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Jin, Q., Jin, Y., Tian, G. G., & Xuan, Y. (2021). Does Internal Corporate Governance Complement or Substitute for External Auditing? Evidence from China's Anti-corruption Campaign. *Abacus*, 57(1), 153-182.

which has been published in final form at:

DOI: <https://doi.org/10.1111/abac.12215>

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Does Internal Corporate Governance Complement or Substitute for External Auditing?

Evidence from China's Anti-corruption Campaign

(previously, Does Internal Corporate Governance Complement or Substitute for External Auditing? Evidence from the Recent Anti-corruption Campaign in China)

Abstract: Two competing hypotheses have been developed for the relationship between internal corporate governance and external auditing: one proposes they are complementary, while the other suggests they are substitutable. This study takes advantage of China's recent anti-corruption campaign as a quasi-natural experiment to explore this relationship. Using difference-in-differences approach, we find that, after the campaign, internal corporate governance improved more in SOEs (state-owned enterprises) than in non-SOEs. SOEs were less likely to choose Big 10 auditors after the campaign, while audit firms assigned less experienced auditors to their SOE client firms and charged lower audit fees. These effects were more pronounced in SOEs that exhibited greater improvement in corporate governance. Overall, we find the anti-corruption campaign improved corporate governance in SOEs but, at the same time, reduced external audit quality, which supports the substitution view. We argue that this result might be driven by the fact that SOEs have limited demand for high-quality accounting information because the Chinese government maintains strong control over the capital markets.

Keywords: Anti-corruption; Difference-in-differences; External auditing; Internal

governance; State-owned enterprises; Accounting quality.

This study investigates the relationship between internal corporate governance and external auditing in China, the world's largest emerging market. Two competing hypotheses have been developed for this relationship. Most previous findings are consistent with the complementary hypothesis (Carcello *et al.*, 2002; Abbott *et al.*, 2003; Lee *et al.*, 2004; Chen and Zhou, 2007; Cassell *et al.*, 2012; Srinidhi *et al.*, 2014), which suggests 'good' corporate governance characteristics are associated with measures of 'good' auditing.¹ The basic argument is that corporate governance alleviates the agency problem between managers and investors and thus leads firms to choose high-quality auditors (DeFond and Zhang, 2014). However, there is also a contrasting hypothesis: Griffin *et al.* (2008) find audit fees actually decline as governance increases because auditors reduce the price of risk to reflect the benefits of better governance.

It is noteworthy that most of the literature uses developed country settings, where financial markets play key roles in capital allocation. To obtain more funds and decrease financing costs, firms have strong incentives to promote their accounting quality through both internal governance and external auditing. In a transitional economy such as China, however, the government maintains strong control over capital markets (Wong, 2016). State-owned

¹ For instance, firms whose boards are more independent and have auditing committees are more likely to choose and retain high-quality auditors (Lee *et al.*, 2004; Chen and Zhou, 2007; Cassell *et al.*, 2012) and pay higher audit fees to compensate for the additional auditing work (Carcello *et al.*, 2002; Abbott *et al.*, 2003).

enterprises (SOEs) have natural political connections with the government and enjoy preferential access to capital markets. Therefore, they have less need for high-quality accounting information when they seek funds (Wang *et al.*, 2008; Chen *et al.*, 2010). Furthermore, SOEs have less incentive to provide higher-quality accounting information to avoid revealing underlying deficiencies. If the argument that SOEs have limited demand for high-quality accounting information holds, we could expect that internal governance and external auditing, two of the channels for improving information quality, would substitute for each other in SOEs. However, whether corporate governance complements or substitutes for external auditing in such institutions remains an open question.

In this study, we examine the effects of the recent anti-corruption campaign in China on internal corporate governance and external auditing. At the end of 2012, soon after Xi Jinping became the General Secretary of the Communist Party of China, he launched an extremely serious anti-corruption campaign. During this campaign, supervision by the Commission for Discipline Inspection (CDI) became increasingly stringent for SOEs (Fu, 2017). SOEs were motivated to improve their internal governance to reduce regulatory attention. Neither the central nor local CDI had direct power to monitor non-SOEs, so the campaign had little impact on their corporate governance. This cross-sectional variation allows us to apply the difference-in-differences method to identify the effects of the anti-corruption campaign on internal corporate governance and audit quality in SOEs.²

² The exogeneity of the shock is a key assumption when adopting the difference-in-differences approach. Although we perform some tests to validate this assumption, unfortunately, we are unable

Using a sample of A-share firms listed on Chinese stock markets, we measure corporate governance using principal components analysis and find the campaign improved the internal corporate governance of SOEs more than that of non-SOEs. We further find that, after the campaign, SOEs were more likely than non-SOEs to choose auditors other than the Big 10.³ Moreover, auditing firms were more likely to assign less experienced auditors to audit SOEs and charged lower audit fees than previously. These effects were more pronounced in the SOEs that experienced greater improvement in their internal corporate governance. We also find the quality of SOEs' accounting information and their probability of the receiving erroneous audit opinions did not change significantly after the anti-corruption campaign. These results suggest internal governance and external auditing are substitutable. Overall, we document that, because the Chinese government maintains strong control over capital markets, SOEs have limited demand for high-quality accounting information, and thus, improvements in corporate governance are associated with decreased external audit quality.

Our study contributes to several strands of the literature. First, our finding of a substitution relationship between corporate governance and audit quality in China extends the literature, which primarily investigates developed markets (Carcello *et al.*, 2002; Abbott *et al.*, 2003; Lee *et al.*, 2004; Chen and Zhou, 2007; Cassell *et al.*, 2012; Srinidhi *et al.*, 2014). Our findings

to fully eliminate concerns that the assumption may be violated. Consequently, our results should be interpreted with caution, especially when asserting causality between corporate governance and auditing.

³ Given that only 3.2% of the SOEs in our sample hire Big 4 auditors, we follow the auditing literature within the Chinese context (DeFond *et al.*, 2000; Wang *et al.*, 2008; Fang *et al.*, 2017) and identify the Big 10 auditing firms as high-quality auditors.

enrich understanding of the relationship between corporate governance and audit quality in a transitional economy.

Second, this study explores an important channel through which institutional environments influence audit quality and auditor choice. Unlike developed markets, the gradually changing institutional environments in developing economies can impact internal corporate governance, which indirectly affects auditor choice and audit quality. Therefore, our findings complement the literature on the relationships among institutions, internal corporate governance, and audit quality (Francis *et al.*, 2003; Fan and Wong, 2005; Choi and Wong, 2007; Francis and Wang, 2008).

Finally, this study characterises the influence of China's anti-corruption campaign from the perspective of auditing and thus enriches our knowledge about the economic consequences of anti-corruption (Dang *et al.*, 2015; Lin *et al.*, 2016; Ke *et al.*, 2016).

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

External Institutional Environment and Audit Quality

Audit quality depends on both the external institutional environment and internal corporate governance (Francis, 2011). Several studies examine the impact of external institutions on audit quality using a cross-country setting, and two competing conclusions have been formulated. Some studies document a positive correlation between the institutional environment and audit quality, finding that where a country's institutions are stronger, the audit quality of Big 4 firms is higher (Francis and Wang, 2008) and their market shares are larger

(Francis *et al.*, 2003). On the other hand, other studies find that when institutions fail to provide adequate legal protection for investors, firms with severe agency conflicts are more likely to secure high-quality auditing for investors. For instance, firms in weak legal environments tend to employ higher-quality auditing firms and are charged higher fees for auditing, which reflects the greater audit effort (Fan and Wong, 2005; Choi and Wong, 2007).

These studies, regardless of whether they support positive or negative correlations, directly examine how cross-sectional variations in a country's institutional environment impact audit quality. However, the influence of changes in internal corporate governance, which is shaped by transitions in the institutional environment, has not been fully studied. In fact, institutions and internal corporate governance constantly change in developing economies.⁴ Changes in institutional environments can impact internal corporate governance in such economies, which indirectly affects auditor choice and audit opinions.

Effects of the Anti-corruption Campaign on Internal Governance

During the decades of economic reform, the Chinese economy experienced high growth, becoming the world's second-largest economy. However, China's economy remains largely under the government's control and also suffers from high levels of corruption (Fan *et al.*,

⁴ Stable corporate governance assumptions might not apply to a developing economy for the following two reasons. First, unlike those in developed economies, market mechanisms and support institutions are not well established in developing economies. Various institutions, including regulatory details of corporate governance, are not yet developed. Second, shareholders and other stakeholders need time to discover which corporate governance mechanisms are effective. Both external institutions and internal factors continue to change, resulting in less stable corporate governance.

2008). At the end of 2012, Xi implemented his anti-corruption campaign, which resulted in the discovery of many corruption scandals involving numerous cadres, from general officials at the bottom to party secretaries and governors of provinces such as Sichuan and Shanxi at the top. This campaign has also affected SOEs: between 2013 and 2015, 204 SOE executives who had been involved in bribery have been forced to resign from their positions.⁵

During this campaign, the CDI took the main responsibility for monitoring corruption among party members (Fu, 2017). Central and local CDI officers dispatch inspectors to investigate SOEs and report to their superiors. In the meantime, SOEs often do not passively wait for a site visit from these disciplinary officers but may try to rectify and improve their governance before such a visit occurs. Because it is rather difficult to predict which firms will be targeted for inspection, most SOEs are motivated to improve their internal governance mechanisms, resulting in overall improvement in corporate governance following the anti-corruption campaign. The campaign had a weaker effect on non-SOEs than on their SOE counterparts, since neither the central nor local CDI had direct power to monitor non-SOEs. Consequently, the campaign's impact on corporate governance has been much stronger for SOEs than non-SOEs. This argument leads us to posit the following hypothesis:

⁵ According to 'The Risk of Corruption for Executives in SOEs', a report prepared by the Dibo Enterprise Risk Management Ltd Company (2015), of the 204 SOE executives arrested or placed under detention between 2013 and 2015, 4.9% and 73% were inspected and processed by central and local CDIs, 7.87% by the party secretary and disciplinary inspection committee of the company, 7.3% by the State-owned Assets Supervision and Administration Commission (SASAC), and the remaining 6.9% by disciplinary inspection and supervision officers.

H1: Relative to non-SOEs, internal corporate governance in SOEs improves significantly after Xi's anti-corruption campaign.

Effects of the Anti-corruption Campaign on Audit Quality

Literature based on the complementary hypothesis shows improvements in corporate governance enhance audit quality. This rests on the argument that corporate governance alleviates agency problems between managers and investors and thus allows firms to meet their demand for high audit quality, which benefits accounting quality (DeFond and Zhang 2014). Several studies provide supporting evidence for the complementary hypothesis. For instance, Carcello *et al.* (2002) find independent, diligent, and expert boards demand higher audit quality, which requires more audit work and results in higher audit fees. Chen and Zhou (2007) find that firms with better governance dismissed Arthur Andersen LLP more promptly following the scandal and were also more likely to choose one of the Big 4 to replace Andersen. Srinidhi *et al.* (2014) show family firms with strong governance are more likely to choose specialist auditors and exhibit higher earnings quality than non-family firms.

If the complementary hypothesis holds, we expect that improvement in the corporate governance of SOEs leads to better audit quality. Although a complementary relationship between internal governance and auditing quality may also exist in non-SOEs, the influence of anti-corruption on the internal governance of non-SOEs is much weaker, which enables us to use non-SOEs as the benchmark. Following this reasoning, SOEs would be more likely to employ Big 10 auditing firms than non-SOEs after the anti-corruption campaign, and the

auditing firm would assign more experienced auditors and charge higher auditing fees to reflect greater audit effort.

On the other hand, there is also a substitution hypothesis. Griffin *et al.* (2008) find audit fees decrease with governance because auditors reduce the price of risk to reflect the benefits of better governance. In an emerging market such as China, internal governance and external audit quality can be substituted for each other in SOEs for the following reasons. First, due to the economy's transitional features, the demand for high-quality accounting information is weaker in SOEs. Ultimately owned and controlled by the government, SOEs enjoy favourable treatment in capital markets. For example, state banks give preferential treatment to SOEs, granting more loans to SOEs due to political, social, or tax-motivated factors (Brant and Li, 2003). SOEs can also obtain more subsidies from local governments and thus boost their earnings above the regulatory threshold of rights offering (Chen *et al.*, 2008). As a consequence, the preferential treatment SOEs enjoy is likely to lower their demand for high-quality accounting information (Ding *et al.*, 2016; Chen *et al.*, 2010).

Meanwhile, the implicit government guarantee that SOEs enjoy also reduces investors' demand for high-quality accounting information. When these SOEs have financial problems, investors can look to the largest shareholder, the government, for a bailout, and the government has the incentive to provide such a bailout because layoffs might lead to civil unrest (Wang *et al.*, 2008).

Finally, because greater financial transparency may reveal a firm's underlying deficiencies, which may increase political costs, SOEs have less incentive to provide

accounting information that is higher than a certain quality standard. Even following the recent anti-corruption campaign, SOEs were still only required to comply with minimum regulatory standards, that is, to provide an annual audit report from the auditor they engage and ensure the quality of accounting information to a certain level.

Because the demand for high-quality accounting information has not improved since the anti-corruption campaign⁶, internal governance and external audit quality, the two channels for improving accounting quality, can substitute for each other. Given that corporate governance has improved since the beginning of the campaign, SOEs may have reduced their demand for high-quality auditing. Consequently, the probability that SOEs will choose one of the Big 10 auditors has decreased. The recent improvements in corporate governance lower the chance of financial reports being materially misstated, thus decreasing audit risk. Because audit risk is an important factor in audit effort (Simunic and Stein, 1996; Simunic, 1980), auditing firms will reduce their input because of the lower misstatement risk by assigning relatively less-experienced auditors to review such SOEs. This reduction in input will further result in lower audit fees (Bell *et al.*, 2001; Seetharaman *et al.*, 2002; Pan, 2008).⁷

⁶ We do not intend to imply high-quality accounting information is totally irrelevant in SOEs. High-quality accounting information may still benefit SOEs, but the magnitude of the effect is smaller in SOEs, especially during the anti-corruption period. Our argument rests on a weak assumption that the demand for high-quality accounting information did not increase during the anti-corruption campaign.

⁷ We believe there is room for SOE audit quality to decline after the anti-corruption campaign for two reasons. First, SOEs can improve their accounting quality by improving internal governance or by hiring a more reputable auditor. SOEs will trade-off the benefits and costs and make decisions according to their specific situations *ex ante*. Some SOEs may have resorted to external auditing to improve accounting quality before the anti-corruption. Second, the auditing firm also plays an

In light of this, after the recent anti-corruption campaign, SOEs are less likely than non-SOEs to hire one of the Big 10 auditors, and the auditing firms SOEs do hire tend to assign less-experienced auditors and charge lower audit fees. Because either or both of the two channels proposed above may dominate, and we are unable to distinguish *ex ante*, we therefore propose null hypotheses as follows:

H2: The difference between the probability that SOEs and non-SOEs hire a Big 10 auditor remains the same before and after Xi's anti-corruption campaign.

H3: The difference in the experience of auditors assigned to audit SOE clients and those assigned to non-SOE clients remains the same before and after Xi's anti-corruption campaign.

H4: The difference between audit fees for SOEs and non-SOEs remains the same before and after Xi's anti-corruption campaign.

Last, we propose a null hypothesis to test whether SOEs have improved their accounting quality since the campaign, relative to non-SOEs.

H5: The difference between the accounting quality of SOEs and non-SOEs remains the same before and after Xi's anti-corruption campaign.

RESEARCH DESIGN

important role in shaping audit quality. Before anti-corruption, auditing firms would input the audit effort necessary to reduce audit risk, which also contributed to audit quality. As a consequence, the audit quality of SOEs was not necessarily the lowest possible before the anti-corruption campaign, thus, leaving room for a decline in audit quality after the anti-corruption campaign.

For the following reasons, we choose a sample period between 2011 and 2014, which includes a two-year pre-anti-corruption period in 2011 and 2012, and a two-year post-anti-corruption period for our main regressions. First, the campaign was launched by Xi Jinping and his new government at the end of 2012, while audit fees are normally determined in the middle of a year. The audit fees for annual reports in 2012 were probably not affected by the anti-corruption campaign. Second, at the end of 2015, ‘Opinions on the Implementation of Full Coverage of Audit’ was introduced, calling for more comprehensive and in-depth audits of SOEs. This document would undoubtedly influence the auditing variables of SOEs, and thus we restricted our sample to data before 2015.

Our initial sample data were obtained from WIND and the Chinese Stock Market and Accounting Research database for all domestic shares listed on the Shanghai and Shenzhen stock exchanges. We restricted our sample to firms listed on the Main Board Market and the Small and Medium Enterprise Market⁸. We used the following steps to process our initial sample: we deleted financial companies, firms that also issue H or B shares, firms with negative net assets, firms with missing variables, and firms listed after the beginning of the anti-corruption campaign. This process produced 6,625 observations for the four-year period between 2011 and 2014. All continuous variables were winsorised at the 1% and 99% levels to

⁸ Firms listed on the Growth Enterprise Market (GEM) are very different from firms listed on the Main Board Market or Small and Medium Enterprise Market. Generally, firms on the GEM are smaller, less profitable, and subject to fewer regulations, and thus their incentives to hire high-quality auditors are weaker.

eliminate outlier effects. The t-statistics reported in this study were computed using standard errors clustered at the firm level and rectified for heteroscedasticity issues.

We establish Equation (1) to examine H1 and investigate whether corporate governance improves after the anti-corruption campaign:

$$CG = \alpha_0 + \alpha_1 Post + \alpha_2 SOE + \alpha_3 Post \times SOE + \beta Control + \varepsilon \quad (1)$$

Following Bai *et al.* (2005), we chose six factors to calculate a corporate governance index (*CG*), including CEO/chairman duality, the proportion of independent directors, ownership of executives, ownership of largest shareholder, concentration of shares among the second to tenth largest shareholders, and whether the firm has a parent firm.⁹ We then calculate a comprehensive index *CG* using principal components analysis. We find the sign for each factor is exactly the same as those found by Bai *et al.* (2004). A higher value for the variable *CG* indicates better corporate governance.

Post equals 1 if the sample falls during the anti-corruption campaign period (in 2013 and 2014) and 0 otherwise.¹⁰ *SOE* equals 1 if a firm's ultimate shareholder is the government (or any department in the government) and 0 otherwise. To control for the effect of political connections, we add *PC* (political connections, which equals 1 if the chairman or CEO is

⁹ Bai *et al.* (2005) use eight factors, but we only choose six of these. We exclude the cross-listing measure because we delete firms that also issue H and B shares to avoid the compounding effect of cross-listing in markets with different rules. We also exclude a measure describing whether the ultimate shareholder is the government to avoid this variable appearing on both sides of the regression.

¹⁰ As a robustness test, following Dang *et al.* (2015), we also add year fixed effects to our regression to control for the year effects of macroeconomic factors without the *Post* dummy.

politically connected and 0 otherwise), and $PC \times Post$ in the regression. We include the following lagged variables as control variables: CG (corporate governance index in year t-1), Lev (leverage ratio), $Sales$ (sales growth), RoA (return on assets), $Return$ (stock return), $Size$ (natural logarithm of total assets), $Loss$ (indicator for loss), $Big\ 10$ (Top 10 auditor), and industry dummies. The definitions of all variables are provided in the Appendix. A positive coefficient for $Post \times SOE$ would support H1.

We then use Equation (2) to examine H2 to H4 regarding the audit variables of SOEs following the anti-corruption campaign:

$$Audit_variable = \alpha_0 + \alpha_1 Post + \alpha_2 SOE + \alpha_3 Post \times SOE + \beta Control + \varepsilon \quad (2)$$

In Equation (2), $Audit_variable$ denotes the variables of auditing firm choice, auditor experience, and audit fee. $Big\ 10$ is an indicator for Big 10 auditors and equals 1 if the firm is audited by a Big 10 auditor and 0 otherwise.¹¹ The audit company rankings, which are based on total audited assets of the firm's listed clientele, are collected from the CICPA website. $Control$ denotes for the set of control variables¹². Following Lei *et al.* (2009), Wu *et al.* (2013), and Cahan and Sun (2015), we use the following control variables in our regression:

¹¹ During our sample period, there was only one merger and acquisition between two Big 10 accounting firms. Guofuhaohua and Zhongruiyunhua were merged into a new Big 10 accounting firm called Ruihua in 2013. Our results for the variable Big 10 are not driven by mergers and acquisitions. In addition, since the merger, the accounting firm Dahua, which was listed as number 11, became the 10th-largest accounting firm in China. Noting this, we remove all observations employing Dahua as their auditor, and our results still hold.

¹² To keep in accordance with the previous literature, the control variables are slightly different across three regressions with different dependent variables. Nevertheless, our results remain unchanged throughout H2 to H4 if we use the same set of control variables in these regressions.

PC (political connection), *PC×Post*, *Curratio* (current ratio), *Inv* (inventory ratio), *Rec* (receivables ratio), *Loss* (indicator for loss), *SP* (small profit), *Lev* (leverage ratio), *Roa* (return on assets), *Size* (natural logarithm of total assets), *Below* (items below-the-line), *Sales* (sales growth), and industry dummies.

Following Ke *et al.* (2015), signing auditors' experience is computed as the average relative experience of the two partners who sign the audit report. To measure auditor experience, we collected audit opinions and the identities of signing auditors from annual reports. We then cross-checked the identities of the signing auditors against the online enquiry system compiled by the CICPA. We manually input the auditors' full names into the enquiry system to obtain their demographic information and matched the search results to the audit firm and individual auditor data collected from companies' annual reports. For each signing partner, we count the number of years since the partner was certified. Following Ke *et al.* (2015), we construct the following measure: $REL_YEARS_{ijt} = (RANK_YEARS_{ijt} - 1) / (N_{jt} - 1) \times 100$, where $RANK_YEARS_{ijt}$ is partner i 's ranking in audit firm j at time t , and N_{jt} is the total number of partners in audit firm j at time t . We rank REL_YEARS_{ijt} in the reverse order of that used in Ke *et al.* (2015) to simplify interpretation; a higher value indicates partner i has relatively more experience. The control variables are similar to those in the regression on auditing firm choice, except we add *Big10* and a dummy variable *Switch*, denoting an auditing firm switch, to the control variable list.

We use *InFee* to represent audit fees incurred in the current year. This variable is calculated by taking the natural logarithm of the annual audit fee (in RMB) charged in China. Following

Simunic (1980), Simunic and Wu (2009), and Zhao and Zhou (2013), we use the following control variables: *PC*, *PC×Post*, *Big 10*, *Curratio*, *Inv*, *Rec*, *Loss*, *SP*, *Opinion* (receipt of a modified audit opinion), *Lev*, *Roa*, *Size*, *Below*, *Sales*, and industry dummies.

As for estimations using Equation (2), a positive coefficient for the interaction term between *Post* and *SOE* would support the complementary hypothesis, while a negative sign would suggest a substitution relationship instead.

We then set up Equation (3) to determine whether SOEs' accounting quality improves more than that of non-SOEs after the anti-corruption campaign:

$$Acc_quality = \alpha_0 + \alpha_1 Post + \alpha_2 SOE + \alpha_3 Post \times SOE + \beta Control + \varepsilon \quad (3)$$

We first use discretionary accruals to measure accounting information quality. Specifically, discretionary accruals are calculated using the modified Jones model (Dechow *et al.*, 1995), the DD model (Dechow and Dichev, 2002), the modified DD model (Ball and Shivvyakumar, 2005), and the nonlinear DD model (Francis *et al.*, 2005). Control variables are as follows: *PC*, *PC×Post*, *Big 10*, *Lev*, *Loss*, *SP*, *Roa*, *Sales*, *Size*, *Dual* (CEO duality), *Indboard* (proportion of independent directors), *Boardsize* (natural logarithm of the number of the directors), *Salary* (executive compensation), and industry dummies. A significantly positive coefficient for *Post×SOE* would mean the accounting quality of SOEs improved after the recent anti-corruption campaign, while a lack of significance would be consistent with the substitution argument assumption.

We measure accounting information quality using accounting conservatism and construct Equation (4) for our regression model:

$$\begin{aligned}
Earnings = & \alpha_0 + \alpha_1 Return + \alpha_2 Rd + \alpha_3 Post + \alpha_4 Return \times Rd + \alpha_5 Rd \times Post \\
& + \alpha_6 Return \times Post + \alpha_7 Return \times Rd \times Post + \beta Control + \varepsilon
\end{aligned}
\tag{4}$$

In this equation, the variable *Earnings* represents the earnings per share for firm *i* as a fraction of the price per share at the beginning of the year. *Return* stands for the annual stock return for firm *i* from May of year *t* to April of year *t+1*. *Rd*, a dummy variable, equals 1 if *Return* is negative and 0 otherwise. Basu (1997) suggests the coefficient for *Return*×*Rd* indicates accounting conservatism. We focus on the coefficient for *Return*×*Rd*×*Post*, which reflects the presence or absence of a systematic variation in accounting conservatism before and after the anti-corruption campaign.

EMPIRICAL RESULTS

Descriptive Statistics

Table 1 provides the summary statistics for our sample. There is a large variation in the corporate governance proxy across firms. The average value of *CG* is -0.036, and its standard deviation reaches 1.248. Of all the observations examined, 48.7% are SOEs, while the remaining 51.3% are non-SOEs. About 19.4% of the observations are politically connected. The audit variables provide the following information: 57.1% of companies hire a Big 10 auditing company (*Big 10*); the mean for *InFee* is 13.44 and its standard deviation is 0.537, while the average *Experience* value is 56.932. Table 1 also reports the mean values of variables both before and after the anti-corruption campaign. The corporate governance index, audit fee, and possibility of hiring a Big 10 auditing company all increased after the anti-corruption

campaign relative to the period before the campaign. We control the common trends of the dependent variables by including year fixed effects in the regression.

[Table 1 about here]

Table 2 reports the correlation coefficients and their statistical significance for the main variables. The Pearson (Spearman) correlations are reported below (above) the diagonal. In Panel A, the negative correlation between *SOEs* and *CG* is consistent with the fact that corporate governance is generally weaker in SOEs. In Panel B, audit fees are positively correlated with SOEs and political connections, and Big 10 auditing companies charge higher fees. Nevertheless, without controlling for other variables, the correlation coefficients in Table 2 only capture the correlations between pairs of variables. Therefore, we next conduct a multivariate analysis.

[Table 2 about here]

Regression Results: Corporate Governance and Auditing

The results of the regression that tests hypothesis H1 are shown in Table 3. In column 1, the significantly negative coefficient for *SOE* suggests that, before the recent anti-corruption campaign, SOEs had poorer internal corporate governance. The estimated coefficient for *Post*×*SOE* is 0.085, significant at the 1% level, indicating the corporate governance of SOEs was largely improved after the recent anti-corruption campaign, relative to that of non-SOEs. In column 2, where the *Post* dummy is replaced with year fixed effects, our results are similar to those in column 1. The significantly negative coefficient of the joint test on *SOE*+*Post*×*SOE*

indicates that even after the anti-corruption campaign, corporate governance in SOEs was still weaker than that in non-SOEs, although the gap decreased.

We also examine the effects of anti-corruption on separate factors of *CG*. The results in columns 3 and 4 document that, compared with non-SOEs, executive shareholdings (*Mgt_shr*) in SOEs increased after the anti-corruption campaign. This result suggests SOEs enhance their internal governance by improving managerial incentives. The implications of our finding are similar to those of Wang and Kong (2016), who find the anti-corruption campaign improves pay for performance sensitivity in SOEs. Moreover, the results in columns 5 and 6 show a decreased likelihood that listed SOEs act as subsidiaries of their parent firms (*Has_pf*) after the campaign. This finding suggests the organizational structure of SOEs was reshaped during anti-corruption. The separation of SOEs from their parent companies has improved their internal corporate governance. Overall, the results from Table 3 indicate that, after the campaign, SOEs' corporate governance showed significantly greater improvement than that of non-SOEs, confirming H1.

[Table 3 about here]

Table 4 reports the results of examining H2. The coefficient for the interaction term $Post \times SOE$ is significantly negative at the 5% level in column 1, suggesting SOEs became less likely to hire Big 10 auditing firms after the campaign relative to their non-SOE counterparts. This effect is also significant in an economic sense. The odds ratio of 0.840 found from the logistic model (not tabulated) indicates that, all other things being equal, after the campaign, the probability that SOEs would hire one of the Big 10 auditing firms declined by 16.0%. The

findings in column 2 are similar to those for column 1. The result of the joint test on $SOE+Post\times SOE$ suggests the probability of SOEs employing a Big 10 auditor was still lower than non-SOEs after the anti-corruption campaign.

[Table 4 about here]

The results of testing H3 appear in Table 5. The results in column 1 show the coefficient for the interaction term $Post\times SOE$ is significantly negative at the 10% level. This finding suggests that, after the campaign, auditing firms assigned less experienced auditors to audit SOEs. On average, after the campaign, the ranking of the experience of auditors assigned to audit SOEs declined by 1.567 percentage points, corresponding to a decrease of about 2.75%. We obtain similar results for columns 3 and 4 when we delete observations where auditing firms were switched. The joint test suggests that after the anti-corruption campaign, the experience of auditors assigned to SOEs was not significantly different from that of auditors assigned to non-SOEs.

[Table 5 about here]

Table 6 reports the results of testing H4. The coefficient for the interaction term $Post\times SOE$ is significantly negative at the 10% level in columns 1 and 2. This suggests that, after the campaign, audit fees for SOEs were more significantly reduced than those of non-SOEs. The significantly negative coefficient of the joint test indicates that after the anti-corruption campaign, SOEs still paid lower audit fee than non-SOEs.

The combined results of Tables 4–6 indicate that, although internal corporate governance improved after the recent anti-corruption campaign, SOEs are more likely to hire non-Big 10

auditing firms, and auditing firms tend to assign less-experienced auditors to SOEs, which results in reduced audit fees. These results suggest that, since the demand for higher-quality accounting information has not gone up in SOEs, internal governance and external audit quality may substitute for each other.

[Table 6 about here]

Regression Results: Accounting Quality

Table 7 reports the results for H5. The coefficients for all control variables are not reported to save space. From the results in Panels A to D, regardless of which proxy is used to measure accounting information quality, none of the coefficients for the interaction $Post \times SOE$ are significant, indicating that, after the campaign, SOEs' accounting information quality did not improve. Results in Panel E indicate the coefficients for the interaction term $Return \times Rd \times Post$ are not significant in both the SOE and non-SOE subsamples. The χ^2 statistics indicate no significant difference between SOEs and non-SOEs.

[Table 7 about here]

Overall, the results in Table 7 suggest that SOEs' accounting information quality did not change after the campaign. This result supports the underlying assumption of the substitution argument. Because SOEs enjoy preferential treatment in the capital market, their demand for high-quality accounting information is weak. Therefore, as their internal governance strengthens, SOEs maintain their quality of accounting information at the same level as before by lowering audit quality.

Examining the Validity of the Difference-in-differences Design

A key underlying assumption in utilising a difference-in-differences research design is that average changes in the dependent variable (internal governance and auditing) would have been the same for SOEs and non-SOEs, absent the anti-corruption campaign. We provide some evidence on the validity of this assumption by both parallel trending and falsification tests.

First, we perform a parallel trending test. Following instructions provided by Roberts and Whited (2013), we examine the response differences between the two groups each year after controlling for other variables,¹³ and illustrate our results in Figure 1¹⁴. The outcome variable in Panel A is corporate governance, and the figure suggests that right before the anti-corruption campaign, that is, in 2011 and 2012, there is no significant response difference between SOEs and non-SOEs. The coefficient becomes significantly positive in 2013, which suggests the trend is actually altered by the anti-corruption campaign, although the influence does not seem

¹³ Specifically, the variables used in the regressions are similar to those in our main results, except we replace $SOE \times Post$ with interaction items calculated using four dummies denoting each year multiplied by the treatment variable (SOE). Most research leaves one period as the benchmark because of the need to control for the effect of the treatment variable itself. To facilitate the parallel trend test, we add two additional years to the sample, specifically, 2009 and 2010. We use observations in year 2009 as the benchmark, run a regression, and then plot the coefficients for the interaction items in a graph. For robustness, we also drop observations in years 2009 and 2010, and perform the parallel trending test again. We find evidence supporting no pre-event trending.

¹⁴ For simplicity, we do not provide results of parallel trending or falsification tests for accounting quality. Both tests are aimed to exclude the existence of pre-event trends, while H5 is a null hypothesis and suffers less concern of such a problem. As for parallel trending, we follow the same protocol as before, and plot the coefficients for the interaction items in graphs with each of four different accounting quality measures. Most of the coefficients for the interaction items are non-significant, suggesting no pre-event trend. These graphs are not reported in our paper because of their limited information content but are available upon request. We do not provide a falsification test, because the premise of a pre-event trend cannot be refuted or confirmed by any pattern of this result.

persistent since the effect is muted in 2014. Generally, the pattern exhibited in Panel A lends moderate support for the parallel trending assumption of corporate governance.

In Panel B, it is noteworthy that the coefficient for SOE multiplied by the year dummy becomes negative in 2012, which suggests a confounding event that interacted with anti-corruption may have occurred, one that also acts on the choice of a Big 10 auditing firm. We rely on an additional test of the relationship between the improvement in internal governance and audit firm choice to exclude this confounding explanation. Panels C and D reveal similar patterns. All the coefficients for the interaction item, which is calculated as *SOE* multiplied by the dummy denoting each year, are nonsignificant before 2013, and became significantly negative after anti-corruption. Overall, these findings are basically consistent with the assumption, suggesting most of our findings were more likely attributable to the anti-corruption campaign rather than pre-event trends.

[Figure 1 about here]

To lend further confidence that our results are not driven by pre-event trends, we counterfactually assume that the onset of the campaign occurred one year before it actually did, and we estimate the equations again. As results reported in Table 8 suggest, all coefficients for interactions that we focus on here, apart from those for choice of Big 10 auditing firm, are either not significant or the coefficient sign is reversed. Hence, most of our results are more likely driven by the anti-corruption campaign rather than pre-event trends.

[Table 8 about here]

Two events that may act on auditing variables should be discussed. In September 2012, all audit firms were required to restructure as special general partnerships. Before the end of 2013, all audit firms that had permission to audit listed companies had completed the reform. This event had a certain overlap with anti-corruption. However, the reform increased auditor liability and thus promoted audit quality and audit fees (He *et al.*, 2017a), which could only produce bias against our hypothesis.

In addition, Chinese listed firms have been required to provide a mandatory management evaluation and an auditor's assessment of the effectiveness of their internal control since January 2012 as a result of the so-called China-SOX (Ji *et al.* 2015). This event may have urged firms to promote internal control, and the auditor choice and audit fee may also have been impacted. However, when we counterfactually change this event to 2011 in the falsification test, most of the results reported in Table 8 are inconsistent with our initial findings. It seems that the influence of China-SOX on our findings is modest at most.

ADDITIONAL TESTS

Are Changes in SOEs' Audit Quality and Fees Related to the Improvement in Their Internal Governance?

If the substitution hypothesis is supported, then SOEs that show greater improvement in their corporate governance after the campaign would be more likely to lower their audit quality. We then measure changes in governance with dCG , which is calculated as $CG_{t+1} - CG_t$ and examine whether changes in audit quality and fees are related to dCG .

[Table 9 about here]

Table 9 reports the regression results. In column 1, we retain only the observations where Big 10 auditors are hired in the current period. The coefficient for dCG is significantly negative, implying when corporate governance improves in SOEs, they are more likely to hire non-Big 10 auditing firms. In columns 2 and 3, we keep only the observations where there is no auditing firm switch, so that auditor experience and audit fees are more comparable before and after corporate governance changes. The significantly negative coefficients for dCG in columns 2 and 3 suggest auditing firms tend to assign less-experienced auditors to SOEs with more corporate governance improvement and charge lower fees. Overall, the findings from Table 9 provide additional evidence for a substitution relationship between internal governance and external audit quality.

Are the Audit Opinions of SOEs More Erroneous After the Anti-corruption Campaign?

To provide further evidence for the substitution view, we test whether SOEs' increased tendency to hire non-Big 10 auditing firms and less experienced auditors, along with lower audit fees, result in more auditing errors¹⁵. In the same spirit as Guan et al. (2015) and He et al. (2017b), we define Type I and II errors with reference to the Z score a company receives as an *ex ante* proxy and in terms of whether the firm restates its financial report for non-tax reasons as an *ex post* measure.

¹⁵ A low-quality auditor may issue a clean audit opinion when a modified opinion is warranted (Type I error) or issue a modified opinion when a clean opinion is appropriate (Type II error).

Untabulated results of multinomial logit models suggest none of the coefficients for $Post \times SOE$ are significant.¹⁶ These findings provide further support for the substitution argument: after the campaign, audit firms made the same reasonable judgements regarding their SOE client firms' financial reports and provided their relevant audit opinion, as before.

Do SOEs Lower Audit Quality to Reduce the Probability of Being Investigated?

High-quality auditors are more likely to reveal underlying deficiencies and issue modified audit opinions, which attracts regulatory scrutiny. During the anti-corruption campaign, SOEs may lower audit quality and improve internal governance simultaneously to reduce the probability of being investigated.

To exclude this alternative explanation, we examine whether SOEs with greater visibility are more likely to lower their audit quality and become less transparent. Following Bushee and Miller (2012), we measure SOEs' visibility by analyst following and media coverage. Untabulated results indicate the audit choice, auditor experience, and audit fee for SOEs with greater analyst followings or more media coverage are no different from those for less-visible SOEs. These results are inconsistent with the above alternative explanation.

Robustness Checks with Different Samples

To exclude the possibility that our results are simply the product of the given sample, we first drop observations that change from using Big 10 auditing firms to using other auditing firms and perform the tests again. We also run each of our primary analyses on a reduced

¹⁶ The details for the regression and untabulated results will be available upon request.

sample, composed of the fewest observations, to ensure they produce consistent results. With two exceptions of marginal insignificance, all results are consistent with our hypothesis.

CONCLUSION

Using a sample of firms listed as A-shares in Chinese stock markets between 2011 and 2014, we find the internal governance of SOEs improved after the recent anti-corruption. However, relative to non-SOEs, after the anti-corruption campaign, SOEs were more likely to choose non-Big 10 auditing firms, while audit firms tended to assign less experienced auditors to audit SOEs and charged lower audit fees than before. We argue this result might be driven by the fact that the demand for high-quality accounting information in SOEs has not improved because the Chinese government maintains strong control over the capital markets.

Overall, this study takes advantage of China's recent anti-corruption campaign as a quasi-natural experiment to explore the relationship between internal corporate governance and external auditing. Unlike the complementary relationships predominantly found in developed countries, our findings support the substitution hypothesis in a transitional economy and thus are an extension of the literature that suggests the complementary hypothesis. Nevertheless, our study is subject to several limitations, which also provide opportunities for future research. Although some evidence supports the validity of the difference-in-differences setting, our findings should be interpreted with caution. More empirical evidence is needed to identify a causal relationship between corporate governance and external auditing. Moreover, our focus on Chinese SOEs limits the generalizability of our conclusions. Firstly, our

conclusions rest on the premise that the government plays an active role in resource allocation, which means that the conclusion may not be necessarily applied to highly-marketized transitional economies. Secondly, even in this transitional economy with low marketization, since the demand for high-quality accounting information in non-SOEs may be quite different from that in SOEs, whether internal governance complementary or substitutable in non-SOEs remains an open question.

This study's findings help us better understand the economic outcomes of the anti-corruption campaign. We find the campaign resulted in improvements in SOEs' internal corporate governance and alleviated their agency conflicts of interest. However, SOEs are reluctant to disclose additional accounting information; as a result, even though internal governance was strengthened, the quality of accounting information SOE produced did not improve. Therefore, whether the goal of the anti-corruption campaign can be achieved and the accounting information quality in SOEs improved will depend largely on whether SOEs can be motivated to operate as real market players.

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TABLE 1

Summary Statistics

| <i>Panel A: Variables in internal governance regressions</i> | | | | | | |
|--|----------|--|-------------|---------------------------------------|---------------|------------------|
| <i>Variable</i> | <i>N</i> | <i>Mean</i> | <i>SD</i> | <i>P25</i> | <i>Median</i> | <i>P75</i> |
| <i>CG</i> | 6,073 | -0.036 | 1.248 | -0.887 | -0.563 | 0.423 |
| <i>SOE</i> | 6,073 | 0.487 | 0.500 | 0 | 0 | 1 |
| <i>PC</i> | 6,073 | 0.194 | 0.396 | 0 | 0 | 0 |
| <i>Post</i> | 6,073 | 0.548 | 0.498 | 0 | 1 | 1 |
| <i>Lev</i> | 6,073 | 0.464 | 0.212 | 0.302 | 0.472 | 0.627 |
| <i>Sales</i> | 6,073 | 0.235 | 0.607 | 0.001 | 0.135 | 0.300 |
| <i>Roa</i> | 6,073 | 0.066 | 0.082 | 0.021 | 0.051 | 0.094 |
| <i>Return</i> | 6,073 | 0.020 | 0.388 | -0.229 | -0.070 | 0.167 |
| <i>Size</i> | 6,073 | 21.870 | 1.135 | 21.060 | 21.750 | 22.580 |
| <i>Loss</i> | 6,073 | 0.0770 | 0.266 | 0 | 0 | 0 |
| <i>Big10</i> | 6,073 | 0.513 | 0.500 | 0 | 1 | 1 |
| <i>Variables</i> | <i>N</i> | <i>Before anti-corruption campaign</i> | <i>Mean</i> | <i>After anti-corruption campaign</i> | <i>Mean</i> | <i>Mean Diff</i> |
| <i>CG</i> | 6,073 | 2,744 | -0.149 | 3,329 | 0.057 | -0.206*** |
| <i>SOE</i> | 6,073 | 2,744 | 0.530 | 3,329 | 0.452 | 0.077*** |
| <i>PC</i> | 6,073 | 2,744 | 0.184 | 3,329 | 0.202 | -0.018* |
| <i>Lev</i> | 6,073 | 2,744 | 0.472 | 3,329 | 0.458 | 0.014*** |
| <i>Sales</i> | 6,073 | 2,744 | 0.312 | 3,329 | 0.172 | 0.140*** |
| <i>Roa</i> | 6,073 | 2,744 | 0.075 | 3,329 | 0.058 | 0.017*** |
| <i>Return</i> | 6,073 | 2,744 | -0.050 | 3,329 | 0.077 | -0.128*** |
| <i>Size</i> | 6,073 | 2,744 | 21.79 | 3,329 | 21.94 | -0.152*** |
| <i>Loss</i> | 6,073 | 2,744 | 0.063 | 3,329 | 0.088 | -0.025*** |
| <i>Big10</i> | 6,073 | 2,744 | 0.421 | 3,329 | 0.589 | -0.168*** |
| <i>Panel B: Variables in auditing regressions</i> | | | | | | |
| <i>Variable</i> | <i>N</i> | <i>Mean</i> | <i>SD</i> | <i>P25</i> | <i>Median</i> | <i>P75</i> |
| <i>lnFee</i> | 6,625 | 13.440 | 0.537 | 13.120 | 13.390 | 13.710 |
| <i>Big10</i> | 6,625 | 0.571 | 0.495 | 0 | 1 | 1 |
| <i>SOE</i> | 6,625 | 0.471 | 0.499 | 0 | 0 | 1 |
| <i>PC</i> | 6,625 | 0.202 | 0.401 | 0 | 0 | 0 |
| <i>Post</i> | 6,625 | 0.533 | 0.499 | 0 | 1 | 1 |
| <i>Curratio</i> | 6,625 | 2.234 | 2.460 | 1.023 | 1.505 | 2.377 |
| <i>Inv</i> | 6,625 | 0.122 | 0.126 | 0.025 | 0.085 | 0.175 |
| <i>Rec</i> | 6,625 | 0.207 | 0.206 | 0.080 | 0.152 | 0.248 |
| <i>Loss</i> | 6,625 | 0.096 | 0.295 | 0 | 0 | 0 |

| | | | | | | |
|-------------------|----------|---|-------------|--|-------------|------------------|
| <i>SP</i> | 6,625 | 0.091 | 0.288 | 0 | 0 | 0 |
| <i>Opinion</i> | 6,625 | 0.034 | 0.182 | 0 | 0 | 0 |
| <i>Lev</i> | 6,625 | 0.466 | 0.215 | 0.299 | 0.471 | 0.632 |
| <i>Roa</i> | 6,625 | 0.059 | 0.082 | 0.016 | 0.045 | 0.087 |
| <i>Size</i> | 6,625 | 21.970 | 1.155 | 21.170 | 21.850 | 22.690 |
| <i>Below</i> | 6,625 | 0.009 | 0.018 | 0.001 | 0.004 | 0.010 |
| <i>Experience</i> | 4,258 | 56.932 | 16.992 | 45.652 | 56.847 | 69.307 |
| <i>Variables</i> | <i>N</i> | <i>Before anti- corruption campaign</i> | <i>Mean</i> | <i>After anti- corruption campaign</i> | <i>Mean</i> | <i>Mean Diff</i> |
| <i>lnFee</i> | 6,625 | 3,094 | 13.380 | 3,531 | 13.500 | -0.123*** |
| <i>Big10</i> | 6,625 | 3,094 | 0.511 | 3,531 | 0.624 | -0.113*** |
| <i>SOE</i> | 6,625 | 3,094 | 0.494 | 3,531 | 0.451 | 0.043*** |
| <i>PC</i> | 6,625 | 3,094 | 0.197 | 3,531 | 0.206 | -0.00800 |
| <i>Curratio</i> | 6,625 | 3,094 | 2.317 | 3,531 | 2.162 | 0.155** |
| <i>Inv</i> | 6,625 | 3,094 | 0.116 | 3,531 | 0.126 | -0.010*** |
| <i>Rec</i> | 6,625 | 3,094 | 0.216 | 3,531 | 0.200 | 0.016*** |
| <i>Loss</i> | 6,625 | 3,094 | 0.085 | 3,531 | 0.105 | -0.020*** |
| <i>SP</i> | 6,625 | 3,094 | 0.082 | 3,531 | 0.100 | -0.018** |
| <i>Opinion</i> | 6,625 | 3,094 | 0.032 | 3,531 | 0.037 | -0.00500 |
| <i>Lev</i> | 6,625 | 3,094 | 0.467 | 3,531 | 0.465 | 0.00100 |
| <i>Roa</i> | 6,625 | 3,094 | 0.0660 | 3,531 | 0.053 | 0.013*** |
| <i>Size</i> | 6,625 | 3,094 | 21.880 | 3,531 | 22.060 | -0.179*** |
| <i>Below</i> | 6,625 | 3,094 | 0.0100 | 3,531 | 0.009 | 0.001*** |
| <i>Experience</i> | 4,258 | 2,644 | 56.894 | 1,614 | 56.994 | -0.100 |

TABLE 2 Correlation Coefficients for Main Variables

| <i>Panel A: Variables in internal governance regressions (N = 6,073)</i> | | | | | | | | | | |
|--|-----------|------------|-----------|------------|--------------|------------|---------------|-------------|-------------|--------------|
| | <i>CG</i> | <i>SOE</i> | <i>PC</i> | <i>Lev</i> | <i>Sales</i> | <i>Roa</i> | <i>Return</i> | <i>Size</i> | <i>Loss</i> | <i>Big10</i> |
| <i>CG</i> | 1 | -0.406*** | 0.228*** | -0.229*** | 0.028*** | 0.099*** | 0.053*** | -0.230*** | -0.030*** | 0.039*** |
| <i>SOE</i> | -0.403*** | 1 | -0.154*** | 0.266*** | -0.018 | -0.101*** | -0.080*** | 0.320*** | 0.025*** | -0.017 |
| <i>PC</i> | 0.217*** | -0.154*** | 1 | -0.065*** | 0.008 | 0.057*** | 0.011 | -0.014 | -0.032*** | 0.033*** |
| <i>Lev</i> | -0.266*** | 0.268*** | -0.064*** | 1 | 0.057*** | -0.364*** | -0.048*** | 0.471*** | 0.153*** | -0.03*** |
| <i>Sales</i> | -0.008 | -0.008 | -0.005 | 0.074*** | 1 | 0.350*** | 0.174*** | 0.090*** | -0.218*** | -0.027*** |
| <i>Roa</i> | 0.071*** | -0.074*** | 0.039*** | -0.290*** | 0.383*** | 1 | 0.163*** | 0.038*** | -0.461*** | 0.017 |
| <i>Return</i> | 0.064*** | -0.100*** | 0.019 | -0.054*** | 0.117*** | 0.153*** | 1 | -0.106*** | -0.102*** | 0.039*** |
| <i>Size</i> | -0.208*** | 0.324*** | -0.008 | 0.450*** | 0.048*** | 0.045*** | -0.119*** | 1 | -0.086*** | 0.079*** |
| <i>Loss</i> | -0.033*** | 0.025* | -0.032** | 0.158*** | -0.127*** | -0.431*** | -0.069*** | -0.089*** | 1 | -0.012 |
| <i>Big10</i> | 0.048*** | -0.017 | 0.033*** | -0.030** | -0.036*** | 0.002 | 0.053*** | 0.097*** | -0.012 | 1 |

| <i>Panel B: Variables in auditing regressions (N = 6,625)</i> | | | | | | | | | | | | |
|---|--------------|------------|-----------|--------------|-----------------|-------------|-----------|----------------|------------|------------|-------------|--------------|
| | <i>lnFee</i> | <i>SOE</i> | <i>PC</i> | <i>Big10</i> | <i>Curratio</i> | <i>Loss</i> | <i>SP</i> | <i>Opinion</i> | <i>Lev</i> | <i>Roa</i> | <i>Size</i> | <i>Below</i> |
| <i>lnFee</i> | 1 | 0.094*** | 0.043*** | 0.135*** | -0.200*** | -0.051*** | -0.007 | -0.030** | 0.286*** | 0.047*** | 0.647*** | -0.032** |
| <i>SOE</i> | 0.118*** | 1 | -0.146*** | -0.040*** | -0.283*** | 0.045*** | 0.061*** | -0.007 | 0.258*** | -0.109*** | 0.316*** | -0.034*** |
| <i>PC</i> | 0.042*** | -0.146*** | 1 | 0.019 | 0.074*** | -0.036*** | -0.012 | -0.012 | -0.068* | 0.052*** | -0.012 | 0.005 |
| <i>Big10</i> | 0.135*** | -0.040*** | 0.019 | 1 | 0.051*** | -0.017 | -0.030* | -0.034*** | -0.042*** | 0.034*** | 0.058*** | 0.012 |
| <i>Curratio</i> | -0.197*** | -0.225*** | 0.026** | 0.024* | 1 | -0.202*** | -0.169*** | -0.116*** | -0.746*** | 0.362*** | -0.314*** | 0.035*** |
| <i>Loss</i> | -0.051*** | 0.045*** | -0.034*** | -0.0170 | -0.102*** | 1 | -0.103*** | 0.203*** | 0.174*** | -0.510*** | -0.087*** | -0.109*** |
| <i>SP</i> | -0.010 | 0.061*** | -0.012 | -0.030** | -0.093*** | -0.103*** | 1 | 0.069*** | 0.144*** | -0.394*** | 0.015 | 0.041*** |
| <i>Opinion</i> | -0.026** | -0.007 | -0.012 | -0.034*** | -0.054*** | 0.203*** | 0.069*** | 1 | 0.105*** | -0.170*** | -0.098*** | 0.018 |

| | | | | | | | | | | | | |
|--------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <i>Lev</i> | 0.287*** | 0.259*** | -0.067*** | -0.041*** | -0.626*** | 0.179*** | 0.143*** | 0.113*** | 1 | -0.373*** | 0.470*** | -0.087*** |
| <i>Roa</i> | 0.050*** | -0.081*** | 0.033*** | 0.026** | 0.177*** | -0.466*** | -0.208*** | -0.145*** | -0.293*** | 1 | 0.040*** | 0.090*** |
| <i>Size</i> | 0.684*** | 0.318*** | -0.008 | 0.073*** | -0.263*** | -0.089*** | 0.016 | -0.117*** | 0.450*** | 0.049*** | 1 | -0.128*** |
| <i>Below</i> | -0.064*** | -0.008 | 0.002 | -0.044*** | -0.013 | -0.085*** | 0.029** | 0.123*** | 0.014 | 0.247*** | -0.151*** | 1 |

Note: The Pearson (Spearman) correlations are reported below (above) the diagonal. *, **, and *** indicate the coefficients are significant at the 10%, 5%, and 1% levels, respectively.

TABLE 3

Effects of the Anti-corruption Campaign on Internal Corporate Governance

| | (1) | (2) | (3) | (4) | (5) | (6) |
|------------------------------|----------------------------------|----------------------------------|--------------------------------|--------------------------------|-----------------------------------|-----------------------------------|
| | <i>OLS</i> | <i>OLS</i> | <i>OLS</i> | <i>OLS</i> | <i>Logit</i> | <i>Logit</i> |
| | <i>CG</i> | <i>CG</i> | <i>Mgt_shr</i> | <i>Mgt_shr</i> | <i>Has_pf</i> | <i>Has_pf</i> |
| <i>Constant</i> | 0.443*** (2.89) | 0.310** (2.04) | -0.001 (-0.08) | -0.005 (-0.56) | -2.489 (-1.61) | -0.962 (-0.61) |
| <i>Post</i> | -0.077*** (-2.62) | | -0.005** (-2.23) | | 0.069 (0.42) | |
| <i>SOE</i> | -0.176*** (-7.61) | -0.173*** (-7.55) | -0.010*** (-5.06) | -0.009*** (-4.94) | 1.329*** (6.21) | 1.365*** (6.38) |
| <i>Post×SOE</i> | 0.085*** (2.75) | 0.085*** (2.75) | 0.004* (1.91) | 0.004* (1.83) | -0.468** (-2.01) | -0.515** (-2.11) |
| <i>PC</i> | 0.142*** (4.25) | 0.139*** (4.15) | 0.004 (1.55) | 0.004 (1.49) | -0.454** (-2.21) | -0.434** (-2.07) |
| <i>Post×PC</i> | -0.052 (-1.16) | -0.050 (-1.11) | 0.001 (0.37) | 0.001 (0.44) | 0.473* (1.90) | 0.465* (1.75) |
| <i>Lev</i> | -0.068 (-1.36) | -0.075 (-1.51) | -0.009** (-2.41) | -0.009** (-2.29) | 1.188*** (3.25) | 1.168*** (3.18) |
| <i>Sales</i> | 0.002 (0.17) | 0.003 (0.26) | -0.001 (-0.96) | -0.001 (-0.89) | 0.097 (0.73) | 0.039 (0.34) |
| <i>Roa</i> | 0.005 (0.04) | -0.062 (-0.50) | 0.004 (0.41) | 0.002 (0.24) | -0.197 (-0.21) | 0.385 (0.42) |
| <i>Return</i> | -0.039 (-1.28) | 0.028 (0.86) | 0.004 (1.40) | 0.007** (2.34) | 0.833*** (4.24) | 0.160 (0.85) |
| <i>Size</i> | -0.019** (-2.56) | -0.016** (-2.11) | 0.001 (1.16) | 0.001 (1.04) | 0.122* (1.79) | 0.086 (1.25) |
| <i>Loss</i> | 0.030 (0.85) | 0.029 (0.82) | 0.005* (1.92) | 0.004* (1.84) | 0.083 (0.35) | 0.079 (0.32) |
| <i>Big10</i> | -0.001 (-0.09) | -0.003 (-0.19) | -0.000 (-0.37) | -0.001 (-0.65) | -0.144 (-1.26) | -0.137 (-1.17) |
| <i>CG_{t-1}</i> | 0.816*** (73.64) | 0.816*** (73.74) | | | | |
| <i>Mgt_shr_{t-1}</i> | | | 0.853*** (55.73) | 0.853*** (55.84) | | |
| <i>Has_pf_{t-1}</i> | | | | | 3.452*** (19.91) | 3.719*** (19.54) |
| <i>SOE+</i> | -0.091*** | -0.071*** | -0.006*** | -0.005*** | 0.861*** | 0.850*** |
| <i>Post×SOE</i> | | | | | | |

| | | | | | | |
|---------------------------------|---------|---------|---------|---------|---------|---------|
| | [19.05] | [17.88] | [17.45] | [15.72] | [24.89] | [22.29] |
| <i>Industry</i> | Yes | Yes | Yes | Yes | Yes | Yes |
| <i>Year</i> | No | Yes | No | Yes | No | Yes |
| <i>N</i> | 6,073 | 6,073 | 6,073 | 6,073 | 6,073 | 6,073 |
| <i>Adj/Pseudo R²</i> | 0.752 | 0.754 | 0.805 | 0.806 | 0.3624 | 0.3877 |

Note: The t-statistics are shown in parentheses and are computed using robust standard errors, clustered

by firm. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

TABLE 4

Effects of the Anti-corruption Campaign on Choice of Big 10 Auditing Firm

| | (1) <i>Logit</i> <i>Big10</i> | (2) <i>Logit</i> <i>Big10</i> |
|------------------------|-------------------------------------|-------------------------------------|
| <i>Constant</i> | -4.271*** (-4.11) | -3.586*** (-3.39) |
| <i>Post</i> | 0.535*** (9.92) | |
| <i>SOE</i> | -0.067 (-0.66) | -0.031 (-0.30) |
| <i>Post×SOE</i> | -0.175** (-2.47) | -0.205*** (-2.87) |
| <i>PC</i> | 0.132 (1.15) | 0.133 (1.14) |
| <i>Post×PC</i> | -0.147 (-1.59) | -0.146 (-1.57) |
| <i>Curratio</i> | -0.004 (-0.22) | -0.003 (-0.16) |
| <i>Inv</i> | 0.524 (1.30) | 0.467 (1.15) |
| <i>Rec</i> | -0.142 (-0.50) | -0.113 (-0.40) |
| <i>Loss</i> | 0.052 (0.43) | 0.051 (0.42) |
| <i>SP</i> | -0.152 (-1.34) | -0.158 (-1.39) |
| <i>Lev</i> | -0.580* (-1.88) | -0.534* (-1.72) |
| <i>Roa</i> | 0.892 (1.41) | 1.064* (1.68) |
| <i>Size</i> | 0.186*** (4.01) | 0.177*** (3.78) |
| <i>Below</i> | -3.370 (-1.62) | -3.715* (-1.75) |
| <i>Sales</i> | -0.163*** (-3.10) | -0.150*** (-2.87) |
| <i>SOE+ Post×SOE</i> | -0.242** [4.92] | -0.236** [4.64] |

| | | |
|-----------------------------|-------|-------|
| <i>Industry dummy</i> | Yes | Yes |
| <i>Year fixed effect</i> | No | Yes |
| <i>N</i> | 6,625 | 6,625 |
| <i>Pseudo R²</i> | 0.030 | 0.035 |

Note: The t-statistics are shown in parentheses and computed using robust standard errors, clustered by firm. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

TABLE 5

Effects of the Anti-corruption Campaign on Auditors' Experience

| | (1) | (2) | (3) | (4) |
|------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| | <i>OLS</i> | <i>OLS</i> | <i>OLS</i> | <i>OLS</i> |
| | <i>Experience</i> | <i>Experience</i> | <i>Experience</i> | <i>Experience</i> |
| <i>Constant</i> | 53.119*** (6.37) | 54.083*** (6.45) | 51.507*** (5.64) | 53.918*** (5.88) |
| <i>Post</i> | 1.162* (1.77) | | 1.391* (1.78) | |
| <i>SOE</i> | 2.130** (2.47) | 2.206** (2.55) | 1.910** (2.01) | 2.043** (2.15) |
| <i>Post×SOE</i> | -1.567* (-1.79) | -1.627* (-1.86) | -1.805* (-1.67) | -1.903* (-1.76) |
| <i>PC</i> | 0.765 (0.78) | 0.764 (0.78) | 1.219 (1.19) | 1.205 (1.17) |
| <i>Post×PC</i> | -1.129 (-1.04) | -1.127 (-1.04) | -0.830 (-0.67) | -0.804 (-0.64) |
| <i>Big10</i> | 0.188 (0.28) | 0.106 (0.16) | 0.724 (0.96) | 0.605 (0.80) |
| <i>Curratio</i> | 0.062 (0.37) | 0.065 (0.39) | 0.140 (0.77) | 0.144 (0.79) |
| <i>Inv</i> | -4.378 (-1.31) | -4.537 (-1.36) | -3.666 (-0.95) | -3.810 (-0.98) |
| <i>Rec</i> | -5.055** (-2.18) | -4.964** (-2.14) | -6.539** (-2.43) | -6.345** (-2.36) |
| <i>Loss</i> | -1.774 (-1.56) | -1.809 (-1.59) | -1.270 (-1.01) | -1.344 (-1.07) |
| <i>SP</i> | 0.077 (0.07) | 0.045 (0.04) | -0.109 (-0.09) | -0.174 (-0.14) |
| <i>Lev</i> | 0.999 (0.39) | 1.143 (0.45) | 0.997 (0.35) | 1.263 (0.44) |
| <i>Roa</i> | 1.461 (0.27) | 1.914 (0.35) | 0.693 (0.11) | 1.456 (0.22) |
| <i>Size</i> | 0.420 (1.09) | 0.394 (1.02) | 0.428 (1.02) | 0.377 (0.89) |
| <i>Below</i> | 19.874 (1.13) | 18.832 (1.07) | 18.629 (0.84) | 16.931 (0.76) |
| <i>Sales</i> | 0.645 (1.15) | 0.670 (1.19) | 1.010 (1.57) | 1.057* (1.65) |

| | | | | |
|--------------------------|-------------------|-------------------|-----------------|-----------------|
| <i>Switch</i> | -1.259 (-0.54) | -1.289 (-0.56) | | |
| <i>SOE+ Post×SOE</i> | 0.563 [0.38] | 0.579 [0.40] | 0.105 [0.01] | 0.140 [0.02] |
| <i>Industry</i> | Yes | Yes | Yes | Yes |
| <i>Year</i> | No | Yes | No | Yes |
| <i>N</i> | 4,258 | 4,258 | 3,244 | 3,244 |
| <i>Adj_R²</i> | 0.008 | 0.009 | 0.005 | 0.007 |

Note: The t-statistics are given in parentheses and computed using robust standard errors, clustered by firm. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Because no information on auditor experience is available for 2014, the sample for this table only covers the period from 2011 to 2013 and is smaller than the period used for other tables.

TABLE 6

Effects of Anti-corruption Campaign on Audit Fees

| | (1) <i>OLS</i> <i>lnFee</i> | (2) <i>OLS</i> <i>lnFee</i> |
|-----------------|-----------------------------------|-----------------------------------|
| <i>Constant</i> | 5.872*** (26.49) | 5.948*** (26.41) |
| <i>Post</i> | 0.053*** (5.40) | |
| <i>SOE</i> | -0.097*** (-5.02) | -0.095*** (-4.90) |
| <i>Post×SOE</i> | -0.022* (-1.92) | -0.024** (-2.06) |
| <i>PC</i> | 0.040* (1.85) | 0.040* (1.85) |
| <i>Post×PC</i> | -0.007 (-0.39) | -0.006 (-0.37) |
| <i>Big10</i> | 0.084*** (5.33) | 0.083*** (5.19) |
| <i>Curratio</i> | -0.011*** (-3.08) | -0.011*** (-3.05) |
| <i>Inv</i> | 0.077 (1.05) | 0.072 (0.98) |
| <i>Rec</i> | -0.117** (-2.20) | -0.115** (-2.16) |
| <i>Loss</i> | 0.019 (0.86) | 0.019 (0.83) |
| <i>SP</i> | -0.028 (-1.32) | -0.029 (-1.36) |
| <i>Opinion</i> | 0.154*** (4.11) | 0.154*** (4.12) |
| <i>Lev</i> | -0.083 (-1.43) | -0.080 (-1.36) |
| <i>Roa</i> | -0.076 (-0.59) | -0.067 (-0.51) |
| <i>Size</i> | 0.352*** (34.54) | 0.351*** (34.26) |
| <i>Below</i> | 1.115*** (3.36) | 1.100*** (3.31) |

| | | |
|---------------------------|----------------------|----------------------|
| <i>Sales</i> | 0.012 (1.25) | 0.013 (1.33) |
| <i>SOE+ Post×SOE</i> | -0.119*** [37.01] | -0.119*** [36.62] |
| <i>Industry dummy</i> | Yes | Yes |
| <i>Year fixed effect</i> | No | Yes |
| <i>N</i> | 6,625 | 6,625 |
| <i>Adj_ R²</i> | 0.514 | 0.514 |

Note: The t-statistics are shown in parentheses and computed using robust standard errors,

clustered by firm. *, **, and *** indicate significance at 10%, 5%, and 1% levels, respectively.

TABLE 7

Effects of Anti-corruption Campaign on Quality of Accounting Information

| | (1) | (2) |
|---------------------------------------|----------------------|----------------------|
| <i>Panel A: Modified Jones model</i> | | |
| | <i>ABS(DA_Jones)</i> | <i>ABS(DA_Jones)</i> |
| <i>Post</i> | -0.123 (-0.52) | |
| <i>SOE</i> | -0.739*** (-2.96) | -0.787*** (-3.13) |
| <i>Post</i> × <i>SOE</i> | 0.231 (0.79) | 0.277 (0.94) |
| <i>SOE</i> + <i>Post</i> × <i>SOE</i> | -0.508** [3.98] | -0.510** [4.02] |
| <i>N</i> | 6427 | 6427 |
| <i>Adj_R</i> ² | 0.110 | 0.111 |
| <i>Panel B: DD model</i> | | |
| | <i>ABS(DA_DD)</i> | <i>ABS(DA_DD)</i> |
| <i>Post</i> | -0.054 (-0.52) | |
| <i>SOE</i> | -0.102 (-0.93) | -0.121 (-1.11) |
| <i>Post</i> × <i>SOE</i> | 0.028 (0.21) | 0.045 (0.34) |
| <i>SOE</i> + <i>Post</i> × <i>SOE</i> | -0.074 [0.34] | -0.076 [0.35] |
| <i>N</i> | 4707 | 4707 |
| <i>Adj_R</i> ² | 0.315 | 0.316 |
| <i>Panel C: Non-linearDD model</i> | | |
| | <i>ABS(DA_DD)</i> | <i>ABS(DA_DD)</i> |
| <i>Post</i> | -0.058 (-0.56) | |
| <i>SOE</i> | -0.105 (-0.97) | -0.122 (-1.13) |
| <i>Post</i> × <i>SOE</i> | 0.020 (0.15) | 0.036 (0.27) |
| <i>SOE</i> + <i>Post</i> × <i>SOE</i> | -0.085 [0.44] | -0.086 [0.46] |
| <i>N</i> | 4754 | 4754 |
| <i>Adj_R</i> ² | 0.309 | 0.310 |

| <i>Panel D: Modified DD model</i> | | |
|---|----------------------|----------------------|
| | <i>ABS(DA_DD)</i> | <i>ABS(DA_DD)</i> |
| <i>Post</i> | -0.043 (-0.41) | |
| <i>SOE</i> | -0.126 (-1.14) | -0.143 (-1.29) |
| <i>Post</i> × <i>SOE</i> | 0.038 (0.28) | 0.053 (0.40) |
| <i>SOE</i> + <i>Post</i> × <i>SOE</i> | -0.088 [0.46] | -0.090 [0.47] |
| <i>N</i> | 4754 | 4754 |
| <i>Adj_R</i> ² | 0.319 | 0.320 |
| <i>Panel E: Timely loss recognition</i> | | |
| | <i>SOE Earnings</i> | <i>NSOE Earnings</i> |
| <i>Constant</i> | 0.047*** (4.68) | 0.027*** (4.01) |
| <i>Return</i> | -0.001 (-0.11) | 0.025*** (3.94) |
| <i>Rd</i> | -0.009** (-1.97) | 0.006* (1.75) |
| <i>Post</i> | -0.019*** (-4.59) | -0.001 (-0.41) |
| <i>Return</i> × <i>Rd</i> | 0.075*** (4.93) | 0.038*** (3.71) |
| <i>Rd</i> × <i>Post</i> | 0.018** (2.48) | -0.005 (-1.10) |
| <i>Return</i> × <i>Post</i> | -0.001 (-0.06) | -0.025*** (-3.79) |
| <i>Return</i> × <i>Rd</i> × <i>Post</i> | 0.026 (0.94) | -0.006 (-0.28) |
| <i>Industry dummy</i> | Yes | Yes |
| <i>N</i> | 3112 | 3309 |
| <i>Adj.R2</i> | 0.140 | 0.071 |
| χ^2 | 0.032 | [0.85] |

Note: The t-statistics are given in parentheses and computed using robust standard errors, clustered by firm. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

To save space, we do not report the results for control variables.

TABLE 8
Results of Falsification

| | (1) | (2) |
|----------------------------|----------------------|----------------------|
| <i>Panel A: Comp_CG</i> | | |
| <i>Post</i> | 0.109*** (3.39) | |
| <i>SOE</i> | -0.033 (-1.16) | -0.038 (-1.33) |
| <i>Post</i> × <i>SOE</i> | -0.117*** (-3.45) | -0.114*** (-3.37) |
| <i>N</i> | 6073 | 6073 |
| <i>Adj_R</i> ² | 0.752 | 0.754 |
| <i>Panel B: Big10</i> | | |
| <i>Post</i> | 0.798*** (10.34) | |
| <i>SOE</i> | 0.116 (0.98) | 0.132 (1.11) |
| <i>Post</i> × <i>SOE</i> | -0.333*** (-3.38) | -0.345*** (-3.50) |
| <i>N</i> | 6625 | 6625 |
| <i>Adj_R</i> ² | 0.034 | 0.036 |
| <i>Panel C: Experience</i> | | |
| <i>Post</i> | 2.366*** (2.74) | |
| <i>SOE</i> | 2.462** (2.00) | 2.454** (1.99) |
| <i>Post</i> × <i>SOE</i> | -1.519 (-1.27) | -1.514 (-1.27) |
| <i>N</i> | 3244 | 3244 |
| <i>Adj_R</i> ² | 0.007 | 0.006 |
| <i>Panel D: lnFee</i> | | |
| <i>Post</i> | 0.052*** (4.59) | |
| <i>SOE</i> | -0.095*** (-4.56) | -0.093*** (-4.44) |
| <i>Post</i> × <i>SOE</i> | -0.017 (-1.20) | -0.019 (-1.31) |
| <i>N</i> | 6625 | 6625 |
| <i>Adj_R</i> ² | 0.513 | 0.514 |

Note: The t-statistics are given in parentheses and computed using robust standard errors, clustered by firm. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. To save space, we do not report the regression coefficients for the control variables.

TABLE 9

Effects of Corporate Governance Improvements on Audit Inputs

| | (1) <i>Logit</i> <i>Big10</i> | (2) <i>OLS</i> <i>Change of</i> <i>Experience</i> | (3) <i>OLS</i> <i>Change of</i> <i>lnFee</i> |
|---------------------------------|-------------------------------------|--|---|
| <i>Constant</i> | 1.919 (0.73) | -6.376 (-0.89) | -3.439 (-0.29) |
| <i>dCG</i> | -0.072* (-1.70) | -0.205** (-2.20) | -0.294* (-1.65) |
| <i>PC</i> | -0.033 (-0.08) | -0.753 (-0.91) | 0.623 (0.45) |
| <i>Curratio</i> | -0.072 (-0.58) | -0.112 (-0.42) | 0.513 (1.49) |
| <i>Inv</i> | 0.102 (0.08) | 2.734 (1.02) | -5.956 (-0.95) |
| <i>Rec</i> | -2.207** (-2.47) | 2.439 (1.43) | 2.968 (0.73) |
| <i>Loss</i> | -0.206 (-0.40) | -1.276 (-0.95) | 5.974*** (2.68) |
| <i>SP</i> | 0.225 (0.47) | -0.144 (-0.13) | 2.706 (1.42) |
| <i>Lev</i> | -1.914* (-1.79) | -2.124 (-0.91) | 1.702 (0.47) |
| <i>Roa</i> | 2.402 (0.93) | 2.075 (0.46) | 27.859*** (3.02) |
| <i>Size</i> | 0.176 (1.40) | 0.653** (2.12) | 0.008 (0.02) |
| <i>Below</i> | 8.771 (0.71) | 27.463* (1.94) | -34.745 (-0.91) |
| <i>Sales</i> | -0.197 (-0.70) | 0.768 (1.37) | -0.015 (-0.01) |
| <i>Opinion</i> | | 1.980 (1.26) | |
| <i>Industry dummy</i> | Yes | Yes | Yes |
| <i>Year fixed effect</i> | Yes | Yes | Yes |
| <i>N</i> | 1427 | 933 | 1044 |
| <i>Pseudo/Adj R²</i> | 0.123 | 0.053 | 0.029 |

Note: The t-statistics are given in parentheses and computed using robust standard errors clustered by firm. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Figure Captions

Figure 1 Parallel Trending of Dependent Variables

Appendix

Definition of Variables

| Variables | Definition |
|--------------------|---|
| <i>CG</i> | Corporate governance index. Following Bai <i>et al.</i> (2014), one principal component is extracted from six measures using principal components analysis. |
| <i>Big10</i> | Indicator for engaging a Big 10 auditing firm; equals 1 if the firm is audited by a Big 10 auditing firm. |
| <i>Experience</i> | Experience of signing auditors. Computed as the average relative experience of the two partners who sign the given audit report. The measurement for audit experience follows Ke <i>et al.</i> (2015). |
| <i>lnFee</i> | The natural logarithm of annual audit fee (in RMB). |
| <i>Acc_quality</i> | Discretionary accruals are calculated using the modified Jones model (Dechow <i>et al.</i> , 1995), the DD model (Dechow and Dichev, 2002), the modified DD model (Ball and Shivvyakumar, 2005), and the nonlinear DD model (Francis <i>et al.</i> , 2005). |
| <i>SOE</i> | Indicator for SOE; equals 1 if the firm's ultimate shareholder is the government (or any department in the government) and 0 otherwise. |
| <i>Post</i> | Indicator for anti-corruption event; equals 1 if the sample is in the period of the anti-corruption campaign (in 2013 or 2014) and 0 otherwise. |
| <i>dCG</i> | The change in corporate governance. Calculated as $dCG = CG_{t+1} - CG_t$. |
| <i>Below</i> | Below-the-line item divided by total assets at the beginning of the year. |
| <i>Boardsize</i> | The size of the board, computed as the natural logarithm of total number of directors. |
| <i>Curratio</i> | Current ratio, computed as current assets divided by current liabilities at the end of the year. |
| <i>Dual</i> | Indicator for CEO duality; equals 1 if the CEO and the chairman are the same person and 0 otherwise. |
| <i>Earnings</i> | Earnings per share for firm <i>i</i> as a fraction of the price per share at the beginning of the year |
| <i>Indboard</i> | The percentage of independent directors, computed as the number of independent directors, divided by total number of directors on the board. |
| <i>Industry</i> | Dummies for industries, controlled for industry fixed effects. |
| <i>Inv</i> | Inventory intensity, computed as net inventory divided by total assets at the end of the year. |
| <i>Lev</i> | Leverage ratio, computed as total liabilities divided by total assets at the end of the year. |
| <i>Loss</i> | Indicator for loss; equals 1 if a firm suffers a loss and 0 otherwise. |
| <i>Opinion</i> | Indicator for firms receiving an MAO, where MAOs include unqualified |

opinions with explanatory notes, qualified opinions, and disclaimers or adverse opinions.

| | |
|---------------|--|
| <i>PC</i> | Indicator for political connection; equals 1 if the chairman or CEO is politically connected and 0 otherwise. |
| <i>Rd</i> | Indicator for negative return; equals 1 if <i>Return</i> is less than 0 and 0 otherwise |
| <i>Rec</i> | Receivables intensity, computed as accounts receivable divided by total assets at the end of the year. |
| <i>Return</i> | Annual stock return for firm <i>i</i> |
| <i>Roa</i> | Return on assets, computed as income before tax, divided by total assets at the beginning of the year. |
| <i>Salary</i> | Executive compensation, computed as the natural logarithm of the three most highly compensated executives in the company. |
| <i>Sales</i> | Sales growth, computed as total current year sales minus total previous year sales, divided by previous year's total sales. |
| <i>Size</i> | Natural logarithm of year-end total assets (in RMB). |
| <i>SP</i> | Indicator of small profit; equals 1 if a company reports a return on assets over (0, 0.01] and 0 otherwise. |
| <i>Switch</i> | Indicator of auditor switch; equals 1 if a client firm switches to a non-Big 10 auditing firm in the current year and 0 otherwise. |
| <i>Year</i> | Dummies for years, controlled for year fixed effects. |
