075 (1.58)	0.077 (1.62)
<i>Tobinq</i>	0.007 <sup>*</sup> (1.79)	0.007 <sup>*</sup> (1.87)
<i>Constant</i>	1.007 <sup>***</sup> (4.66)	1.019 <sup>***</sup> (4.70)
CPA firm fixed effect	Control	Control
Firm fixed effect	Control	Control
Observations	8607	8607
Adjusted <i>R</i> -squared	0.0989	0.0998

Note: The dependent variable is *Opinion*. The *t*-statistics are presented in brackets below the coefficients.

\* Significance at the 10% level, using two-tailed tests.

\*\* Significance at the 5% level, using two-tailed tests.

\*\*\* Significance at the 1% level, using two-tailed tests.

Table 7  
The effect of the accounting firm size.

Variable	(1) All	(2) DA > 0	(3) DA < 0
<i>Change</i>	−0.010 <sup>***</sup> (−4.26)	−0.017 <sup>***</sup> (−4.07)	−0.002 (−0.63)
<i>Big4</i>	0.000 (0.015)	0.022 (0.60)	−0.009 (−0.40)
<i>Change * Big4</i>	−0.002 (−0.24)	0.000 (0.026)	0.001 (0.099)
<i>Lta</i>	0.013 (0.79)	−0.025 (−0.88)	0.051 <sup>**</sup> (2.03)
<i>Size</i>	0.005 <sup>**</sup> (2.42)	0.013 <sup>***</sup> (3.62)	−0.008 <sup>**</sup> (−2.51)
<i>Lev</i>	0.041 <sup>***</sup> (4.25)	0.007 (0.43)	0.075 <sup>***</sup> (5.36)
<i>Invrec</i>	−0.017 (−1.64)	0.033 <sup>*</sup> (1.88)	−0.100 <sup>***</sup> (−6.23)
<i>Roa</i>	0.095 <sup>***</sup> (6.48)	0.089 <sup>***</sup> (4.26)	0.118 <sup>***</sup> (4.23)
<i>Loss</i>	0.004 (1.17)	0.001 (0.20)	0.007 (1.52)
<i>CFO</i>	0.021 (1.19)	0.081 <sup>***</sup> (2.59)	−0.043 (−1.65)
<i>Tobinq</i>	0.003 <sup>***</sup> (3.52)	0.003 (1.63)	0.003 <sup>***</sup> (3.14)
<i>Constant</i>	−0.090 <sup>*</sup> (−1.95)	−0.257 <sup>***</sup> (−3.13)	0.192 <sup>***</sup> (2.86)
CPA firm fixed effect	Control	Control	Control
Firm fixed effect	Control	Control	Control
Observations	8608	4181	4427
Adjusted <i>R</i> -squared	0.0282	0.0605	0.0539

Note: The dependent variable is  $|DA|$ . The *t*-statistics are presented in brackets below the coefficients.

\* Significance at the 10% level, using two-tailed tests.

\*\* Significance at the 5% level, using two-tailed tests.

\*\*\* Significance at the 1% level, using two-tailed tests.

group are significantly lower than the non-transformed group, which supports our hypothesis that accounting firm transformation improves audit quality. In the analysis of the dummy variable (*Big4*), the transformed group is significantly lower than the non-transformed group, which is due to the late transformation of the Big Four accounting firms in 2011, and thus there are fewer observations. Similarly, the dummy variable (*State*) of the transformed group is also significantly lower than the non-transformed group.

## 4.2. Empirical results and analysis

### 4.2.1. The effect of accounting firm transformations on audit quality

Panel A of Table 5 presents the results of the effect of accounting firm transformations on absolute DA. Columns (1) and (2) of Panel A are the regression results without the control variables. The variable (*Change*) is negative and significant (the coefficients are −0.009 and −0.010, and the *t*-statistics are −4.19 and −4.48, respectively) in columns (1) and (3) of Panel A. Accounting firm transformations are thus significantly negatively related to the absolute value of DA, supporting H1. We suggest that the transformation of accounting firms increases the audit and debt risks faced by partners of accounting firms, which urges the partners to be more cautious and prudent in the auditing process, improving audit quality. We further analyze the post-transformation effects among accounting firms. The variable (*Post0*) is negative and significant (the coefficients are −0.005 and −0.007, and the *t*-statistics equal −2.18 and −2.63) in columns (2) and (4), which indicates that the transformation of accounting firms has a positive effect on audit quality in the transformation year. Like-

Table 8  
The effect of listed company ownership.

Variable	(1) All	(2) DA > 0	(3) DA < 0
<i>Change</i>	−0.012 <sup>***</sup> (−3.53)	−0.022 <sup>***</sup> (−3.50)	0.001 (0.12)
<i>State</i>	0.002 (0.72)	0.004 (0.61)	0.001 (0.24)
<i>Change * State</i>	0.002 (0.62)	0.007 (1.03)	−0.004 (−0.81)
<i>Lta</i>	0.013 (0.80)	−0.024 (−0.85)	0.050 <sup>**</sup> (2.01)
<i>Size</i>	0.005 <sup>**</sup> (2.41)	0.013 <sup>***</sup> (3.59)	−0.008 <sup>**</sup> (−2.51)
<i>Lev</i>	0.041 <sup>***</sup> (4.24)	0.007 (0.43)	0.075 <sup>***</sup> (5.37)
<i>Invrec</i>	−0.017 (−1.63)	0.034 <sup>*</sup> (1.91)	−0.101 <sup>***</sup> (−6.25)
<i>Roa</i>	0.095 <sup>***</sup> (6.47)	0.089 <sup>***</sup> (4.27)	0.119 <sup>***</sup> (4.26)
<i>Loss</i>	0.003 (1.12)	0.001 (0.17)	0.007 (1.56)
<i>CFO</i>	0.021 (1.20)	0.081 <sup>***</sup> (2.60)	−0.043 <sup>*</sup> (−1.66)
<i>Tobinq</i>	0.003 <sup>***</sup> (3.54)	0.003 <sup>*</sup> (1.65)	0.003 <sup>***</sup> (3.15)
<i>Constant</i>	−0.091 <sup>**</sup> (−1.97)	−0.257 <sup>***</sup> (−3.13)	0.191 <sup>***</sup> (2.84)
CPA firm fixed effect	Control	Control	Control
Firm fixed effect	Control	Control	Control
Observations	8608	4181	4427
Adjusted R-squared	0.0284	0.0610	0.0540

Note: The dependent variable is  $|DA|$ . The *t*-statistics are presented in brackets below the coefficients.

\* Significance at the 10% level, using two-tailed tests.

\*\* Significance at the 5% level, using two-tailed tests.

\*\*\* Significance at the 1% level, using two-tailed tests.

wise, the variables (Post1) and (Post2) are also significantly negatively related to  $|DA|$ , suggesting that the transformation of accounting firms still has positive effects on audit quality one and two years after the transformation. Further, the above results show that the coefficients of the variables are  $Post2 < Post1 < Post0$ , which indicates that the transformation year's effect is weaker than that of one and two years after the transformation. We argue that the partners of transformed accounting firms fully realize the possible increase in audit risk, and thus they are more cautious in the audit process, resulting in improved audit quality.

Panel B of Table 5 presents the results for signed DA. The coefficient of the variable (Change) is  $-0.017$  and significant at the 1% level in column (1). However, the coefficient of the variable (Change) is  $-0.002$  and insignificant in column (3). The above results show that improvements in audit quality are mainly due to a reduction in upward earnings management, with no effect on downward earnings management. Further, the variables (Post1) and (Post2) are consistent with the above results.

To test the direct effect of accounting firm transformations on audit quality, we also use audit opinions as a proxy for audit quality. Column (1) of Table 6 shows that the coefficient of the variable (Change) is  $-0.001$ , but is not significant.<sup>3</sup> The coefficient of the variable (Post1) is 0.026 and significant at the 10% level in column

<sup>3</sup> DeFond and Zhang (2014) indicate that, because the proxies in each category reflect different dimensions of audit quality, they cannot entirely reflect audit quality. Our research question is whether the transformation of accounting firms improves audit quality given their increased audit risk. The auditors usually issue modified audit opinions when listed companies have major uncertainty in their operations, or when the companies obey the accounting principles and occur significant accounting errors. Therefore, the use of audit opinions to proxy for audit quality might ignore the tiny differences in the audit process.

Table 9

The effect of accounting firm size and listed company ownership on the relationship between transformation and audit quality.

Variable	(1) All	(2) DA > 0	(3) DA < 0
<i>Change</i>	−0.012*** (−3.48)	−0.022*** (−3.47)	0.000 (0.096)
<i>Big4</i>	0.000 (0.027)	0.022 (0.60)	−0.010 (−0.41)
<i>Change * Big4</i>	−0.003 (−0.32)	−0.001 (−0.048)	0.002 (0.23)
<i>State</i>	0.002 (0.71)	0.004 (0.61)	0.001 (0.25)
<i>Change * State</i>	0.003 (0.65)	0.007 (1.02)	−0.005 (−0.84)
<i>Lta</i>	0.013 (0.79)	−0.025 (−0.88)	0.050** (2.01)
<i>Size</i>	0.005** (2.41)	0.013*** (3.57)	−0.008** (−2.49)
<i>Lev</i>	0.041*** (4.24)	0.007 (0.43)	0.076*** (5.38)
<i>Invrec</i>	−0.017 (−1.63)	0.034* (1.91)	−0.100*** (−6.24)
<i>Roa</i>	0.095*** (6.47)	0.089*** (4.26)	0.119*** (4.27)
<i>Loss</i>	0.003 (1.13)	0.001 (0.17)	0.007 (1.55)
<i>CFO</i>	0.021 (1.19)	0.081*** (2.59)	−0.043* (−1.66)
<i>Tobinq</i>	0.003*** (3.54)	0.003 (1.64)	0.003*** (3.14)
<i>Constant</i>	−0.091** (−1.96)	−0.256*** (−3.11)	0.190*** (2.83)
CPA firm fixed effect	Control	Control	Control
Firm fixed effect	Control	Control	Control
Observations	8608	4181	4427
Adjusted R-squared	0.0284	0.0612	0.0541

Note: The dependent variable is  $|DA|$ . The  $t$ -statistics are presented in brackets below the coefficients.

\* Significance at the 10% level, using two-tailed tests.

\*\* Significance at the 5% level, using two-tailed tests.

\*\*\* Significance at the 1% level, using two-tailed tests.

(2). These results mean that accounting firm transformations still affect audit opinions one year after the transformation, possibly because accounting firms must take time to address post-transformation quality control, thereby enhancing the audit quality of the audit services provided for listed companies.

#### 4.2.2. The effect of accounting firm size

Table 7 presents the results of the relationship between transformation and audit quality by dividing the sample into two groups: Big Four and non-Big Four. The coefficients of the interact terms (*Change \* Big4*) are all insignificant in columns (1)–(3), which indicate that there is no incremental effect of accounting firm transformations on audit quality when distinguishing by firm size. One possible reason is that the audit quality of Big Four accounting firms is always higher and therefore the potential for further improvement is limited. Therefore, even though the audit risk faced by the partners increases after the transformation, there is no significant incremental effect on audit quality.

#### 4.2.3. *The effect of listed company ownership*

Table 8 presents the results of the relationship between the transformations and audit quality after dividing the sample into two groups, state-owned and non-state-owned. The coefficients of the interaction term (Change \* State) are all insignificant in columns (1)–(3), which indicate that there is no incremental effect of accounting firm transformations on audit quality when distinguishing by the nature of ownership of listed companies.

### 4.3. *Robustness tests*

#### 4.3.1. *Different estimations of discretionary accruals*

To ensure that the conclusions of this study are not influenced by the estimation of DA, we also use the performance-matched Jones model, the median-adjusted Jones model and the modified Jones model to estimate DA. After repeating the above regression analysis, the results are still robust, indicating that the conclusions of this study are not influenced by the estimation of DA.

#### 4.3.2. *Different definitions of audit opinion*

To ensure that our conclusions are not affected by the definition of audit opinions, we also define clean audit opinions as 0 and modified audit opinions as 1. The results are still robust, indicating that our conclusions are not affected by the definition of audit opinions.

#### 4.3.3. *Different model specifications*

We also simultaneously examine the effects of accounting firm size and listed company ownership nature on the relationship between transformations and audit quality. We find that the results are the same (see Table 9), indicating that the conclusions do not change.

## 5. **Conclusions**

We use Chinese A-share listed companies from 2007 to 2012 to examine the effects of accounting firm transformations on audit quality. We find that accounting firm transformations are negatively related to the absolute value of DA. The results of signed DA show that when DA is positive, accounting firm transformations significantly reduce the level of DA, whereas the effect is not significant when DA is negative. We also find that accounting firm transformations only have a positive effect on audit opinions one year after the transformation.

We examine the effects of accounting firm transformations on audit quality from the characteristics of each accounting firm and each client, to explore the research question more deeply. However, we do not find that accounting firm size and listed company ownership significantly affect the relationship between transformations and audit quality. The transformation from limited liability to LLP increases the audit risk faced by the partners of accounting firms, especially in lawsuits after audit failure, as the partners must compensate for the loss with all of their investments and their personal assets. Therefore, faced with an increasing debt risk, the partners tend to focus more on implementing audit procedures and using audit tools, which improve audit quality. Partners are more cautious in dealing with upward earnings management behavior because it is more prone to audit failures. Due to the policy, transformed accounting firms are generally larger in size and their clients are of a higher quality. Therefore, we did not find differences based on accounting firm size and listed company ownership.

In this study, we find that accounting firm transformations improve audit quality, providing policymakers with important empirical evidence. Likewise, the continual implementation of the policy can have a positive effect, urging auditors to provide higher quality audit services that make the capital market more transparent. With the increase in transformed accounting firms, future studies will have more reliable data to work with. These transformations will affect the insurance functions of audits, audit fees and audit client choice, etc., which can also form future directions for research on the topic of accounting firm transformations.



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