DO AUDITORS WITH A DEEP POCKET PROVIDE A HIGH QUALITY AUDIT?

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ABSTRACT

We provide the first empirical evidence on Dye (1993)'s theory that auditors with deeper pockets are likely to provide a high quality audit. Using a unique, hand-collected data set of Chinese audit firm's net assets, we find that auditors with greater net assets are associated with a higher propensity to issue a modified opinion, a lower likelihood of clients committing financial fraud and reporting lower income-increasing discretionary accruals, and a lower probability of clients reporting small earnings. The effects of auditor deep pocket are more pronounced for client firms in regions with stronger legal environment and audit firms organized as partnerships relative to firms organized as limited liability firms. Our results hold when we restrict our sample to only those clients audited by a Big 8 auditor. We contribute to the literature by providing more clarity on the effect of auditor size on audit quality.

Keywords: Deep pocket; Auditor wealth; Audit quality.

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I. INTRODUCTION

A large body of research in auditing finds that auditor size is associated with higher audit quality. Two explanations are often offered for this phenomenon: reputation costs increase with auditor size, and large auditors' deep pockets make them a target for litigation (DeFond and Zhang 2014). The objective of this study is to provide more clarity on the auditor size effect by directly testing "the deep pocket hypothesis" (described below) proposed by Dye (1993). He defines the depth of auditor pocket as the amount of wealth an audit firm has at the beginning of the year. Auditors with deeper pockets have more wealth at risk from litigations and regulatory sanctions. Thus, the expected legal cost of audit failure is more significant for larger auditors with deeper pockets, which prevents auditors from "cheating" to investors. Therefore, auditor's deep pocket is expected to have a positive effect on audit quality. In addition, auditors with more wealth would have more resources to attract more competent employees, provide high quality training, and develop high quality audit technologies (Dopuch and Simunic 1980). [1] All of these would also increase audit competence and audit quality.

Our study is motivated by several reasons. Though the relation between auditor size and audit quality is perhaps the most extensively examined issue in audit research, the underlying reason for why higher audit quality is associated with larger auditors is unclear (DeFond and Zhang

[1] Audit technologies include the client risk assessment models, audit programs, employee training, IT, and in-house research support (Sirois and Simunic 2011).

2014). We contribute to the literature by providing more clarity on the effect of auditor size on audit quality by teasing out the effect of deep pockets from auditor reputation on audit quality (described below). More importantly, though the deep pocket hypothesis has been advanced more than twenty years ago, to the best of our knowledge no prior study has directly examined the relation between auditor's deep pocket and audit quality due to the lack of publicly available data on auditors' pocket depth in most countries. Further, audit quality remains a topic of significant interests to auditors, regulators, investors, audit committee members and others. Empirical evidence on factors that are associated with audit quality is potentially informative to the PCAOB and others who are interested in evaluating the quality of an audit on which they rely on.[2] Our study examines the effect of one such factor, i.e., auditors' net assets on audit quality.

We employ a unique, hand-collected data set of Chinese audit firms' net assets to test the deep pocket hypothesis. The Chinese Security Regulation Commission (CSRC) requires audit firms to report the amount of their net assets annually.[3] In addition to data availability, the Chinese audit market offers several interesting features to test the deep pocket hypothesis. First, unlike the U.S. audit market which is dominated by the biggest four audit firms, the Chinese audit market has much lower market concentration (Chan and Wu 2011). During our sample period, there are approximately 60 audit firms providing audit services to public firms. The biggest audit firm has net assets of more than 500 million RMB (approximately $80 million), while the smallest audit

[2] PCAOB (2015) has identified twenty-eight indicators of audit quality and they relate to three areas: audit professionals, audit process, and audit results.

[3] Data are reported to the CSRC annually. However, CSRC only makes the data from 2008 to 2011 publicly available.

firm has net assets of approximately 3 million RMB. Thus, there is enough variation in the depth of auditor's pocket among Chinese audit firms to test the deep pocket hypothesis.

Second, several features of the Chinese market allow us to further differentiate the effect of deep pockets from auditor reputation on audit quality. Specifically, the strength of legal environment varies across regions in China. Also, there are difference in organizational forms among Chinese audit firms. While some firms are organized as partnership, others are organized as limited liability audit firms. We surmise that in environments where there is higher legal development auditors face more scrutiny from regulators and the government. Therefore, the relation between auditor's deep pocket and audit quality is expected to be stronger in environments with higher legal development. More importantly, auditor reputation should be similar for both environments. Similarly, we conjecture that audit firms that are organized as partnerships face greater exposure to legal liability than audit firms organized as limited liability audit firms (Firth et al. 2012). In other words, the relation between auditor's deep pocket and audit quality is expected to be stronger for partnership audit firms relative to limited liability audit firms. Yet, auditor reputation is not expected to be significantly different for both types of organizational forms.

Third, the risk of litigation against auditors is lower in China than in other developed markets. However, the Chinese Supreme Court started to accept civil lawsuits against false financial statements from 2002. Following the Supreme Court decision, many law suits have been

filed against auditors (Chen et al. 2010).[4] The relatively low litigation threat would bias against finding evidence consistent with the deep pocket hypothesis. However, if we find evidence consistent with the deep pocket hypothesis in an environment where litigation risk is low, the effect of auditor's deep pocket is expected to be larger in other settings where litigation risk is high. Therefore, using Chinese data could potentially increase the generalizability of our findings for other international markets around the world. Finally, litigations are not the only legal threat to auditor's wealth. Similar to most countries, regulators in China may sanction auditors in case of audit failures (see Firth et al. 2005 and Gul et al. 2013).[5,6] Thus, in case of audit failures, auditors still face significant legal costs from public regulatory sanctions. Recent studies suggest such sanctions are effective in regulating auditor behavior in China (e.g., Firth et al. 2004, Gul et al. 2015).[7]

Our sample includes 5,518 firm-year observations for the years 2008 to 2011. Since there is no universal definition of audit quality, we rely on four alternative measures from prior studies to infer audit quality: auditors' propensity to issue a modified opinion, the occurrence of financial reporting fraud identified by the CSRC, income-increasing discretionary accruals, and the propensity to report small earnings. These alternative measures complement each other and increase the reliability of our findings.

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[4] Many auditors, including KPMG and Deloitte, have been sued in private securities litigations (Chen et al. 2010).

[5] Sanctions by Chinese regulators may include monetary fines up to millions RMB. For example, Shandong Zhengyuan Hexin accounting firm (with 6.45 million RMB net wealth) was fined 1 million RMB in 2007.

[6] Sanctions in China are similar to AAERs in the U.S. (e.g., Gul et al. 2015).

[7] Chen et al. (2010) report that in 2001 alone, 71 cases of enforcement actions were taken by CSRC and the Shanghai and Shenzhen stock exchanges. Further, the Chinese Institute of Certified Public Accountants (CICPA) either revoked or suspended some audit firms because of poor audit quality.

We find that auditor wealth, measured by the auditor's net assets at the beginning of the year, is positively associated with the probability of issuing a modified audit opinion, consistent with the deep pocket hypothesis. A one-standard deviation increase in auditor pocket depth increases the probability of issuing a modified opinion by approximately one percent. Given that the unconditional probability of receiving a modified opinion is approximately 5.7 percent, our findings are economically significant. Further, we find that frauds are *less* likely to occur for the clients of auditors with larger net assets. Results also show that auditors with larger net assets significantly reduce income-*increasing* discretionary accruals. In contrast, auditor's deep pocket is not significantly associated with income-decreasing discretionary accruals. These findings are consistent with prior research that supports the notion that auditors are more concerned with income-increasing earnings management (Abbott et al. 2006). Moreover, we find that the clients' propensity to report small earnings is lower for auditors with deeper pockets.

Additional tests further lend support to our primary findings. First, we partition our sample based on the level of legal development in the region where the client firm is headquartered (Fan et al. 2010) and find that the effect of auditor deep pockets on audit quality is generally stronger in the subsample of observations with stronger regional legal environment. Second, we find the effect of deep pocket are stronger for partnership audit firms, which have greater exposure to legal liability than limited liability audit firms (Firth et al. 2012). These findings lend further support to the deep pocket hypothesis rather than the effect of auditor reputation. Third, our results are robust in a subsample of firms audited by auditors with above-median pocket depth, indicating that our

results are not attributable to smaller auditors that are economically less important. Finally, our results still hold when we restrict our sample to only those clients audited by one of the biggest 8 auditors. Reputation is more homogenous among these big 8 auditors. Thus, this finding indicates that our results are not merely driven by the brand name effect. Overall, our findings are consistent with the deep pocket hypothesis that auditors with deeper pocket have higher audit quality (Dye 1993).

The rest of this paper is organized as follows. In the next section, we summarize related research. Section three describes our research design and measures of audit quality. Section four describes sample selection. Section five reports the results and section six concludes.

II. BACKGROUND AND HYPOTHESIS

Auditor Size and Auditor Deep Pocket

The auditing literature has provided significant evidence consistent with an auditor size effect. Larger auditors are associated with less client earnings management and higher client financial reporting quality (e.g., Francis 2004). The occurrence of financial fraud is lower for clients of larger auditors (e.g., Lennox and Pittman 2010). The accuracy of audit opinion is higher for auditors with larger size (e.g., Lennox 1999a). In addition, investors associate higher audit quality with larger auditors (Teoh and Wong 1993 and Krishnan 2003a).

The literature has proposed several economic factors to explain the well-documented auditor size effects. Because these confounding factors are highly correlated, no prior study has distinguished one explanation from the others. One important explanation for the auditor size effect is that larger auditors have greater reputational capital and also greater reputation concerns.

Klein and Leffler (1981) is the first study on the economic consequences of reputation for high quality. They find firms that are perceived as high quality can earn price premiums, which are referred to as "quasi-rents". These quasi-rents further prevent firms from providing low quality products, because of the firms' concerns over losing the quasi-rents. Following Klein and Leffler (1981), DeAngelo (1981) argues that the higher quality auditors earn higher audit fees, which are referred to as quasi rents. Such quasi-rents would motivate them to discover and report a breach. Larger auditors (i.e., the auditors with more public clients and more aggregated audit fees) will lose more quasi-rents if an audit failure occurs. In other words, larger auditors have more disincentives to cheat. Following this logic, DeAngelo (1981) suggests that auditors with more aggregated quasi rents are associated with higher audit quality.

Another explanation for the auditor size effect is based on the auditor's legal concerns. Dye (1993) provides a theoretical analysis of the effects of auditor's deep pocket on auditor behavior. In his model, an audit firm needs to decide which level of audit quality the auditor wants to deliver. Higher audit quality would cost the auditor more resources and effort, but audit quality is not publicly observable when the auditor report is released. If the audit fails, there would be a cost to the auditor. The only difference among auditors is the amount of wealth the audit firms have prior to conducting the audits. If the audit failure happens, the auditor's liability could not exceed the total amount of wealth the auditor firm has. Dye (p. 893, 1993) states, "an auditor chooses a higher quality audit as his wealth increases". This is because her wealth is in effect a bond to ensure that the audit quality is higher than an acceptable minimum level. In other words, larger auditors with

deeper pockets are discouraged from cheating to the investors, because of their concerns about possible losses in case of an audit failure.

There are also other reasons why deep pocket may increase audit quality. For example, auditors with more wealth and deeper pockets may have better personnel. Audit quality is jointly determined by auditor competence and auditor independence (Watts and Zimmerman 1986). Wealthy audit firms could recruit more capable college graduates (Chan and Wu 2011). Thus, larger auditors have greater competence (Dopuch and Simunic 1980). Also, the development of high quality audit technology is not costless. Auditors with more wealth would also have more resources to develop high quality audit technologies.

Litigation against the Auditor and Legal Liabilities

Several studies have examined the determinants of litigations against auditors. For example, Big N auditors are more likely to be sued by investors than other non-Big-N auditors (Lennox 1999b). This is consistent with the deep pocket hypothesis that auditors with deeper pocket face greater litigation threat. Lys and Watts (1994) find that investors are more likely to sue an auditor when the client has more income-increasing abnormal accruals. This is also consistent with the deep pocket hypothesis. Lennox and Li (2014) examines the effect of litigation on subsequent accounting restatements. They find that accounting restatements are less likely after an auditor is sued. Such findings are more significant for the audit offices directly involved in the law suits. These findings suggest that litigations against auditors play an important role in shaping auditor behavior. However, such findings are based on *ex post* litigations, and no prior study has

examined the effect of *ex ante* litigation risk on auditor behavior. Differently, our study examines how the variations in *ex ante* litigation risk induced by auditor's deep pocket affect audit quality. As noted earlier and further discussed below, in addition to potential litigation, the threat of sanctions against auditors by Chinese regulators and the government motivate auditors with deep pockets to deliver a high quality audit.

Audit Market in China and Hypothesis

Since 1979, the Chinese audit market has experienced remarkable economy growth. The demand for independent audits also increased, especially due to the increasing foreign investments and the privatization of state owned enterprises in China (DeFond et al. 2000; Chan and Wu 2011). The Chinese government responded to the increasing demand for public audits by establishing the Chinese Institute of Certified Public Accountants (CICPA) as the administrative agency. The first Chinese Certified Public Accountant (CPA) firm was established in 1980. Many of the early audit firms were sponsored by various government agencies. These audit firms generally lacked operational autonomy, which resulted in low operational efficiency and criticism by different stakeholders (DeFond et al. 2000; Lin et al. 2009). After the establishments of Shanghai and Shenzhen stock exchanges, the audit profession was criticized even more by the investors. To increase the independence and efficiency of audit firms, the Chinese government started an initiative to disaffiliate audit firms from their sponsoring government bodies.[8] As a result, the

[8] Gul et al. (2009) find that the likelihood of receiving qualified audit opinions for listed companies significantly increased, and noncore operating earnings significantly decreased, after auditors were disaffiliated. However, companies audited by auditors without any affiliation also showed an increase in the likelihood of receiving qualified

auditing profession saw significant growth.

The Chinese regulators have tried to improve audit quality in several ways. After the entry into WTO in 2001, China allowed the entry of the Big N audit firms. These international audit firms are required to operate as joint ventures with local audit firms (Lin et al. 2009). Thus, the local firms could learn how to implement high quality audits. For example, local audit firms adopted new internal quality control standards and reorganized the audit firm's operational structure (e.g., Chen et al. 2010). However, given the weak legal environment, public audit firms face relatively low litigation threat from investors (Simunic and Wu 2009). However, to ensure that public audits reach a certain level of quality, the regulators usually sanction audit firms in cases where their clients are identified with financial reporting manipulations. Firth et al. (2005) find regulators could effectively use such sanctions to penalize low quality audits. Therefore, because of the threat of sanctions by regulators, there are still significant legal costs to audit firms in case of audit failures.[9]

In addition, the judicial system in China has experienced significant improvement in the last decades. As a result of the on-going legal reform, auditors could not ignore the risk that the legal enforcement may become much stronger within a short time period after an audit engagement. Thus, Chinese audit firms would still be concerned about possible increases in legal

opinions and a decrease in noncore operating earnings, possibly because of the increased surveillance by the regulatory bodies that accompanied the act of disaffiliation.

[9] Chen et al. (2010) report that in 2002, 893 civil cases against listed companies and their intermediaries had been accepted by the Chinese courts and by 2007, a total of seven audit firms, including KPMG and Deloitte were involved in litigation.

consequences of audit failures within the statute of limitations.[10] Such concern could also lead auditors with deeper pockets to deliver higher audit quality. Thus, we state our hypothesis as follows:

Hypothesis: The depth of an auditor's pocket is positively associated with audit quality.

III. RESEARCH DESIGN

Measure of Auditor's Deep Pocket

Following Dye (1993), we define the depth of auditor's pocket as the amount of wealth, i.e., net assets an audit firm has at the beginning of the year. To provide audit service to public firms in China, audit firms need to receive permits from the capital market regulator. The audit firms also need to report information on their net assets to the Ministry of Finance (MOF) of China. Auditor's net assets information is manually collected from the website of MOF of China.

Measures of Audit Quality

A universal measure of audit quality currently does not exist and prior research has used a variety of measures to infer audit quality (DeFond and Zhang 2014). Following prior research, we use four measures of audit quality: the probability of issuing a modified audit opinion, the occurrence of accounting fraud, signed discretionary accruals, and the probability of a client reporting small earnings. Also, use of multiple proxies enhances the robustness of our findings. We describe these measures below.

[10] For most civil law suits, the statute of limitations is two years after the law violation is revealed.

Modified audit opinion (*MAO*) in China includes unqualified opinions with explanatory notes, qualified, disclaimed, and adverse opinions. A higher propensity to issue a modified audit opinion is viewed as an indicator for higher audit quality (Chen et al., 2010). Following prior studies (e.g., Reynolds and Francis 2000; DeFond et al. 2002; Francis and Yu 2009), we use the likelihood of an auditor issuing a going concern opinion as our first measure of audit quality. Auditors are more likely to be sued or sanctioned if a clean opinion is issued to a client with problematic financial reporting behavior. Therefore, auditors would protect themselves from potential litigation or sanctions from the CICPA or CSRC by issuing more modified opinions.[11] We use the following probit model to test whether an auditor's propensity to issue a modified audit report is associated with the depth of auditor's pocket:

$$MAO = \beta_1 DEEPPOC + \beta_2 SIZE + \beta_3 LEV + \beta_4 ROE + \beta_5 LOSS + \beta_6 CUR + \beta_7 CASH + \beta_8 ARIN + \beta_9 SOE + \beta_{10} BIG8 + \beta_{11} EXPT + \beta_{12} BM + Year_D + Industry_D \quad (1)$$

The dependent variable in model (1) is *MAO*, which is a dichotomous variable that takes the value of 1 if a client receives a modified audit report, and 0 otherwise. As discussed above, we view a higher propensity to issue a modified audit opinion as a signal of high audit quality. We therefore predict a positive coefficient on *DEEPPOC*. Definitions of variables used in this study are described in the Appendix.

[11] However, Thoman (1996) argues that an auditor could limit its legal exposure by reporting more conservatively instead of working harder. DeFond and Zhang (2014) note that auditors make Type I errors (issuance of a going concern in the absence of bankruptcy within the subsequent year) about 90% of the time. These findings suggest that a going concern opinion may indicate auditor conservatism rather than higher audit quality.

Following prior studies (Chen et al. 2010), we include several firm characteristics as control variables that may affect *MAO*. We control for company size, measured by natural logarithm of market value. Larger firms are less likely to receive modified audit opinions. We use return on equity (*ROE*), financial leverage *(LEV*) and incidence of loss (*LOSS*) to control for companies' financial conditions. We expect firms with better financial conditions to receive fewer modified audit opinions. We also control for client liquidity by using current ratio (*CUR*), cash and cash equivalents divided by total assets (*CASH*) and accounts receivable and inventory divided by asset (*ARIN*). *SOE* is included to control for state ownership. We expect SOEs are less likely to receive modified opinions since they have lower bankruptcy risk due to government subsidy (Chen et al. 2011). *BIG8* and *EXPT* refer to, respectively, the biggest 8 audit firms and auditor firms with industry specialization. Prior research finds that auditors with industry expertise constrain earnings management (Krishnan 2003b and Francis et al. 2005).[12] In addition, we include dummy variables for industry and year fixed effects.

Next, we use the probability that a client is engaged in an accounting fraud as an inverse measure of audit quality. We include the following types of accounting-related frauds: false recordation (misleading statements), disclosure of other false information disclosure, unauthorized changes in capital usage, reporting fictitious profit, mishandling of general accounting, occupancy of company's assets, material omission and others where the firm is accused of financial

[12] The biggest 8 audit firms comprise international Big4 and national Big 4. The international Big 4 include PWC, KPMG, E & Y and Deloitte. The national Big 4 are Shanghai Lixin, Xinyong Zhonghe, Yuehua, and Zhongshen. There are 67 audit firms in our 2008 sample, 60 in 2009, 60 in 2010, and 59 in 2011. All the results are robust to using only international Big 4 as a control variable.

information manipulation in the fraud report. These are identified by the CSRC and the CSRC could impose a monetary fine on the auditors. To test the association between the occurrence of accounting fraud and auditors' deep pockets, we estimate the following probit model:

$$FRAUD = \beta_1 DEEPPOC + \beta_2 SIZE + \beta_3 LEV + \beta_4 ROE + \beta_5 LOSS + \beta_6 CUR + \beta_7 CASH + \beta_8 SOE + \beta_9 BIG8 + \beta_{10} MAO + Year_D + Industry_D \quad (2)$$

In model (2), the dependent variable *FRAUD* is a dichotomous variable that takes the value of 1 if a client is identified with financial reporting frauds by the CSRC and 0 otherwise. Bigger audit firms are expected to supply higher-quality external monitoring and reduce financial reporting manipulations by the management (Lennox and Pittman, 2010). We expect the clients of auditors with deep pockets to less likely engage in frauds. Accordingly, we predict a negative coefficient on *DEEPPOC* in model (2). We use the same control variables as in model (1). We also include *MAO*, because modified opinions are indicators for possible accounting frauds. The regression also includes industry and year fixed effects.

Our third measure of audit quality is discretionary accruals. Higher discretionary accruals are consistent with lower audit quality. While financial reporting frauds are relatively rare, discretionary accruals capture earnings quality in a general sense. Thus, using discretionary accruals provide more variations for empirical analyses and enhance our test power. We choose signed rather than absolute discretionary because auditors are more concerned about overstatements of clients' earnings than understatements. For example, St. Pierre and Anderson (1984) observe that auditors are rarely sued for undervaluing assets, recognizing inadequate

revenue or recognizing excessive expenses. Similarly, Abbott et al. (2006) find that downward earnings management risk, as estimated by negative (i.e., income-decreasing) discretionary accruals, is associated with lower audit fees. On the other hand, upward earnings management risk, as estimated by positive discretionary accruals, is associated with higher audit fees. They conclude that this conservative bias arises from asymmetric litigation risk in which income-increasing discretionary accruals exhibit greater expected litigation costs than income-decreasing discretionary accruals. Therefore we predict that positive discretionary accruals are lower for clients of auditors with larger net assets. In addition, we separately test the effects on positive vs. negative discretionary accruals. We make no prediction about the association between auditors' net assets and the magnitude of negative discretionary accruals. The following OLS models are estimated to test our hypothesis:

$$\begin{aligned} POSDA = {} & \beta_1 DEEPPOC + \beta_2 SIZE + \beta_3 LEV + \beta_4 ROE + \beta_5 LOSS + \\ & \beta_6 CASH + \beta_7 BM + \beta_8 SOE + \beta_9 ICW + \beta_{10} BIG\,8 + \beta_{11} EXPT + \\ & Year_D + Industry_D \end{aligned} \quad (3)$$

$$\begin{aligned} NEGDA = {} & \beta_1 DEEPPOC + \beta_2 SIZE + \beta_3 LEV + \beta_4 ROE + \beta_5 LOSS + \\ & \beta_6 CASH + \beta_7 BM + \beta_8 SOE + \beta_9 ICW + \beta_{10} BIG\,8 + \beta_{11} EXPT + \\ & Year_D + Industry_D \end{aligned} \quad (4)$$

POSDA is income increasing discretionary accruals, calculated as the residuals from the Jones model.[13] A similar model is estimated for negative discretionary accruals (*NEGDA*). We include the control variables from model (2). In addition, we include internal control weakness (*ICW*) since

[13] The Jones model is estimated by each industry-year.

weaker internal controls are consistent with lower accounting quality.[14] As before, industry and year fixed effects are also controlled for. See Appendix for definitions of variables.

Our final measure of audit quality is the probability of a client reporting a small earning as an indicator of low audit quality. Recent studies show that Chinese firms have strong incentives to report a small profit for regulatory reasons. In China, a company will be referred to as 'ST stock' (special treatment stock), when the company reports losses for two consecutive years. More importantly, three consecutive years of losses would result in delisting. This creates a strong incentive to report a profit. Jiang and Wang (2008) have also shown robust evidence that Chinese firms use earnings management to avoid "special treatment stock" designation. It means that a small profit is likely an indicator for earnings management. We test the probability of firms reporting small earnings using the following probit model (5):

$$\begin{aligned} SMEARN = {} & \beta_1 DEEPPOC + \beta_2 SIZE + \beta_3 LEV + \beta_4 CUR + \beta_5 CASH + \\ & \beta_6 ARIN + \beta_7 BM + \beta_8 SOE + \beta_9 BIG8 + \beta_{10} EXPT + \beta_0 + \\ & Year_D + Industry_D \end{aligned} \quad (5)$$

In model (5), the dependent variable *SMEARN* is a dichotomous variable that takes the value of 1 if a client's current *ROE* (net income divided by shareholders' equity) is between 0 and 0.015 (e.g., Gul et al. 2009).[15] Since a higher propensity to report small earnings is viewed as an indicator of low audit quality, we therefore expect a negative coefficient on *DEEPPOC* in model (5). We

[14] We also control for the volatility of revenue and the volatility of operating cash flows in additional tests and the results hold. Because including these two control variables reduces the sample significantly, we do not include them in our main tests.

[15] We also use alternate definitions of small earnings, such as *ROE* between 0 and 1 percent and the results are similar.

include all the control variables from model (1), expect *ROE* and *LOSS*, which are mechanically related to *SMEARN*. In addition, we control for the book to market ratio (*BM*), which is an inverse indicator for expected profitability. The regression also includes industry and year fixed effects to control for cross-year and cross-industry variations in firm profitability.

IV. SAMPLE AND DESCRIPTIVE STATISTICS

Sample Selection

Panel A of Table 1 summarizes the sample selection procedures. Our initial sample includes 8,236 firm-year observations listed in Shanghai and Shenzhen Stock exchanges from 2008 to 2011 that are included in the China Securities Market and Accounting Research Database (CSMAR). We drop 1,998 observations with missing data on auditor identification. We also drop 720 observations for which data are unavailable to estimate the regression models. Thus, our final sample consists of 5,518 firm-year observations. We winsorize all the continuous variables at the 1% and 99 % levels.

Panel B presents the distribution of firm-years across different industries. We find the number of observations increases from 2008 to 2011, consistent with the expansion of the Chinese stock market in recent years. The three largest industries in the sample are, machinery, gas and chemistry and metal.

[Insert Table 1 about here]

Descriptive Statistics

We provide descriptive statistics in Panel A of Table 2. Please see the Appendix for variable definitions. The mean *MAO* is 0.057, suggesting that 5.7% of all the observations received

modified audit opinions. About 2.3% of all the observations are identified with accounting frauds. The mean (median) discretionary accrual (*DA)* is about 0.008 (0.028), with a standard deviation of 0.095. About 7% of the observations report small earnings. The mean (median) value of auditor's deep pocket (*DEEPPOC*) is 0.053 (0.025) billion RMB. About half of our observations are stated owned, and 31.2% of all the observations are audited by Big 8 audit firms. The average return on equity is 9.8%. These are generally comparable to prior studies (see Chen et al. 2010 and Ke et al. 2015). For example, Ke et al. (2015) report that the average *ROE* is approximately 10% and about 5% of all the observations receive modified audit opinions.

Panel B of Table 2 reports the Pearson correlations below the diagonal and the Spearman correlations above the diagonal. Correlations that are significant at the 5% level are in bold. *DEEPPOC* is negatively associated with *DA*, *FRAUD*, and *SMEARN* (Pearson correlations). These are consistent with our expectations. However, the Spearman correlation between *DA* and *DEEPPOC* is positive and significant which is inconsistent with our expectation. Correlation coefficients between *MAO* and *DEEPPOC* are negative, contrary to our expectations. *DEEPPOC* is strongly correlated with *BIG8*, suggesting that brand-name auditors have deeper pockets.[16] Results of multivariate analyses are discussed next.

[Insert Table 2 about here]

[16] The largest VIF in our regressions is less than 10, suggesting that multicollinearity is not a serious concern.

V. EMPIRICAL RESULTS

Modified Audit Opinion Test

We report the results of model (1) in Table 3. In Tables 3 through 8, the model is estimated with industry and year fixed effects (coefficients not reported) and standard errors are heteroscedasticity robust. The dependent variable in Table 3 is the probability that a firm received a modified opinion. The pseudo R^2 is 40.6%, suggesting that the overall model fits well. Our hypothesis tests the association between auditor deep pocket (*DEEPPOC*) and the probability of issuing a modified opinion. The coefficient on *DEEPPOC* is positive and significant at the 1% level (1.4819; *t*-statistics = 3.41). This finding is consistent with our hypothesis that auditors with deeper pockets are more likely to issue modified opinions. In other words, higher audit quality is associated with auditors with deeper pockets. To assess the economic significance of our results, we calculate the marginal effects of our findings. The marginal effect of a one unit increase in auditor pocket depth is 0.1033. The standard deviation of auditor pocket depth is 0.107. Thus, a one-standard deviation increase in auditor pocket depth increases the probability of issuing a modified opinion by approximately one percent (=0.1.07×0.1033). Given that the unconditional probability of receiving a modified opinion is 5.7% (see Table 2 Panel A), our findings are both statistically and economically significant.[17]

Coefficients on control variables are also generally consistent with expectations (e.g., DeFond et al. 2010). *MAO* is significantly positively correlated with *LEV* and *LOSS*, and the coefficients of *SIZE*, *ARIN*, *SOE*, and *BM* are significantly negative. These results suggest that the probability of receiving a modified opinion is higher for companies with smaller size, higher

[17] Compared with the marginal effect of other variables, deep pocket also has one of the largest economic magnitude.

leverage, and firms reporting losses. On the other hand, the likelihood of receiving a modified opinion is lower for state-owned enterprises and firms with accounts receivable and growth options (inverse of book-to-market ratio).

[Insert Table 3 about here]

Accounting Fraud Test

Results of model (2) on the relation between *FRAUD* and *DEEPPOC* are in Table 4. The regression uses a probit model with heteroscedasticity robust standard errors. We use the occurrence of financial reporting fraud identified by the CSRC as an inverse measure of audit quality. We find a significant negative coefficient on *DEEPPOC* (-1.5666; *t*-statistics = -2.04). This finding is also consistent with our hypothesis and indicates that the likelihood of an accounting fraud is decreasing in auditor's deep pocket. In other words, higher audit quality is associated with deep pocket. The marginal effect of deep pocket is -0.0840. Thus, a one-standard deviation increase in auditor's pocket depth decreases the probability of financial fraud by approximately 0.9 percent (=0.107×-0.0840). The unconditional probability of fraud is 2.3%. So, the effect of auditor deep pocket accounts for more than one third of unconditional probability of fraud. The coefficients on control variables are also consistent with expectations.[18] For example, state owned enterprises are less likely to be involved in accounting frauds (-0.2164; *t*-statistics = -2.66), possibly due to better monitoring or alternatively, regulators are more reluctant to accuse

[18] Results suggest that larger firms with lower leverage and more liquid assets are less likely to have financial reporting frauds. These are also consistent with our expectations, though the coefficients are insignificant.

firms owned by the state government. Also, companies receiving non-clean audit opinions are more likely to be involved in accounting frauds (0.3705; *t*-statistics =2.71).

[Insert Table 4 about here]

Discretionary Accrual Tests

Results of models (3) and (4) on the relation between positive and negative *DA* and *DEEPPOC* are in Table 5. We especially focus on positive (income-increasing) *DA* and regard that higher values of positive *DA* as an inverse measure of audit quality (St. Pierre and Anderson 1984 and Caramanis and Lennox 2008). Results are reported separately for positive and negative discretionary accruals. We find that the coefficient on *DEEPPOC* is negative and highly significant for positive discretionary accruals but insignificant for negative discretionary accruals. These results suggest that auditors with deep pockets significantly reduce income-increasing discretionary accruals but not income-decreasing discretionary accruals. This differential response is consistent with prior research (St. Pierre and Anderson 1984 and Abbott et al. 2006). Turning to control variables, we find that income-increasing discretionary accruals are increasing in firm size, leverage, and cash holdings. On the other hand, loss firms, state-owned enterprises, and firms with higher book-to-market have lower income-increasing discretionary accruals. The coefficient on *BIG8* is not significantly associated with income-increasing *DA*. Overall, results in Table 5 are consistent with our hypothesis that auditors with a deeper pocket have higher audit quality.

[Insert Table 5 about here]

Small Earnings Tests

The probit model regression results of model (5) on the relation between *DEEPPOC* and the likelihood of a firm reporting small earnings (*SMEARN*) are in Table 6. Recall that Chinese firms face a bright-line rule, i.e., firms reporting a loss consecutively for three years will be delisted. Therefore, Chinese firms have strong incentives to avoid reporting losses.[19] We find that the coefficient on *DEEPPOC* is negative and significant at the 1% level (-0.9892; *t*-statistics = -2.31). This finding is consistent with our hypothesis and supports the notion that auditors with deep pockets constrain attempts by managers to report a small earnings. In terms of economic significance, a one-standard deviation increase in auditor pocket depth decreases the probability of reporting small earnings by approximately 1.3 percent (=0.107×-0.1201). Turning to the control variables, we find that the likelihood of reporting small earnings is decreasing in firm size, leverage, cash and cash equivalents, accounts receivables and inventory, and specialist auditor. On the other hand, the likelihood of reporting small earnings is higher for clients of Big 8 auditors and book-to-market ratio. Taken together, results in Tables 3 through 6 consistently indicate that higher audit quality is associated with auditors with deep pockets.

[Insert Table 6 about here]

Additional Analyses

Next, we perform several additional analyses to further probe the relation between auditor's deep pocket and audit quality. To address the concern that our results might be due to auditor

[19] In our sample, 6.9 percent of all the observations have small earnings.

reputation rather than the deep pocket, we conduct several tests. First, we examine whether the relation between auditor's deep pocket and audit quality is moderated by the strength of the regional legal environment. Though China is generally perceived as a country with low litigation risk, the strength of legal development varies across provinces. In a concurrent study, Chen et al. (2015) provide evidence that audit fees are higher for clients based in environments where there is higher legal development, suggesting auditors face more scrutiny from regulators and the government relative to environments where there is lower level of legal development. We posit that the relation between auditor's deep pocket and audit quality is expected to hold in strong legal environment. We classify firms into strong and weak legal environments using the legal environment development index constructed by Fan et al. (2010). They evaluate the level of provincial legal environment on four dimensions: development of intermediary markets (such as attorneys, and CPAs), protection of producers, protection of intellectual property, and protection of consumers. We estimate the model separately for strong and weak legal environments and those results are in Table 7. We find that the coefficient on *DEEPPOC* is significant for the strong legal environment for *MAO, FRAUD,* and *POSDA* but insignificant for *SMEARN*. *DEEPPOC* is also significant for the weak legal environment though the magnitudes of the coefficients on *DEEPPOC* appear to be stronger for the subsample with strong regional legal environment. These findings offer additional support that the strength of the legal environment moderates the relation between auditor's deep pocket and audit quality. Note auditor reputation is expected to be similar for both weak and strong legal environments and thus, the findings in Table 7 are less likely due to auditor reputation.

[Insert Table 7 about here]

Second, we consider the different organizational forms of audit firms: partnership vs limited liability audit firms. Firth et al. (2012) suggest partnership audit firms have higher audit quality than limited liability audit firms do. Thus, we expect our findings to be more pronounced for partnership audit firms. We rerun our regressions separately for samples of partnerships and limited liability audit firms. Results are reported in Table 8. We find that the effect of deep pocket are stronger for partnership audit firms. [20] These findings lend further support to the deep pocket hypothesis. As in the previous test, we do not expect auditor reputation to vary between organizational forms and thus, results in Table 8 are less likely due to auditor reputation.

[Insert Table 8 about here]

Third, we estimate the models using only clients of the 8 biggest auditors. The objective of this analysis is to examine the relation between auditor's deep pocket and audit quality after holding auditor's brand-name constant.[21] The results are in Table 9. We find that the coefficient on *DEEPPOC* is positive and significant at the 1% level for *MAO* and negative and significant (at the 10% level or better) for *FRAUD*, *POSDA*, and *SMEARN*. These findings are consistent with the results in Tables 3 through 6 and indicate that *DEEPPOC* has incremental explanatory power for audit quality beyond auditor's brand-name.

Fourth, DeAngelo (1981) argues that larger auditors have more reputation capital than smaller auditors and thus, an audit failure would result in a greater loss of future quasi-rents. In our primary tests, we use an indicator for big 8 auditors to control for reputation effect. DeAngelo (1981) suggests that the aggregated quasi-rents could be another proxy for reputation capital. Since

[20] For small earnings tests, the coefficient is insignificant for *SMEARN* test in the subsample of partnership audit firms (possibly due to small sample size), the magnitude of the coefficient is larger than in the other subsample.

[21] Prior studies (e.g., Chan et al. 2011) are consistent with big 8 auditors have relative homogenous reputation.

quasi-rents are likely to be correlated with auditor's deep pocket, we include quasi-rents as an additional control and estimate our models. We define quasi-rents as the auditor's aggregate total income from their audit clients (in billions). Untabulated results indicate that the coefficient on quasi-rents is insignificant for all measures of audit quality except it loads negatively (significant at the 1% level) for positive discretionary accruals. The coefficient on our variable of interest, *DEEPPOC* continues to be significant for all measures of audit quality, consistent with the results in Tables 3 through 6. These results support the notion that auditor's deep pocket drives audit quality. Collectively, results in Tables 7 through 9 mitigate the concern that our results are due to auditor reputation.

[Insert Table 9 about here]

Finally, we partition the sample at the median value of *DEEPPOC* and estimate the models using only observations above the median (results not tabulated). The coefficients on *DEEPPOC* are 1.2645 (significant at the 1% level), -1.7655 (significant at the 10% level), -0.0147 (significant at the 10% level), and -1.0058 (significant at the 5% level), respectively for *MAO, FRAUD, POSDA,* and *SMEARN*. These results indicate that the relation between auditor's deep pocket and audit quality holds for the subsample of auditors with above median pocket depth. Therefore, our results are not due to small auditors that are not economically important.

VI. CONCLUSION

Using a unique dataset from the Chinese market, this study examines the effects of auditor deep pocket, measured by auditor's net assets, on audit quality. We find that auditors with greater net assets are associated with a higher propensity to issue a modified opinion, a lower likelihood

of clients committing financial fraud, lower income-increasing discretionary accruals, and a lower probability of clients reporting small earnings. These findings are consistent with Dye (1993)'s theory that auditors with deeper pocket have higher audit quality. The effects of auditor deep pocket are more pronounced for regions with stronger legal environment and for partnership auditor firms compared to limited liability audit firms. Also, the results hold when we restrict our sample to only those clients audited by a Big 8 auditor. These tests suggest that auditor reputation is not driving our results.

Overall, our study represents the first effort to provide empirical evidence consistent with the deep pocket hypothesis. Our findings have important policy implications for both practitioners and regulators in the developed countries as well as in other emerging markets who are interested in understanding the determinants of audit quality. For example, the PCAOB (2015) has issued a concept release seeking comments on a variety of indicators of audit quality. Our findings suggest that audit firms' net assets are informative about audit quality, and therefore disclosure of audit firms' net assets could be relevant to those who are interested in evaluating the quality of an audit on which they rely on. Audit quality is also a topic of significant interests to investors, audit committee members and others. Our study suggest that audit committee members could use auditor deep pocket as a criteria for auditor selection. Investors may rely on auditor pocket depth as an indicator for financial information reliability. We note that legal environment in China is weaker than most developed markets. This works against finding significant results. More broadly, our results suggest that the effect of auditor's deep pocket on audit quality could be larger in other

markets with stronger legal environment. Finally, our findings add clarity to the literature on the relation between auditor size and audit quality.

We recognize that similar to any other empirical study, we could not control for all the possible correlated variables. However, we find significant interaction effects of regional legal environment and auditor organizational forms. Noting such interactions effects also makes it more difficult to envision an alternative argument which explains not only the effect of auditor deep pocket but also the interaction effects (e.g., Rajan and Zingales 1998). Thus, the findings related to regional legal environment and auditor organizational forms mitigate concerns about omitted variables or endogeneity. We believe that it is a fruitful venue for future research to examine the economic consequences of auditor's deep pocket.

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Appendix
Variable Definitions

Dependent Variables

MAO = Modified opinion, equals 1 if the auditor issues a non-clean opinion; 0 otherwise. Source: CSMAR database.

FRAUD = Accounting fraud, equals 1 if the firm is identified as accounting related fraud by the regulators; 0 otherwise. Source: CSMAR database.

DA = Signed abnormal accruals estimated using the modified Jones model. Source: CSMAR database.

POSDA = Income-increasing abnormal accruals estimated using the modified Jones model. Source: CSMAR database.

NEGDA = Income-decreasing abnormal accruals estimated using the modified Jones model. Source: CSMAR database.

SMEARN = Small earnings indicator, 1 if a client's current ROE is between 0 and 0.015 (including 0.015); 0 otherwise. Source: CSMAR database.

Independent Variables

DEEPPOC = Auditor deep pocket, which equals audit firm's total net asset. (in billions) Source: Manual collection.

BIG8 = Big 8 auditor, equals 1 if the firm is audited by a Big 8 auditor (international Big 4 and national Big 4, national Big 4 are Shanghai Lixin, Xinyong Zhonghe, Yuehua and Zhongshen); 0 otherwise. Source: CSMAR database.

EXPT = Industry specialist auditor, 1 if the audit firm is an industry specialist; 0 otherwise. Industry specialist is identified as the top 10% market share audit firm in each industry. Source: CSMAR database.

SIZE = Firm size, natural log of market value of equity. Source: CSMAR database.

LEV = Leverage, total liabilities divided by total asset. Source: CSMAR database.

ROE = Return on Equity, net income divided by shareholder equity. Source: CSMAR database.

CUR = Current Ratio, Current assets divided by current liabilities. Source: CSMAR database.

CASH = Cash, cash equivalents and investment securities, divided by total assets. Source: CSMAR database.

BM = Book to market ratio, the ratio of book equity value to market value. Source: CSMAR database.

ARIN = Account receivable and inventory, divided by total assets. Source: CSMAR database.

LOSS = *LOSS* dummy, equals 1 if the firm reports a loss; 0 otherwise. Source: CSMAR database.

ICW = Indicator for internal control weakness based on auditor opinion, 0 otherwise. Source: CSMAR database.

SOE = State ownership, equals 1 if the firm is a state owned enterprise; 0 otherwise.
Source: CSMAR database.

TABLE 1
Sample Description

Panel A: Sample Selection

	# of Observations
Initial Observations from 2008 to 2011	8,236
Less: Observations with missing controlling shareholder information	(345)
Less: Observations with missing market value information	(99)
Less: Observations with missing data to calculate discretional accruals	(70)
Less: Observations with missing audit firm information	(1,998)
Less: Observations with missing total asset , current liability shareholder equity, headquarter location and other information	(204)
Sample for audit quality test	**5,518**

Panel B: Sample Distribution by Year and Industry

Industry	**2008**	**2009**	**2010**	**2011**	**All**
Agriculture	15	14	25	35	89
Mining	37	46	56	61	200
Food	48	42	63	74	227
Apparel	26	33	44	55	158
Printing	13	20	31	34	98
Gas and chemistry	107	118	159	199	583
Electronic	43	49	70	101	263
Metal	90	100	138	161	489
Machinery	134	174	281	370	959
Pharmaceutical products	52	59	98	119	328
Energy supply	48	64	75	76	263
Construction	26	22	38	45	131
Transportation	49	51	63	69	232
Information technology	43	52	93	130	318
Retail and wholesale	76	84	118	123	401
Real estate	4	5	5	5	19
Other service supply	87	97	121	122	427
Communication	36	37	49	62	184
Media	12	12	16	23	63
Other	20	21	23	22	86
Total	**966**	**1,100**	**1,566**	**1,886**	**5,518**

This table provides a description of our sample. Panel A shows the sample selection process. Panel B shows sample distribution across year and industries.

TABLE 2
Panel A Descriptive Statistics

Variable	N	Mean	Std.dev	1%	25%	Median	75%	99%
MAO	5,518	0.057	0.233	0	0	0	0	1
FRAUD	5,518	0.023	0.151	0	0	0	0	1
DA	5,518	0.008	0.095	-0.274	-0.036	0.028	0.068	0.154
SMEARN	5,518	0.069	0.253	0	0	0	0	1
DEEPPOC	5,518	0.053	0.107	0.003	0.012	0.025	0.057	0.545
SIZE	5,518	15.214	1.023	13.241	14.518	15.071	15.768	18.276
LEV	5,518	0.519	0.648	0.053	0.323	0.495	0.648	1.473
ROE	5,518	0.099	10.263	-1.174	0.032	0.076	0.129	0.868
CUR	5,518	2.227	3.997	0.169	0.929	1.349	2.126	16.415
CASH	5,518	0.193	0.154	0.003	0.087	0.151	0.253	0.725
BM	5,518	0.399	0.325	-0.139	0.206	0.338	0.532	1.445
ARIN	5,518	0.258	0.180	0.002	0.120	0.234	0.361	0.784
LOSS	5,518	0.101	0.302	0	0	0	0	1
ICW	5,518	0.011	0.105	0	0	0	0	1
SOE	5,518	0.497	0.500	0	0	0	1	1
BIG8	5,518	0.312	0.463	0	0	0	1	1
EXPT	5,518	0.145	0.352	0	0	0	0	1

TABLE 2

Panel B Correlation matrix

	MAO	*FRAUD*	*DA*	*SMEARN*	*DEEPPOC*	*BIG8*	*EXPT*	*SIZE*	*LEV*	*ROE*	*CUR*	*CASH*	*BM*	*ARIN*	*LOSS*	*ICW*	*SOE*
MAO		**0.070**	-0.006	-0.008	**-0.033**	**-0.032**	**-0.031**	**-0.227**	**0.211**	**-0.120**	**-0.241**	**-0.191**	**-0.269**	**-0.099**	**0.356**	-0.004	**-0.048**
FRAUD	**0.070**		0.001	0.025	-0.018	-0.019	-0.009	**-0.052**	0.013	**-0.037**	-0.017	-0.016	**-0.029**	-0.002	**0.040**	0.018	**-0.041**
DA	0.004	-0.011		-0.012	**0.037**	**-0.035**	**-0.027**	**0.093**	**-0.046**	**0.045**	**0.089**	**0.104**	**-0.154**	**0.071**	**-0.068**	-0.009	**-0.071**
SMEARN	-0.008	0.025	0.003		**-0.051**	-0.023	**-0.039**	**-0.116**	-0.019	**-0.347**	**-0.036**	**-0.092**	**0.087**	**-0.033**	**-0.091**	-0.015	0.026
DEEPPOC	-0.023	**-0.031**	**-0.033**	**-0.038**		**0.520**	**0.312**	**0.232**	0.008	**0.126**	0.026	**0.038**	**0.086**	-0.004	**-0.071**	**0.044**	0.014
BIG8	**-0.032**	-0.019	**-0.037**	-0.023	**0.379**		**0.456**	**0.233**	**0.051**	**0.076**	**-0.047**	-0.018	**0.074**	**-0.048**	**-0.037**	0.025	**0.116**
EXPT	**-0.031**	-0.019	-0.020	**-0.039**	**0.191**	**0.456**		**0.097**	0.024	**0.041**	**-0.033**	-0.021	**0.081**	**-0.030**	-0.019	**0.034**	**0.037**
SIZE	**-0.210**	**-0.052**	**0.064**	**-0.110**	**0.280**	**0.270**	**0.124**		0.007	**0.401**	**0.038**	**0.066**	**-0.028**	**-0.090**	**-0.233**	**0.053**	**0.135**
LEV	**0.277**	**0.033**	0.013	-0.022	0.006	0.004	0.005	**-0.057**		**-0.032**	**-0.714**	**-0.417**	**-0.034**	**0.182**	**0.237**	0.012	**0.203**
ROE	**0.032**	-0.005	-0.026	-0.002	0.006	-0.008	-0.009	0.002	0.000		**0.121**	**0.157**	**-0.138**	**0.055**	**-0.383**	**0.032**	**-0.038**
CUR	**-0.081**	-0.012	**0.029**	-0.021	**-0.050**	**-0.029**	-0.020	-0.011	**-0.183**	0.000		**0.596**	0.020	**0.256**	**-0.263**	-0.021	**-0.241**
CASH	**-0.143**	-0.022	**0.054**	**-0.091**	**-0.056**	-0.021	-0.012	0.022	**-0.207**	-0.004	**0.509**		**-0.052**	-0.001	**-0.216**	-0.021	**-0.143**
BM	**-0.268**	**-0.042**	**-0.135**	**0.104**	**0.210**	**0.110**	**0.104**	**0.086**	**-0.332**	-0.005	-0.018	**-0.080**		**-0.050**	**-0.160**	**0.051**	**0.167**
ARIN	**-0.078**	-0.004	**-0.076**	**-0.032**	**-0.074**	**-0.042**	**-0.027**	**-0.100**	**0.031**	-0.009	**-0.055**	**-0.143**	**-0.037**		**-0.067**	-0.024	**-0.098**
LOSS	**0.356**	**0.040**	**-0.034**	**-0.091**	**-0.049**	**-0.037**	-0.019	**-0.215**	**0.171**	-0.015	**-0.097**	**-0.179**	**-0.150**	**-0.060**		**-0.030**	**0.033**
ICW	-0.004	0.018	-0.019	-0.015	**0.071**	0.025	**0.034**	**0.064**	**0.031**	-0.000	-0.012	-0.014	**0.056**	-0.022	**-0.030**		0.011
SOE	**-0.048**	**-0.041**	**-0.027**	0.026	**0.082**	**0.116**	**0.037**	**0.156**	**0.028**	-0.003	**-0.162**	**-0.180**	**0.170**	**-0.090**	**0.033**	0.011	

Notes: This table shows statistics and correlations for firm characteristics. In Panel A, all continuous variables are winsorized at 1% and 99% levels. Panel B reports correlations between variables, with Pearson correlations presented below the diagonal and Spearman correlations presented above the diagonal. The significant correlations are bold. Variable definitions are provided in the Appendix.

TABLE 3

Modified Audit Opinion Test

Dependent Variable =	Probit(*MAO* =1)	
	Coefficient (*t*-statistics)	Marginal Effect (*t*-statistics)
DEEPPOC	**1.4819*** **	**0.1033*** **
	(3.41)	**(3.24)**
SIZE	-0.4736***	-0.0330***
	(-7.33)	(-6.81)
LEV	1.0860***	0.0757***
	(4.56)	(4.63)
ROE	0.0019	0.0001
	(1.14)	(1.15)
LOSS	0.7286***	0.0508***
	(9.06)	(7.78)
CUR	0.0085	0.0006
	(0.72)	(0.73)
CASH	-1.0065**	-0.0702**
	(-2.14)	(-2.14)
ARIN	-1.1961***	-0.0834***
	(-3.64)	(-3.68)
SOE	-0.1810*	-0.0126*
	(-1.72)	(-1.70)
BIG8	0.0469	0.0033
	(0.42)	(0.42)
EXPT	-0.1494	-0.0104
	(-1.14)	(-1.14)
BM	-1.3577***	-0.0947***
	(-3.99)	(-4.16)
Intercept	5.5242***	n/a
	(5.59)	
N	5,518	
Pseudo R^2	0.406	

Note: See Appendix for definitions of variables. This table estimates the modified audit opinion model. The first column reports the probit regression of the likelihood of issuing non-clean opinions on audit deep pocket, with Z-statistics reported in parentheses. The second column reports the marginal effect. ***, ** and * separately refer significance at 1% level, 5% level and 10% level, two tails. The regression includes both year and industry fixed effects, and standard errors are heteroscedasticity robust.

TABLE 4
Accounting FRAUD Test

Dependent Variable =	Probit(*FRAUD*=1)	
	Coefficient (*t*-statistics)	Marginal Effect (*t*-statistics)
DEEPPOC	**-1.5666**** **(-2.04)**	**-0.0840**** **(-2.02)**
SIZE	-0.0869* (-1.95)	-0.0047* (-1.92)
LEV	0.0093 (0.41)	0.0005 (0.41)
ROE	-0.0015 (-0.56)	-0.0001 (-0.55)
LOSS	0.0617 (0.47)	0.0033 (0.47)
CUR	-0.0077 (-0.52)	-0.0004 (-0.52)
CASH	-0.2596 (-0.91)	-0.0139 (-0.92)
SOE	-0.2164*** (-2.66)	-0.0116*** (-2.61)
BIG8	0.0321 (0.33)	0.0017 (0.33)
MAO	0.3705*** (2.71)	0.0199*** (2.69)
Intercept	-0.5157 (-0.77)	n/a
N	5,518	
Pseudo R^2	0.035	

Note: See Appendix for definitions of variables. This table presents the results of probit regression where the dependent variable is an indicator variable equals to 1 for firm-year where the firm violates related rules or regulations. ***, ** and * separately refer significance at 1% level, 5% level and 10% level, two tails. The regression includes both year and industry fixed effects, and standard errors are heteroscedasticity robust.

TABLE 5

Discretionary Accrual Tests

Dependent Variable =	(1) *POSDA*	(2) *NEGDA*
	Coefficient (*t*-statistics)	Coefficient (*t*-statistics)
DEEPPOC	**-0.0221*** (-2.71)**	**-0.0379 (-1.63)**
SIZE	0.0069*** (7.97)	0.0051*** (3.04)
LEV	0.0084*** (4.94)	-0.0119*** (-5.36)
ROE	-0.0003 (-0.88)	-0.0001*** (-7.31)
LOSS	-0.0130*** (-4.42)	0.0144*** (3.24)
CASH	0.0087* (1.68)	-0.0416*** (-3.71)
BM	-0.0270*** (-9.45)	-0.0429*** (-6.25)
SOE	-0.0032* (-1.86)	0.0244*** (6.54)
ICW	-0.0133** (-2.52)	-0.0362* (-1.89)
BIG8	0.0021 (1.01)	-0.0092** (-1.97)
EXPT	-0.0015 (-0.56)	0.0116** (1.97)
Intercept	-0.0302** (-2.24)	-0.1378*** (-5.33)
N	3,304	2,214
R^2	0.078	0.076

Note: See Appendix for definitions of variables. This table reports the results of OLS estimation using discretionary accruals as dependent variables. Column (1) reports results for the subsample of observations with positive discretionary accruals. Column (2) reports results for the subsample of observations with negative abnormal accruals. ***, ** and * separately refer significance at 1% level, 5% level and 10% level, two tails. The regressions include both year and industry fixed effects, and standard errors are heteroscedasticity robust.

TABLE 6
Small Earnings Tests

Dependent Variable =	Probit(*SMEARN* =1)	
	Coefficient (*t*-statistics)	Marginal Effect (*t*-statistics)
DEEPPOC	**-0.9892*** (-2.31)**	**-0.1201** (-2.30)**
SIZE	-0.2525*** (-7.27)	-0.0306*** (-7.03)
LEV	-0.6426*** (-4.02)	-0.0780*** (-3.99)
CUR	0.0083 (1.64)	0.0010 (1.63)
CASH	-1.9946*** (-6.16)	-0.2421*** (-6.17)
ARIN	-0.4902*** (-2.68)	-0.0595*** (-2.64)
BM	0.5922*** (5.91)	0.0719*** (5.72)
SOE	0.0652 (0.93)	0.0079 (0.92)
BIG8	0.1612* (1.86)	0.0196* (1.84)
EXPT	-0.2964*** (-3.02)	-0.0360*** (-2.98)
Intercept	2.8031*** (5.27)	n/a
N	5,518	
Pseudo R^2	0.088	

Note: See Appendix for definitions of variables. This table estimates the small earnings model. The first column reports the probit regression of the likelihood of reporting small earnings on auditor deep pocket, with Z-statistics reported in parentheses. The second column reports the marginal effect. ***, ** and * separately refer significance at 1% level, 5% level and 10% level, two tails. The regressions include both year and industry fixed effects, and standard errors are heteroscedasticity robust.

TABLE 7

The Role of Regional Legal Environment

Dep.Var. =	Probit(*MAO* =1)		Probit(*FRAUD*=1)		*POSDA*		Probit(*SMEARN* =1)	
	Strong Legal Environment	Weak Legal Environment	Strong Legal Environment	Weak Legal Environment	Strong Legal Environment	Weak Legal Environment	Strong Legal Environment	Weak Legal Environment
DEEPPOC	**1.9573*** **	**1.1999***	**-1.9320** **	**-1.4767***	**-0.0304** **	**-0.0177***	**-0.9187**	**-0.9140***
	(4.05)	**(1.93)**	**(-2.04)**	**(-1.65)**	**(-2.27)**	**(-1.71)**	**(-1.27)**	**(-1.87)**
SIZE	-0.4678***	-0.4745***	-0.1027	-0.0852*	0.0068***	0.0071***	-0.3269***	-0.2116***
	(-3.82)	(-6.37)	(-1.14)	(-1.67)	(-4.68)	(-6.30)	(-5.87)	(-4.90)
LEV	1.0932**	1.1004***	-0.0561	0.0210	0.0085**	0.0083***	-0.4714*	-0.6780***
	(1.99	(4.00)	(-0.88)	(0.90)	(2.52)	(4.34)	(-1.66)	(-3.44)
ROE	0.0030**	-0.0024	-0.0010	-0.0031	-0.0012***	-0.0001		
	(2.14)	(-0.44)	(-1.34)	(-0.61)	(-13.37)	(-0.53)		
LOSS	0.9481***	0.6419***	0.4433**	-0.1644	-0.0164***	-0.0112***		
	(5.66)	(7.09)	(2.16)	(-0.90)	(-3.71)	(-2.89)		
CUR	0.0221	0.001	-0.2146**	0.0007			0.0281*	0.0052
	(0.78)	(0.03)	(-2.25)	(0.13)			(1.77)	(0.76)
CASH	-0.6581	-1.1598**	0.2130	-0.0941	0.0098	0.0070	-2.1809***	-2.0044***
	(-0.81)	(-1.99)	(0.30)	(-0.30)	(1.29)	(0.98)	(-3.96)	(-5.40)
ARIN	-1.1901**	-1.1444***					-0.5616**	-0.5039**
	(-2.10)	(-2.91)					(-1.98)	(-2.12)
SOE	-0.0695	-0.2333*	-0.3546**	-0.1950*	-0.0036	-0.0027	0.2068*	-0.0021
	(-0.41)	(-1.86)	(-2.32)	(-1.94)	(-1.32)	(-1.25)	(1.87)	(-0.02)
BIG8	-0.1557	0.1418	0.0458	0.0771	0.0052	-0.0001	0.0776	0.1874*
	(-0.73)	(1.10)	(0.29)	(0.62)	(1.50)	(-0.04)	(0.52)	(1.79)
EXPT	-0.109	-0.1446			-0.0073**	0.0035	-0.1568	-0.4454***
	(-0.50)	(-0.87)			(-2.02)	(0.89)	(-1.22)	(-2.86)
BM	-1.6695***	-1.2522***			-0.0224***	-0.0289***	0.4803***	0.6486***
	(-2.74)	(-3.30)			(-4.43)	(-8.47)	(3.36)	(4.90)

ICW					-0.0344***	-0.0091		
					(-3.94)	(-1.57)		
MAO			0.5358**	0.2988*				
			(2.20)	(1.78)				
Intercept	5.3220***	5.5723***	-0.0770	-0.5476	-0.0281	-0.0330*	3.8463***	2.2229***
	(2.74)	(4.91)	(-0.06)	(-0.71)	(-1.25)	(-1.88)	(4.54)	(3.32)
N	2030	3488	2030	3488	1272	2032	2030	3488
Pseudo R^2	0.378	0.41	0.117	0.023	0.045	0.047	0.101	0.086

Note: See Appendix for definitions of variables. This table estimates the regressions by splitting the full sample into two subsamples based on legal environment. We classify firms into strong and weak legal environments using the legal environment development index constructed by Fan et al. (2010). They evaluate the level of provincial legal environment on four dimensions: development of intermediary markets (such as, attorneys, and CPAs), protection of producers, protection of intellectual property, and protection of consumers. ***, ** and * separately refer significance at 1% level, 5% level and 10% level, two tails. The regressions include both year and industry fixed effects, and standard errors are heteroscedasticity robust.

TABLE 8

The Effect of Organizational Form (Partnership VS. Limited Liability)

Dep.Var. =	Probit(*MAO* =1)		Probit(*FRAUD*=1)		*POSDA*		Probit(*SMEARN* =1)	
	Partnership	Limited Liability	Partnership	Limited Liability	Partnership	Limited Liability	Partnership	Limited Liability
DEEPPOC	**17.2996****	**1.3607*****	**-13.5248****	**-1.3454****	**-0.5120*****	**-0.0149**	**-2.3189**	**-1.1029****
	(2.05)	**(3.16)**	**(-2.08)**	**(-2.02)**	**(-5.13)**	**(-1.64)**	**(-0.47)**	**(-2.49)**
SIZE	-0.4736***	-0.4754***	-0.3311**	-0.0605	0.0035*	0.0077***	-0.3317***	-0.2458***
	(-2.71)	(-7.10)	(-2.24)	(-1.31)	(1.95)	(7.87)	(-3.49)	(-6.58)
LEV	1.7866***	1.1066***	0.1598***	-0.0957	0.0120	0.0084***	0.0082	-0.8062***
	(3.02)	(4.61)	(2.82)	(-1.11)	(1.62)	(4.75)	(0.07)	(-4.42)
ROE	0.2822	-0.0058	-0.0845	-0.0008	-0.0044***	-0.0002		
	(1.13)	(-1.05)	(-1.48)	(-0.14)	(-4.22)	(-0.81)		
LOSS	0.8175**	0.7249***	-0.0434	0.0992	-0.0144**	-0.0129***		
	(2.59)	(8.64)	(-0.13)	(-0.32)	(-2.42)	(-3.96)		
CUR	0.0484	0.0065	0.0169	-0.0151			0.0123	0.0082
	(1.55)	(0.42)	(0.78)	(-0.78)			(0.40)	(1.64)
CASH	-2.6275**	-0.7919	-1.2414*	-0.0992	0.0172*	0.0077	-2.5761***	-1.9247***
	(-2.23)	(-1.58)	(-1.72)	(-0.32)	(1.78)	(1.26)	(-3.69)	(-5.49)
ARIN	-2.1522***	-1.0983***					-1.1068**	-0.3672*
	(-3.36)	(-3.05)					(-2.19)	(-1.90)
SOE	-0.1372	-0.1832*	-0.2348	-0.2316***	-0.0058*	-0.0039**	-0.0033	0.0759
	(-0.50)	(-1.65)	(-1.12)	(-2.62)	(-1.77)	(-1.98)	(-0.02)	(1.01)
BIG8	-0.0751	0.0659	-0.0426	0.0080	0.0101***	-0.0031	-0.1225	0.2684***
	(-0.25)	(0.51)	(-0.18)	(0.07)	(3.08)	(-1.03)	(-0.64)	(2.75)
EXPT	-0.0890	-0.2028			-0.0019	0.0016	-0.1394	-0.3744***
	(-0.30)	(-1.33)			(-0.56)	(0.44)	(-0.78)	(-3.09)
BM	-4.2169***	-1.1720***			-0.0301***	-0.0260***	0.7777***	0.5545***
	(-3.38)	(-3.53)			(-6.20)	(-7.67)	(3.05)	(5.37)
ICW					-0.0031	-0.0152**		

					(-0.30)	(-2.54)		
MAO			0.3431	0.3934***				
			(0.93)	(2.62)				
Intercept	5.5289**	5.4270***	3.7398	-0.8645	0.0367	-0.0398***	3.9853***	2.7511***
	(1.99)	(5.31)	(1.63)	(-1.24)	(1.31)	(-2.63)	(2.73)	(4.81)
N	953	4565	953	4565	627	2677	953	4565
Pseudo R^2 R	0.570	0.395	0.124	0.032	0.156	0.080	0.130	0.087

Note: See Appendix for definitions of variables. This panel estimates the regressions by splitting the full sample into two subsamples based on audit firm structure. We classify firms into limited liability audit firms and partnership audit firms. ***, ** and * separately refer significance at 1% level, 5% level and 10% level, two tails. The regressions include both year and industry fixed effects, and standard errors are heteroscedasticity robust.

TABLE 9
Subsamples of Big 8 Clients

Dep.Var. =	Probit(*MAO* =1)	Probit(*FRAUD*=1)	*POSDA*	Probit(*SMEARN* =1)
DEEPPOC	**1.5032*** **	**-1.8388***	**-0.0250*** **	**-1.1221** **
	(3.47)	**(-1.86)**	**（-2.96）**	**（-2.74）**
SIZE	-0.7964***	-0.0641	0.0052***	-0.2396***
	(-3.84)	(-0.83)	（3.44）	（-3.86）
LEV	1.8358***	0.1364**	0.0210**	-0.2492
	(4.08)	(2.16)	（2.18）	（-1.15）
ROE	-0.0202***	0.0043	-0.0011	
	(-3.01)	(1.08)	（-0.54）	
LOSS	0.7410***	-0.1278	-0.0160**	
	(3.95)	(-0.44)	（-2.14）	
CUR	0.0863***	0.0097		0.0200
	(4.20)	(0.65)		（1.39）
CASH	-3.4462***	-0.3012	0.0122	-2.0428***
	(-2.78)	(-0.58)	（1.07）	（-2.95）
ARIN	-1.8898***			-0.3658
	(-3.32)			（-1.14）
SOE	-0.2254	-0.2878*	-0.0054*	-0.0894
	(-1.02)	(-1.88)	（-1.67）	（-0.65）
EXPT	-0.3292*		-0.0034	-0.3434***
	(-1.91)		（-1.01）	（-3.08）
BM	-0.8714		-0.0232***	0.7546***
	(-1.62)		（-5.75）	（4.74）
ICW			-0.0228***	
			（-2.73）	
MAO		0.4768		
		(1.52)		
Intercept	10.1782***	-0.8778	-0.0063	
	(3.24)	(-0.72)	（-0.27）	
N	1722	1722	983	1722
Pseudo R^2	0.513	0.072	0.049	0.102

Note: See Appendix for definitions of variables. This panel estimates the regressions by using a subsample of Big 8 clients. ***, ** and * separately refer significance at 1% level, 5% level and 10% level, two tails. The regressions include both year and industry fixed effects, and standard errors are heteroscedasticity robust.