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The relationship between audit quality and performance of Chinese listed firms

In Partial Fulfillment of the Requirements
for the Bachelor of Science in Accounting

by

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ABSTRACT

The purpose of this paper is to empirically examine the relationship between audit quality and firm performance. Following Al-Okaily and Naueihed (2019), in this paper, a regression analysis is used by examining the impact of audit quality on firm performance in Chinese listed firms. This paper finds that the audit fee and the audit company are positively and significantly related to Chinese listed firms' performance. In the research, all data used in this study are obtained from CSMAR. It's just one database of China. So, the data is not supposed to be quite complete. The evidence reported in this paper may be of use for investors, managers and minority shareholders concerned with firm performance and valuation. To the best of the authors' knowledge, there are few studies of the kind to examine the relationship between firm performance and audit quality.

Keywords : Audit quality, Financial performance, Listed firms, Audit fee, "Big Four" .

JEL Classification: M42, L20

I. INTRODUCTION

This paper examines audit quality on financial performance in China listed public firms. More specifically, this paper examines the impact of audit quality (audit fee and audit company) on Chinese listed firms' financial performance. Today, with the rapid economic development, China's industrial types have become diversified. Correspondingly, the scale of audit objects also expands, and the difficulty of audit work moves to a next level. The expanding scale easily leads to risks and major accounting scandals (e.g. WorldCom and Enron). This will be a huge threat to the development of any company, especially listed companies. Companies has to outsource audit work to professional audit firms to keep away from risks as possible as they can. Although risk is unavoidable, it still can be controlled by confirming every step in the audit process. Moreover, rigorous audit work has been greatly empowered in ensuring financial reporting integrity (Wilbanks et al., 2017). Generally, the "big four" accounting firms which are Deloitte, Ernst & Young (EY), KPMG, and PricewaterhouseCoopers (PwC) are the best professionals. They can provide the highest-level quality audit services, so their audit fees are relatively higher. Firms that employ the "big four" are also supposed to be relatively profitable. On the other hand, is it possible that higher quality audit services can promote the improvement of financial performance, or whether there is a correlation between audit quality and financial performance of firm? That's the subject of this research which is to confirm the relationship. To the best of my knowledge, only few studies has yet examined the moderating effect of family control and involvement on the relationship between firm performance and audit committee effectiveness in terms of size, expertise and meeting frequency (Al-Okaily et al., 2019). For the relationship between

audit quality (from accounting firms) and financial performance, there is no study to examine it. Therefore, this study decided to use all Chinese listed companies from 1990 to 2017 as sample data, and examine the relationship based on the new model updated from Al-Okaily and Naueihed (2019). For example, the study would like to use audit fees to replace the items like the ACM which is the number of audit committee meetings held during the financial year, and make some changes like assuming one dummy variable: Dadtunit which is the specific audit companies. More details will be explained in the research mythology section.

My main findings show that audit fees are positively and significantly related to firms' financial performance, and audit companies are also positively and significantly related to firms' financial performance. Therefore, it can be concluded as there is a positive and significant relationship between audit quality and firms' financial performance.

The entire research is structured as follows: the literature review and hypothesis development will be displayed at section 2, which explains more deeply about the professional terms or concepts like audit risk in some prior study. The introduction about "big four" will also be covered in the literature review section to carry out why the "big four" can provide high-level auditing services. Also, the foundation of model I used in the research is from the previous literature. The section 3 provides the research methodology, which means how do I design the whole research process. The specific model and data will be given in the section which contains all the explanation about the variables and limitation in my research. The section 4 will cover the empiric result of the research based on three tables, some of them might have different panels for more easily understanding. Briefly, the data describing section shows how many observations there are, what their means are, what their standard

deviations are, and what their maximum and minimum values are. The data correlation section will be two panels because there are two models with different two dependent variables. The correlational relationship between each dependent variable and every independent variables and control variables will be given in the section. The regression result will also be categorized to two panels based on two different control variables, and the significant of value will be shown on the table in details. The final part is the conclusion which will summary the whole research about what have been done in this paper. At same time, in this part, the limitation of research and some suggestions for future research will be given.

II. LITERATURE REVIEW

Nowadays, with the rapid economic development, China's industrial types have become diversified. Correspondingly, the scale of audit objects also expands, and the difficulty of audit work moves to a next level. The expanding scale easily leads to risks and major accounting scandals (e.g. WorldCom and Enron). This will be a huge threat to the development of any company, especially listed companies. To be more specific, the term of audit risk casually refers to the risk that an auditor may issue an unqualified report due to the auditor's failure to detect material misstatement either because of error or fraud. Due to the objectivity of enterprise audit risk, it is difficult to effectively avoid the occurrence of audit risk. At present, the quality of auditor and accounting audit method are the two issues which effect the risk. The auditing error is impossible to avoid (Boynton et al. 2001), but there are still assessments to control it as far as possible. The audit risk throughout the whole process

of enterprise development, for the development of the companies, it has both good side and bad side. Auditing risk for enterprises may lead to short-term interests. Audit leak will cause enterprise tax amount gradually reduce which lighten the burden of the enterprise, but the immediate interest is unable to promote enterprise long-term development. The development of the enterprise is buried under the very big hidden trouble. For example, the enterprise accounts are confused or full of mistakes like the wrong amount of inventory, which makes it difficult for the enterprise to judge the current development situation and estimate its own strength and development status (Boynton et al. 2001). Not only to enterprise, the auditing risk will also bring serious legal problems to the auditors. Because of the damage caused by the audit errors, the auditors must bear corresponding legal responsibilities.

Although risk is unavoidable, it can effectively control the size of the error. That's the importance of employing a high-level quality audit firm or accounting firm. High-level audit firm or accounting firm have the ability to provide the customers better audit service which can decrease the frequency of accident. The most important element of high-quality auditing is high-quality auditor. Auditors must have a professional foundation and comprehensive quality to ensure the effective implementation of accounting audit. The basic quality that auditors must have is professional ethics quality. The auditing work requires auditors to have a high sense of responsibility and justice, to be honest in auditing, and at the same time, auditors must dare to expose illegal behaviors. Must have a strong professional sensitivity, can carefully find the financial information in the existence of small loopholes, in order to find the problems in the development of enterprises (Gramling et al. 2004). "Big four" accounting companies refers to Deloitte, Ernst & Young (EY), KPMG, and

PricewaterhouseCoopers (PwC). They are considered as the best worldwide accounting firms (Virvilis et al. 2013).

Briefly introductions about “big four” accounting firms in China will be provided. Most of their partners are famous top 500 companies in the world. PricewaterhouseCoopers is headquartered in London, England. The operating entity in mainland China is PricewaterhouseCoopers Zhongtian accounting firm. China, Hong Kong and Singapore together have more than 460 partners and 12,000 employees. By the end of 1998, it had 8,000 employees in mainland China, Hong Kong and Macau. These include nearly 330 partners with offices in mainland cities including Beijing and other 12 cities in China (Gillis, 2014). Deloitte overtook PricewaterhouseCoopers in 2010 to become the world's largest accounting firm, with more than 8,000 employees in China. Deloitte is headquartered in New York, USA. As early as 1917, Deloitte recognized the business opportunities in China. Opening an office in Shanghai is the first foreign accounting firm to open a branch in the booming metropolis (Gillis, 2014). KPMG is a global network of professional services firms providing audit, tax and advisory services. KPMG operates in 150 countries. KPMG China has offices in major cities such as Beijing and Shanghai (Gillis, 2014). Ernst & Young is also one of “big four” accounting firms and the second largest accounting firm in the United States. Ernst & Young has a history of more than 100 years. In 1989, the merger between Arthur Young and Ernst & Whinney, one of the original eight accounting firms, created what is now Ernst & Young. There are two subsidiaries in mainland China, Ernst & Young accounting firm limited and Ernst & Young Huaming Shanghai branch (Gillis, 2014). Not just the high-quality auditors do they provide, they also have the most scientific and strict method and procedure. Proper

improvement and innovation of audit methods will help improve the audit quality and reduce the risks brought by audit mistake. For example, in the aspect of audit method, an improvement action named Modern risk-oriented auditing was come up by Ernst & Young accounting firm. It refers to that certified public accountants make professional judgment on the risk of the audited entity, evaluate the risk control of the audited entity, determine the residual risk, implement additional audit procedures, and reduce the residual risk to an acceptable level (Wurst et al. 1989). Reasonably, it shows why “big four” accounting firms can be the one of the evaluating standards in this research.

Hypothesis

H1: The audit fee and Chinese firms’ financial performance are expected to have a positive relationship.

H2: The audit company and Chinese firms’ financial performance are expected to have a positive relationship.

III. RESEARCH METHODOLOGY

This study adopts regression research design to examine the relationship between audit quality and firms’ financial performance. The specification model as following:

$$Firm\ Performance = \alpha_0 + \alpha_1(Dcost) + \alpha_2(Dadtunit) + \alpha_{4-13}(Control\ Variables) + \alpha_{14-21}(ICB\ Code) + \alpha_{05-13}(Year\ Dummy) + \varepsilon$$

Dependent variables. Following Anderson and Reeb (2003) and to generalize the findings and reduce measurement error, I employ several proxies for firm performance in the model. To be more specific, I use the Tobin’s Q ratio and firms’ return on assets (ROA).

ROA is a common accounting performance measure. I adopt one measures of ROA: earnings before interest, tax, depreciation, and amortization scaled by the book value of total assets (ROAEBITDA). Tobin's Q is a common market performance measure that accounts for current operations, future operating performance and prospective growth opportunities. I calculate Tobin's Q by dividing the market value of the firm by the total assets. Following Poutziouris et al. (2015), the firm's market value is computed as the sum of the market value of common equity and the book value of preferred stocks and debt. "This measure is used to avoid the arbitrary assumptions about depreciation and inflation rates that more sophisticated measures of Tobin's Q require" (Villalonga et al., 2006).

Independ variables. Dcost is the audit total fees which including domestic and foreign fee, because it's possible for some famous companies to employ the "big four" headquarters instead of Chinese branches; Dadtunit is the specific audit company who accept the employment which is a dummy variable with a value of 1 if the auditing firm as one of Deloitte, Ernst & Young (EY), KPMG, and PricewaterhouseCoopers (PwC), zero otherwise. In some years, part of those firms has no audit fees. To keep the data reliable, those years still will be counted in the model.

Control Variables. Several of them are considered in the model to control for firm-specific and industry characteristics and to reduce concerns about endogeneity and heterogeneity. GROWTH the growth ratio which is measured by the ratio of capital expenditures over revenues (Villalonga et al., 2006). LEVERAGE the leverage ratio which is measured by the ratio of total long-term debt to total assets (Anderson et al., 2004). SIZE the log of total assets which is measured by the natural logarithm of total assets at year-end

(Poutziouris et al., 2015) and BETA the firm's β which is measured by the firms' risk (Anderson et al., 2003). Due to board governance can also affect firm performance, I also include some governance variables in the research to make it more reliable. BS stands for board size that is measured by the total number of directors sitting on the board (Anderson and Reeb, 2003). NEDs also stands for board independence which is measured by the proportion of non-executive directors to total board size (Klein, 2002). MOWN the managerial ownership is the percentage of total shares held by executive directors to total number of shares (Anderson et al., 2004). ICB code is the one code for every industry in the sample, and there are 6 types of industry will be covered in the research (Al-Okaily et al., 2019); Year dummy variables the one dummy for each year of the sample period, there are 17 years will be covered in the research. All of these variables were shown to make a difference on firm performance in previous studies.

IV. EMPIRICAL RESULTS

Sample. All data used in this study are obtained from CSMAR. The sample contains 4438 firm-year observations and spans along 17 years, t=1990-2017. The sample period begins in 1990 because data about audit fees are available from that year. Some firms with missing data or zero value in variables are not eliminated to keep the result of data more accurate and reliable. Inside the table 1, N stands for number of observations; Mean stands for arithmetic mean of observations; Min stands for the smallest value of observations; Max stands for the largest value of observations and Sd stands for the standard deviation of observations.

Table 1 is the summary or description of the whole dataset. Table 1 exhibits that the measure of TOBINQ which is the market value of the firm scaled by total assets, has a mean value of 2.336, minimum value of 0.739 and maximum value of 12.846, with a standard deviation of 1.42. Similarly, ROAEBITDA, which is the earnings before interest, tax, depreciation, and amortization scaled by the book value of total assets, has a mean value of .615, minimum value of .005 and maximum value of 7.165, with a standard deviation of .466 respectively. The Dadtunit, a dummy variable (1 represents one of Deloitte, Ernst & Young (EY), KPMG, and PricewaterhouseCoopers (PwC), zero otherwise), has a mean value of .05, minimum value of 0 and maximum value of 1, with a standard deviation of .218 respectively. Dcost, the total audit fees from both domestic or foreign, has a mean value of 1000000, minimum value of 10000 and maximum value of 36700000, with a standard deviation of 1480000 respectively. BS, board size which is measured by the total number of directors sitting on the board, has a mean value of 8.919, minimum value of 3 and maximum value of 18, with a standard deviation of 1.819 respectively. NEDs, board independence which is measured by the proportion of non-executive directors to total board size, has a mean value of .799, minimum value of .333 and maximum value of .944, with a standard deviation of .065 respectively. MOWN, the managerial ownership is the percentage of total shares held by executive directors to total number of shares, has a mean value of .118, minimum value of 0 and maximum value of .807, with a standard deviation of .176 respectively. LEVERAGE, the leverage ratio which is measured by the ratio of total long-term debt to total assets, has a mean value of .74, minimum value of 0 and maximum value of .717, with a standard deviation of .088 respectively. BETA, the firm's β which is

measured by the firms' risk, has a mean value of 3.11, minimum value of .025 and maximum value of 237.89, with a standard deviation of 1.182 respectively. SIZE, the log of total assets which is measured by the natural logarithm of total assets at year-end, has a mean value of 29.194, minimum value of 19.04 and maximum value of 27.962, with a standard deviation of 1.182 respectively. GROWTH, the growth ratio which is measured by the ratio of capital expenditures over revenues, has a mean value of -.549, minimum value of -7.158 and maximum value of .425, with a standard deviation of .47 respectively. All the data listed can be obtained in the Table 1.

Table 1
Descriptive Statistics

Variables	N	Mean	Sd	Min	Max
TOBINQ	4438	2.336	1.42	.739	12.846
ROAEBITDA	4438	.615	.466	.005	7.165
Dadtunit	4438	.05	.218	0	1
Dcost	4438	1000000	1480000	10000	3.67e+07
BS	4438	8.919	1.819	3	18
NEDs	4438	.799	.065	.333	.944
MOWN	4438	.118	.176	0	.807
LEVERAGE	4438	.074	.088	0	.717
BETA	4438	3.11	7.142	.025	237.89
SIZE	4438	22.194	1.182	19.04	27.962
GROWTH	4438	-.549	.47	-7.158	.425

Note: TOBINQ is the market value of the firm scaled by total assets; ROAEBITDA is the earnings before interest, tax, depreciation, and amortization scaled by the book value of total assets; Dadtunit is a dummy variable with a value of 1 if the auditing firm as one of Deloitte, Ernst & Young (EY), KPMG, and PricewaterhouseCoopers (PwC), zero otherwise; Dcost is the total audit fee from domestic and foreign; BS is the total number of directors sitting on the board; NEDs is the proportion of non-executive directors to total board's size; MOWN is the percentage of total shares held by executive directors to total number of shares; LEVERAGE is the leverage ratio which measured by the ratio of total long-term debt to total assets; BETA is the firm's β which measured by the firms' risk; SIZE is the natural logarithm of total assets at year-end; GROWTH is capital expenditures over revenues.

To be clearer, there are 2 panels of Table 2. One is categorized by TOBINQ, and another is categorized by ROAEBITD. As shown in Panel A of Table 2, the correlation coefficients are calculated to demonstrate the relationship between the dependent variable TOBINQ and explanatory variables and identify both the direction and quantum of the relationship. From the result, the value of correlation between TOBINQ and Dadtunit is -0.102, so there is a negative relationship between TOBINQ and Dadtunit. The value of correlation between TOBINQ and Dcost is -0.118, so there is a negative relationship between TOBINQ and Dcost. The value of correlation between TOBINQ and BS is -0.171, so there is a negative relationship between TOBINQ and BS. The value of correlation between TOBINQ and NEDs is 0.016, so there is a positive relationship between TOBINQ and NEDs. The value of correlation between TOBINQ and BS is 0.198, so there is a positive relationship between TOBINQ and BS. The value of correlation between TOBINQ and LEVERAGE is -0.238, so there is a negative relationship between TOBINQ and LEVERAGE. The value of correlation between TOBINQ and BETA is -0.105, so there is a negative relationship between TOBINQ and BETA. The value of correlation between TOBINQ and SIZE is -0.359, so there is a negative relationship between TOBINQ and SIZE. The value of correlation between TOBINQ and GROWTH is 0.024, so there is a positive relationship between TOBINQ and GROWTH. All the data listed can be obtained in the Panel A of Table 2.

Panel A of Table 2
Matrix of correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1)	1.000									
TOBINQ										
(2)	-0.102	1.000								
Dadtunit										
(3)	-0.118	0.430	1.000							
Dcost										
(4)	-0.171	0.112	0.062	1.000						
BS										
(5)	0.016	0.015	-0.008	0.505	1.000					
NEDs										
(6)	0.198	-0.088	-0.089	-0.204	0.065	1.000				
MOWN										
(7)	-0.238	0.041	0.052	0.104	-0.045	-0.209	1.000			
LEVERA										
GE										
(8)	-0.105	-0.014	0.002	0.049	0.011	-0.082	0.067	1.000		
BETA										
(9)	-0.359	0.311	0.508	0.227	0.033	-0.310	0.270	0.045	1.000	
SIZE										
(10)	0.024	-0.078	-0.069	-0.035	0.037	0.113	0.230	0.020	-0.047	1.000
GROWTH										

Note: TOBINQ is the market value of the firm scaled by total assets; ROAEBITDA is the earnings before interest, tax, depreciation, and amortization scaled by the book value of total assets; Dadtunit is a dummy variable with a value of 1 if the auditing firm as one of Deloitte, Ernst & Young (EY), KPMG, and PricewaterhouseCoopers (PwC), zero otherwise; Dcost is the total audit fee from domestic and foreign; BS is the total number of directors sitting on the board; NEDs is the proportion of non-executive directors to total board's size; MOWN is the percentage of total shares held by executive directors to total number of shares; LEVERAGE is the leverage ratio which measured by the ratio of total long-term debt to total assets; BETA is the firm's β which measured by the firms' risk; SIZE is the natural logarithm of total assets at year-end; GROWTH is capital expenditures over revenues.

As shown in panel B, the correlation coefficients are calculated to demonstrate the relationship between the dependent variable ROAEBITD and explanatory variables and identify both the direction and quantum of the relationship. From the result, the value of correlation between ROAEBITD and Dadtunit is 0.081, so there is a positive relationship between ROAEBITD and Dadtunit. The value of correlation between ROAEBITD and Dcost

is 0.064, so there is a positive relationship between ROAEBITD and Dcost. The value of correlation between ROAEBITD and BS is 0.037, so there is a positive relationship between TOBINQ and BS. The value of correlation between ROAEBITD and NEDs is -0.028, so there is a negative relationship between TOBINQ and NEDs. The value of correlation between ROAEBITD and MOWN is -0.100, so there is a negative relationship between TOBINQ and MOWN. The value of correlation between ROAEBITD and LEVERAGE is -0.217, so there is a negative relationship between TOBINQ and LEVERAGE. The value of correlation between ROAEBITD and BETA is -0.025, so there is a negative relationship between TOBINQ and BETA. The value of correlation between ROAEBITD and SIZE is 0.035, so there is a positive relationship between TOBINQ and SIZE. The value of correlation between ROAEBITD and GROWTH is -0.992, so there is a negative relationship between TOBINQ and GROWTH. All the data listed can be obtained in the Panel B of Table 2.

Panel B of Table 2
Matrix of correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1)	1.000									
ROAEBIT										
DA										
(2)	0.081	1.000								
Dadtunit										
(3)	0.064	0.430	1.000							
Dcost										
(4)	0.037	0.112	0.062	1.000						
BS										
(5)	-0.028	0.015	-0.008	0.505	1.000					
NEDs										
(6)	-0.100	-0.088	-0.089	-0.204	0.065	1.000				
MOWN										
(7)	-0.217	0.041	0.052	0.104	-0.045	-0.209	1.000			
LEVERA										
GE										
(8)	-0.025	-0.014	0.002	0.049	0.011	-0.082	0.067	1.000		
BETA										
(9)	0.035	0.311	0.508	0.227	0.033	-0.310	0.270	0.045	1.000	
SIZE										
(10)	-0.992	-0.078	-0.069	-0.035	0.037	0.113	0.230	0.020	-0.047	1.000
GROWTH										

Note: TOBINQ is the market value of the firm scaled by total assets; ROAEBITDA is the earnings before interest, tax, depreciation, and amortization scaled by the book value of total assets; Dadtunit is a dummy variable with a value of 1 if the auditing firm as one of Deloitte, Ernst & Young (EY), KPMG, and PricewaterhouseCoopers (PwC), zero otherwise; Dcost is the total audit fee from domestic and foreign; BS is the total number of directors sitting on the board; NEDs is the proportion of non-executive directors to total board's size; MOWN is the percentage of total shares held by executive directors to total number of shares; LEVERAGE is the leverage ratio which measured by the ratio of total long-term debt to total assets; BETA is the firm's β which measured by the firms' risk; SIZE is the natural logarithm of total assets at year-end; GROWTH is capital expenditures over revenues.

Table 3 displays the result of the regression which also is the result of this research. There are also two panels of Table 3. One is categorized by Dcost, and another is categorized by Dadtunit. First of all, according to R. A. Fisher, a p-value is a parameter used to determine the result of a hypothesis test. "P value is the probability of sample observations or more

extreme results when the hypothesis comes true". In short, the smaller the value of P, the more significant the result. But if the test results are "highly significant", "moderately significant" or "significant" depends on the specific number of the p-value and the actual situation.

As the Panel A of Table 3 shows, assuming the coefficient of independent variable Dcost which stands for audit company and TOBINQ which stands for common market performance measure that accounts for current operations, future operating performance and prospective growth opportunities is X_1 ($X_1=0.000$). Then, independent variable Dcost has a P value of X^{***} with TOBINQ. $***$ means P value less than 0.01. In other words, it is a quite significant result. Assuming the coefficient of Independent variable Dcost and ROAEBITA which stands for the earnings before interest, tax, depreciation, and amortization scaled by the book value of total assets is Y_1 ($Y_1=0.000$). Then, independent variable Dcost has a P value of Y_1^{***} with ROAEBITA. Similarly, $***$ means P value less than 0.01, so it is also a quite significant result.

Also, year fiscal effect and industry fiscal effect have been considered. Panel A of Table 3 shows that audit quality (Dcost which stands for total audit fee from domestic and foreign) has a positive and significant effect on firm performance (simply represented by TONBINQ and ROAEBITA). The result is consistent with the finding of Al-Okaily et al. (2019) that show that audit quality is positively and significantly related to firm performance. All the data listed can be obtained in the Panel A of Table 3.

Panel A of Table 3
Regression results

	(1) TOBINQ	(2) ROAEBITDA
Dcost	0.000*** (0.000)	0.000*** (0.000)
BS	-0.030** (0.012)	-0.002** (0.001)
NEDs	1.066*** (0.326)	0.063*** (0.016)
MOWN	-0.038 (0.120)	0.036*** (0.006)
LEVERAGE	-1.114*** (0.191)	0.119*** (0.015)
BETA	-0.014*** (0.004)	-0.001*** (0.000)
SIZE	-0.490*** (0.022)	0.000 (0.001)
GROWTH	-0.102 (0.063)	-0.981*** (0.002)
_cons	11.320*** (0.645)	0.033 (0.034)
Obs.	4177	4177
R-squared	0.396	0.987
Year FE	YES	YES
Industry FE	YES	YES

Note: TOBINQ is the market value of the firm scaled by total assets; ROAEBITDA is the earnings before interest, tax, depreciation, and amortization scaled by the book value of total assets; Dadtunit is a dummy variable with a value of 1 if the auditing firm as one of Deloitte, Ernst & Young (EY), KPMG, and PricewaterhouseCoopers (PwC), zero otherwise; Dcost is the total audit fee from domestic and foreign; BS is the total number of directors sitting on the board; NEDs is the proportion of non-executive directors to total board's size; MOWN is the percentage of total shares held by executive directors to total number of shares; LEVERAGE is the leverage ratio which measured by the ratio of total long-term debt to total assets; BETA is the firm's β which measured by the firms' risk; SIZE is the natural logarithm of total assets at year-end; GROWTH is capital expenditures over revenues.

Robust t-statistics in parenthesis

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Panel B of Table 3 is categorized by Dadtunit and displays the regression result between TOBINQ and ROAEBITA. Assuming the coefficient of independent variable Dadtunit which stands for the audit firm or institution and TOBINQ is X_2 ($X_2 = 0.210$). Then, independent variable Dadtunit has a P value of X_2^{***} with TOBINQ. As far as we know, *** means P

value less than 0.01. So, in other words, it is a quite significant result. Assuming the coefficient of independent variable Dadtunit and ROAEBITA is Y_2 ($Y_2=0.008$). Then, independent variable Dadtunit has a P value of Y_2^{**} . Not like the result shown in before, ** stands for P value less than 0.05 which has the meaning of moderately significant. So, it is a moderate significant result between Dadtunit and ROAEBITA. The year fiscal effect and industry fiscal effect have been considered. Panel B of Table 3 shows that audit quality (Dadtunit stands for the specific audit firm or institution) has an also positive and significant effect on firm performance (simply represented by TONBINQ and ROAEBITA). The result is consistent with the finding of Al-Okaily et al. (2019) that show that audit quality is positively and significantly related to firm performance. All the data listed can be obtained in the Panel B of Table 3.

Panel B of Table 3
Regression results

	(1)	(2)
	TOBINQ	ROAEBITDA
Dadtunit	0.210*** (0.062)	0.008** (0.004)
BS	-0.032*** (0.012)	-0.002** (0.001)
NEDs	1.057*** (0.315)	0.061*** (0.016)
MOWN	-0.029 (0.113)	0.037*** (0.006)
LEVERAGE	-1.150*** (0.183)	0.119*** (0.014)
BETA	-0.013*** (0.004)	-0.000*** (0.000)
SIZE	-0.448*** (0.020)	0.000 (0.001)
GROWTH	-0.130** (0.062)	-0.980*** (0.002)
_cons	10.509*** (0.476)	0.043** (0.021)
Obs.	4438	4438
R-squared	0.390	0.986
Year FE	YES	YES
Industry FE	YES	YES

Note: TOBINQ is the market value of the firm scaled by total assets; ROAEBITDA is the earnings before interest, tax, depreciation, and amortization scaled by the book value of total assets; Dadtunit is a dummy variable with a value of 1 if the auditing firm as one of Deloitte, Ernst & Young (EY), KPMG, and PricewaterhouseCoopers (PwC), zero otherwise; Dcost is the total audit fee from domestic and foreign; BS is the total number of directors sitting on the board; NEDs is the proportion of non-executive directors to total board's size; MOWN is the percentage of total shares held by executive directors to total number of shares; LEVERAGE is the leverage ratio which measured by the ratio of total long-term debt to total assets; BETA is the firm's β which measured by the firms' risk; SIZE is the natural logarithm of total assets at year-end; GROWTH is capital expenditures over revenues.

Robust t-statistics in parenthesis

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

To conclude the result of the regression, the result is consistent with the finding of Al-Okaily et al. (2019) because both of Dcost and Dadtunit are positively and significantly related to firm performance which simply represented by TONBINQ and ROAEBITA.

V. CONCLUSION

The results of this study are consistent with the previous hypothesis that audit quality can improve the performance of listed companies (Al-Okaily et al., 2019). In fact, the cost of audit work and the performance of the responsible company and the listed company are positively correlated and significant. This may be because effective audit committees improve the quality of information and reduce information asymmetry, which can be caused by multiple problems. The results indicate that this assumption of audit quality as audit cost and responsibility for the company may not be appropriate for all companies. For example, the cost of the audit may be influenced by the size of the specific audit items and thus become inaccurate. Overall, the evidence reported in this paper is likely to be useful to policy makers and some shareholders considering corporate governance reforms. In this research, it limits the sample to Chinese listed companies because the data is easier and more widely accessible. However, unlisted companies also represent an important area of research because they make up the majority. Although there are no relevant research findings, there is generally a relationship between audit quality and firm performance (Sciascia and Mazzola, 2008). Future studies may consider elements not considered in this study, such as the number of audit meetings held, the costs and benefits of specific projects, the qualifications of practitioners, and so on. Studying more specific relationships will further update the development of corporate governance regulation.

Appendix

The explanation of the elements in the regression equation.

TOBINQ	The market value of the firm scaled by total assets
ROAEBITA	The earnings before interest, tax, depreciation, and amortization scaled by the book value of total assets
Dadtunit	A dummy variable with a value of 1 if the auditing firm as one of Deloitte, Ernst & Young (EY), KPMG, and PricewaterhouseCoopers (PwC), zero otherwise
Dcost	The total audit fee from domestic and foreign
BS	The total number of directors sitting on the board
NEDs	The proportion of non-executive directors to total board's size
MOWN	The percentage of total shares held by executive directors to total number of shares
LEVERAGE	The leverage ratio which measured by the ratio of total long-term debt to total assets
BETA	The firm's β which measured by the firms' risk
SIZE	The natural logarithm of total assets at year-end
GROWTH	Capital expenditures over revenues.

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