

The Impact of Audit Quality on Firm Performance: Evidence from Malaysia

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Abstract – Nowadays in the emerging market and after corporate scandals as well as financial crisis the issue of firm performance and ways to improve it are crucial for companies, investors and third parties. One of the ways that it can impact firm performance is audit quality, which it is recognize as external monitoring. Therefore, the purpose of this research is to examine the impact of audit quality on firm performance for Malaysian listed companies for the period of 2003 to 2012. In this study, we use audit fees and audit firm rotation as proxies for audit quality. Return on assets and Tobin's q are used as measures for firm performance. We found that there is insignificant relationship between audit quality proxies (audit fees and audit firm rotation) and ROA. We also found that an audit fee is significantly and positively related to Tobin's Q . However, audit firm rotation is insignificantly related to Tobin's Q . **Copyright © 2015 Penerbit Akademia Baru - All rights reserved.**

Keywords: Audit Fees, Audit Firm Rotation, Firm Performance, Malaysia

1.0 INTRODUCTION

What is audit quality which can effect on firm performance? Audit quality defined as auditors use some technics to recognize misstatements in clients accounting system and report the misstatements. Audit quality is the controversial issues for the recent decades and most previous evidence suggests that lack of audit quality is among the most important reason for financial and corporate scandals [1]. Perior studies evidenced that audit quality as external corporote governance monotoring can enhance companies performance. In this study two proxies for audit quality used and shows that how these proxies can effect firm performance. The main motovation of this research is related to audit firm rotation. Proponents of audit firm rotation believed that audit rotation can enhance auditor independence which effect on high audit quality and positively affect companies' performance. However, opponents of audit rotation believed that cost of audit rotation is more than its benefits [2]. Therefore, this research attempt to recognize how audit quality can enhance firm performance.

2.0 LITERATURE REVIEW

2.1 Audit Fees

For decades, regulators, financial users, researchers and legislators have had debate on connection between auditor independence and ability of auditors to conduct high audit

quality. Most of these debates were for accounting service and also concern that auditors received higher audit fees from their clients. Most previous studies believed that fees paid to auditors can affect audit quality [3-6]. There are some arguments for using audit fees as a proxy for audit quality. Most of previous studies suggest that higher audit fees are associated with higher audit quality in terms of more audit efforts.

Researchers choose to focus on the different aspects of connection between audit quality and audit fees, and thus adopt dissimilar proxies in the process. In general, auditor efforts are more likely reflected by audit fees because the audit market is closely regulated and opportunities to earn rents are limited [7]. It is generally believed that larger audit firms are able to have higher audit fees due to monopolistic power or greater audit monitoring effort. Therefore, high audit fee is expected to be more efforts in audit process and lead to higher audit quality.

Yassin and Nelson [8] used audit fee as proxy for audit quality. They suggested that, a higher audit fees indicates that auditors provide more efficient audit services to the companies compared to lower audit fees. According to O'Sullivan and Diacon [9] more audit hours and more specialized audit staff are required for a more thorough investigation, which will lead to higher audit fees. Hence, it is expected that higher audit fees indicate a higher quality audit, as more audit work is required to ensure that the financial statements are free from material misstatement.

Hoitash, Markelevich [3] examined the relationship between audit fees and audit quality. Their paper show that fees paid to auditor can impact in way; large fees paid to auditor increases quality of audit. Higher audit fees are related to non- audit service makes auditors more dependent on their clients. In their study they examined audit fees for period of 2000 to 2003 and found that there is a significant positive relationship between audit fees and audit quality.

Yuniarti [10] investigated the relation between factors that affect audit quality of 24 Bandung firm at 2009. He suggest that higher audit fees increase and improve audit quality due to auditors effort and accounting firm should enhance amount of audit fees that lead to higher audit quality. He also found that audit fees is significantly and positively affect audit quality.

Craswell, Stokes [11] showed that the auditors with the reputation and industry specialist take a higher cost and so result in higher audit fees. Ferguson and Stokes [12] claimed that the brand name industry specialist auditors earn more fee over non- specialist auditors. Evidence suggests that Big auditors have higher reputation capital and thus they convey a higher quality differentiation compared to non- brand name auditors.

According to Palmrose [13] the Big eight auditors charge higher audit fees because of higher audit quality and monopoly pricing. DeAngelo [14] suggested that the big sized auditors earn higher fees compared to Non-Big auditors. Elitzur and Falk [15] suggested that there is a positive relationship between audit fees and planed audit quality. They use multi period model for examining planed audit quality and audit fees. Furthermore, higher audit fess encourages them to increase the audit quality. Some previous studies claim that a high audit fee is associated with high audit quality. Lesage, Ratzinger-Sakel [16] suggested that with increasing audit fees the audit quality increased.

Present study uses audit fees as a proxy for audit quality. There are some proxies for audit quality however audit fees in not necessarily accurate an as indicator for audit effort as the

appropriate measure for audit effort is the number of audit hours. It seems reasonable that more audit hours will lead to higher audit fees and thus higher audit quality.

2.2 Audit Firm Rotation

A lot of investigations have been done about audit firm and partner rotation in United States. Regulators and other financial markets in the U.S. extremely assert that audit quality and auditor independence may decline over long auditor-client relationships. Therefore, the mandatory audit firm rotation is focused on how auditor and firms affects audit quality. Some prior empirical study analyzed the effect of auditor tenure on audit quality under regime of mandatory rotation. Prior studies' finding suggests that there is a positive correlation between rotation of auditor and audit quality [17-21]. Zawawi [22] believed that the idea of compulsory audit rotation was a consequence of very famous corporate failures that were the cause of litigations as well as Asein [23] suggested that rotation of external auditors can be a solution to the potential problem of familiarity between the audit company personnel and the client.

Several studies have used the signaling theory in order to explain appropriate variables due to audit firm rotation. Most of the previous studies examined the relationship between auditor tenure and audit quality, which is defined by DeAngelo [14] as the probability that there is mistake in the client accounting system and the mistakes must be discovered and reported by the auditor. PCAOB recently send some comments on 10- year for mandatory audit firm rotation. Brooks, Cheng [24] proposed that the quality of audit is likely to raise in the first year of audit tenure and decrease with audit firm tenure in later years. They use a quadratic model to empirically estimate the firm tenure year when audit quality is likely to decline. They found that the best average for audit tenure is 12 years for U.S. companies.

From the auditors experience perspective, audit quality raise when audit tenure as the auditor gains a better understanding of the client system, industry environment, business and internal controls [25, 26]. They used accrual quality as a proxy for audit quality because auditors require to survey whether the financial statements are free of important misstatements, duo to either errors or fraud. Onwuchekwa, Erah [27] examined relationship between audit rotation and audit independence. They use data from South Nigeria and also used percentage analysis for analyzing. They found that the mandatory audit rotation has positive relationship on independence of auditors. Therefore they recommended that audit rotation improve independence of auditors and auditor's rotation should be voluntary. Dopuch, King [28] examined whether mandatory audit rotation increase independence. They used multi - period interaction between a manager and auditor. The result support that the auditor comprises his independence most often in the no rotation regimes.

Regulators of mandatory audit rotation believe that in the long tenure the auditors are close relationship with the company and agree with the management on reporting and the rotation of auditors would have beneficial impact on audit quality [20, 29] however, opponents believe that cost of mandatory rotation more than its benefits and several studies found that there is positive associated with audit firm tenure and audit quality [30, 31].

There are some perception for mandatory audit rotation from regulators, auditors, audit clients and shareholders. Regulators believe that with increase audit firm tenure the audit quality is decrease. This reduces for audit quality caused by familiarity with the management and lack of attention to redundancy and staleness. PWC [32] argued that auditor relationship with company will be decrease when mandatory audit firm rotation happens. In the other hand, auditors distress that mandatory audit firm rotation increases the risk of audit failure for

the period before auditors are able to build company-specific knowledge (Capitol Federal Financial Inc., 2011).

One of the negative aspects of audit firm rotation is loss in attraction of the audit profession. For instance, auditors worry about increase in indecision regarding capacity of audit needs and where to best locate talented employees with particular skill sets [33]. Audit clients have different view on mandatory audit firm rotation. On the other hand, several companies share concerns of auditors regarding the expertise of audit teams. Managements of some companies believe that when the new auditors come to company the employees might be very reserved towards them and fraud detection [34]. Finally, the last perspective for mandatory audit rotation from is shareholders perspective. They believe that in the mandatory audit rotation, an investor might no longer be able to separate a voluntary change of the audit firm (opinion shopping of management) from a compulsory rotation, eventually raising the cost of information [35].

3.0 HYPOTHESIS DEVELOPMENT

3.1 Audit Quality and Firm Performance

3.1.1. Audit Fees and Firm Performance

There are numerous studies investigating the relationship independent variables and firm performance. Moutinho, Cerqueira [36] investigated the relationship between audit fees and firm performance. They use sample of U.S. public companies for the period of 2000 to 2008. This paper use both empirical and theoretical relationship between audit fees and firm performance. The result shows that there is a negative relationship between fess pay to auditors and firm performance. Fees pay to audit have been potentially privileged position to expect the company's economic condition. According to Bell, Doogar [37] "the risk-based approach of audit planning and subsequent pricing means that clients perceived by the auditor as risky are typically assigned more efforts, which in turn results in higher audit fees". So, audit fees are estimated to be signal of current and future performance [38]. Martinez and de Jesus Moraes [39] examined the relationship between fees pay to auditors and firm performance of Brazilian listed companies from 2009 to 2010. They argued that higher audit fees companies as a signal to market which companies audited high audit quality that lead to enhance firm value. However, they use Tobin's q as a measure of firm performance and did not examine other measures of firm performance. Their result showed that there is a positive relationship between audit fees and firm value. Therefore, according to above literatures, this study expects the following hypothesis:

H1: There is a significant relationship between audit fees and firm performance.

3.1.2. Audit Firm Rotation and Firm Performance

Brown and Caylor [40] suggested that company has a formal policy on auditor rotation is positively related to return on equity as a proxy for firm performance. Carey and Simnett [41] examined the association between audit tenure and abnormal working capital accrual. They said that rotation of audit is one of the main policy initiatives that have implemented in many jurisdictions around the world to deal with concern about audit quality. Their results show that there is no evidence of an association of either the signed or absolute amount of

abnormal working capital accruals with long audit partner tenure. Therefore, this study expectations lead to the following hypotheses:

H2: There is a significant relationship between audit firm rotation and firm performance.

4.0 METHODOLOGY

4.1 Research Sample

This study uses sample population of companies listed on Bursa Malaysia, because their financial statements as well as their information are audited by audit firms and reliable. This research also chooses ten years which comprise 2003 to 2012 and wants to show that how external monitoring in line with internal monitoring effectiveness (corporate governance) that establish in 2000 and revised two times in 2007 and 2012 impact on firm performance. The initial population of this study considers 980 companies. Present study excludes companies such as; companies in the financial industries as well as companies do not have complete information. The reason for excluding financial industries is, these industries are under rules and regulations of Bank Negara Malaysia and they have different reporting [42, 43]. Table 1 shows the summary of sample study.

Table 1: Sample of study

Initial population (companies)	980
Financial industries	(40)
uncompleted data	(398)
Total sample	542

4.2 Regression Model

The purpose of constructing of this model is to find out the impact of audit quality on firm performance using ROA and TQ as measures for firm performance. ROA measures firm profitability as proportion of net income to firm total assets, whereas TQ measures firm value as proportion of market capitalization of firm to firm total assets. Most previous researchers [24, 38, 44-46] on this area have used this model to measure the impact of audit quality on firm performance. Therefore, the firm performance equations are presented below:

$$FP = \beta_0 + \beta_1 LNAFEE + \beta_2 LEV + \beta_3 LNASSET + \beta_4 SG + B + \varepsilon \quad (1)$$

$$FP = \beta_0 + \beta_1 AUDROT + \beta_2 LEV + \beta_3 LNASSET + \beta_4 SG + B + \varepsilon \quad (2)$$

Where:

FP= ROA: Net income / Total assets. TQ: Market Capitalization / total assets.

LNAFEE: the natural log of audit fees.

AUDROT: is a dummy variable. If audit firm rotation happen in the current year, it will equal 1 and if it does not happen, it will be 0

LEVERG = the proportion of debts to total assets.

LNASSET = the natural logarithm of total assets.

SG = the differences between current and previous year sales/ Current year sale.

B= Systematic risk

This model uses four control variables included LEV, LNASSET, SG and Beta. The rationale for selecting these variables is explained below. Further, it should be noted that while these control variables have been chosen on the basis of theory and prior evidence, like every other positive accounting research, they are inevitably limited to the extent that they may not be exhaustive [47, 48]. It is admitted that there may be other variables that can potentially affect firm performance, which due to reasons, such as data unavailability and lack of appropriate theoretical links cannot be included in the model [49].

Firm size (LNASSET): Firm size often matters with respect to firm performance because big firms can find it easier to secure finance, get better interest rate, better discount rate (large quantity that it buys) and also they have more market power (higher price and earn higher profit). Previous empirical studies show that firm size is positively affects corporate governance, leading to higher firm performance [50-53]. Generally, total assets and total sales are used as a proxy for firm size in empirical studies.

Leverage (LEV): Jensen [54] stated that debt is an instrument to discipline managers and mitigate the negative impact of the agency conflict. It well known that debt creates value by giving managers the opportunity to show their willingness to pay out cash flows and to be followed up by lenders. Authors such as Jensen, 1986; Stulz, 1988; McConnell and Servaes, 1995 have examined the interrelation between corporate value and leverage, and concluded that when investment opportunities are scarce, there was a positive relationship between firm value and leverage. This finding is in corroborating the hypothesis that debt reduces the intensity of overinvestment. In contrast short term debts can be enhance risk of default and enhance cost of borrowing due to low firm performance. This study expected that there is a negative relationship between leverage and firm performance and consistent with the previous studies [53, 55-58].

Sales growth (SG): This study uses sales growth as a control variable and expected to be positively related to firm performance because sales growth may effect a company's firm performance and practices of corporate governance [59]. Firms with higher investment opportunities tend to grow relatively faster [60]. Theoretically, faster growing firms may receive higher valuation, as they are expected to have better future performance [61]. Also, firms with greater growth opportunities will need to raise external capital, and may need to adopt better corporate governance to attract capital and reduce its cost [62]. Previous studies also fund that there is a positive relationship between sales growth and firm performance [53, 63] and suggested that companies with having sales growth are more likely to have higher net profit margin, higher firm value and better firm performance.

Beta (B): Beta is ratio of covariance between given stock return and market return to the variance of market return. This study use Beta as a proxy for systematic risk and also previous studies found that there is a negative relationship between beta and firm performance [64-66].

5.0 RESULTS AND FINDINGS

5.1 Descriptive Statistics

Table 2 shows the mean, median, standard deviation, minimum, maximum, skewness and kurtosis of 1) audit quality proxies namely audit fees, audit firm rotation and 2) firm performance and related control variables that employed in the main analysis for the sample years of 2003 to 2012. Descriptive statistics shows that minimum audit fee is 500 and maximum 1900000 RM and average of audit fees for companies is 43949 RM. Mean of audit firm rotation shows that only 6.3% companies had audit firm rotation and lower average considers that companies do not attempt to change their auditors. Average (median) ROA is 0.024, the minimum is -1.758 and the maximum is 1.272. A negative return on assets (ROA) consider that resources (assets) are not being managed very well and changes must be made in order to prevent the business from becoming unprofitable. A positive ROA shows that the management employed assets well to make a profit. Since the median of ROA (0.031) is lower and it shows that majority of companies had low financial firm performance. This is consistent with Hashim, Rahman [67] and Mustapha and Ahmad [68] whose report that the mean of ROA for listed companies in Malaysia is 0.03 and 0.01 respectively. The minimum TQ for listed companies in Malaysia is 0.005 which shows that the cost to replace assets of firm is greater than the value of its stock (undervalued). However the maximum rate of TQ (8.589) shows that share price of firm is more expensive than the cost to assets replacement (overvalued stock). The average value of TQ is 0.63 for 542 companies that consistent with Amran [69] for 424 companies listed in Bursa Malaysia.

Table 2: Descriptive statistics

variable	mean	median	min	max	Skewness	kurtosis
AFEE (RM)	43949.610	26000	500	1900000	10.731	176.195
LNAFEE	10.240	10.166	6.215	14.457	0.362	4.502
AUDROT	0.063	0.000	0.000	1.000	3.594	13.915
ROA	0.024	0.031	-1.758	1.272	-4.507	61.579
TQ	0.636	0.426	0.005	8.589	4.588	32.531
LEV	0.393	0.385	0.004	0.975	0.237	2.405
LNASSET	12.741	12.591	0.046	18.452	0.044	7.581
SG	0.106	0.070	-0.991	1.976	1.318	7.583
B	1.012	0.985	-2.585	3.987	0.371	4.401
DE	0.946	0.627	0.004	8.959	3.033	15.676

5.2 Correlation Matrix

Table 3 shows the result of correlation matrix for all independent and control variables used in firm performance model. In this study the correlation matrix displays that multicollinearity is not a problem. The highest pairwise correlation among variable is 23.9% between LNASSET and LEV and the remaining variables are less than 14%. In the model the correlation matrix shows that including all the independent and control variables would not cause multicollinearity problem.

Table 3: correlation matrix

Variable	LNAFEE	AUDROT	ROA	TQ	LEV	LNASSET	SG	B
LNAFEE	1							
AUDROT	-0.035**	1						
ROA	0.091***	-0.059***	1					
TQ	0.005	-0.007	0.276***	1				
LEV	0.17***	0.0127	-0.097***	-0.212***	1			
LNASSET	0.578***	-0.082***	0.218***	-0.021	0.239***	1		
SG	-0.005	-0.007	0.161***	0.059***	0.057***	0.072***	1	
B	0.090***	-0.003	-0.089***	-0.113***	0.095***	0.144***	0.006	1

*** are significant at $p < 0.01$, ** are significant at $p < 0.05$ and * are significant at $p < 0.10$.

5.3 Regression Results

5.3.1 Analysis I: Audit Fees and Firm Performance

5.3.1.1 Accounting Based Performance Measure

Table 4 shows the results of multivariate regression for ROA model with audit quality variable (LNAFEE) and all control variables. According to the result the validity of the model has been confirmed by the significantly of F-statistics at $p < 0.001$. The Adj R2 indicated that 10.6% of audit quality variable (LNAFEE) and all control variables can be explained ROA model.

LNAFEE is significantly and negatively related to ROA ($p < 0.001$). In a poor economic state, the clients are perceived as riskier and as such attribute more audit effort, resulting in higher audit fee, thus it can say that higher fees for auditors are related to weak firm performance. This result is consistent with previous studies [38, 44, 70].

According to the control variables, all variables are significantly related to ROA at $p < 0.001$. LEV is significantly and negatively related to ROA model and consistent with previous studies [38, 70-72]. LNASSET is significantly and positively related with ROA as a measure of firm performance (at $p < 0.001$). This positive relationship is consistent with previous studies who argued that larger companies have better interest rate and more market power [51, 53, 73]. SG is significantly and positively related to ROA, suggesting that firms with having higher rate of growth are more likely to have higher net profit margin, higher value and better firm performance. The positive result of SG and ROA is consistent with previous studies [53, 63, 74, 75]. Systematic risk (B) is significantly and negatively related with ROA as a measure of firm performance, suggesting that companies with having higher systematic risk are more likely to face higher cost of borrowing which lead to lower ROA. This result is consistent with previous studies [64, 65].

5.3.1.2 Market Based Performance Measure

Table 4 shows the results of multivariate regression for TQ model with audit quality variable (LNAFEE) and all control variables. According to the result the validity of the model has been confirmed by the significantly of F-statistics at $p < 0.001$. Adj R2 indicated that 6.1% of audit quality variable (LNAFEE) and all control variables can be explained TQ model and consistent with previous study [39]. According to variables, all variables are significantly related to TQ except LNASSET. Regarding to audit quality proxy, audit fees is significantly and positively related to firm value (at $p < 0.001$), suggesting that companies with having higher audit fees are more likely to have higher firm value. In other hand, higher audit fees

supposed aggregate value to the company [39]. The positive relationship of audit fees and firm value shows that audit fees are increasing in the number of stakeholders in the company, because usually they are looking for reliable financial information [76]. According to the control variables, LEV is significantly and negatively related to TQ ($p < 0.001$) suggesting that companies with having higher debt ratio are more likely to have lower firm value. SG is positively and systematic risk is negatively related to firm value, suggesting that companies with having higher sales growth and higher risk are more likely to have higher and lower firm value respectively.

Table 4: Multivariate regression for audit fee and ROA model

Variable	ROA	TQ
	Coefficient (t-statistics)	Coefficient (t-statistics)
Intercept	-0.170 (-8.78)***	0.583 (4.78)***
LNAFEE	-0.005 (-2.1)***	0.037 (2.57)***
LEV	-0.094 (-11.75)***	-0.810 (-16.03)***
LNASSET	0.023 (17.32)***	0.009 (1.01)
SG	0.052 (11.68)***	0.150 (5.33)***
B	-0.024 (-8.61)***	-0.131 (-7.41)***
N	5420	5420
Prob > F	0.000	0.000
R-squared	0.107	0.062
Adj R-squared	0.106	0.061

*** are significant at $p < 0.01$, ** are significant at $p < 0.05$ and * are significant at $p < 0.10$.

5.3.2 Analysis II: Audit Firm Rotation and Firm Performance

5.3.2.1 Accounting Based Performance Measure

Table 5 shows the results of multivariate regression for audit firm rotation and ROA with each of independent and control variables. According to the result, the F-statistics for the firm performance model was significant at (p-value 0.000) which confirms validity of the model. The Adj R² indicated that, 10.7% of ROA model can be explained by independent and control variables. Audit firm rotation is significantly and negatively related to ROA as a measure of firm performance ($p < 0.001$). This negative relationship suggests that companies with having lower audit firm rotation are more likely to have higher return on assets. From the auditor's experience, if the auditors stay longer time in the client system the audit quality enhance because of their better understanding of client systems, internal controls and higher monitoring that lead to better firm performance. This result is consistent with previous studies [24, 26]. All control variables are significantly related to ROA at $p < 0.001$. LEV is significantly and negatively related to ROA and consistent with previous studies [55, 57, 77,

78]. LNASSET is positively and statistically significant with ROA (at $p < 0.01$) in across all models.

5.3.2.2 Market Based Performance Measure

Table 5 shows the results of multivariate regression for audit firm rotation and TQ model. According to the result, the F-statistics for the TQ model is significant at p-value of 0.000 which confirm validity of the model. The Adj R2 indicated that, 5.9% of TQ model can be explained by independent and control variables. Regarding to result, all variables are significantly related to TQ except audit firm rotation. AUDROT is insignificantly related with TQ. LEV is significantly and negatively related with TQ at $p < 0.001$, suggesting that companies with having higher debt are more likely to have lower firm value. LNASSET and SG are significantly and positively related with TQ, suggesting that companies with having larger size and higher sale growth are more likely to have better firm value. Beta is significantly and negatively related to TQ as a measure of firm performance, suggesting that companies with having higher systematic risk are more likely to have lower firm value.

Table 5: Multivariate regression for audit firm rotation and ROA model

Variable	ROA	TQ
	Coefficient (t-statistics)	Coefficient (t-statistics)
Intercept	-0.194 (-13.9)***	0.802 (9.11)***
AUDROT	-0.018 (-2.71)***	-0.002 (-0.05)
LEV	-0.094 (-11.75)***	-0.804 (-15.91)***
LNASSET	0.022 (19.19)***	0.021 (2.94)***
SG	0.053 (11.82)***	0.146 (5.19)***
B	-0.024 (-8.61)***	-0.131 (-7.39)***
N	5420	5420
Prob > F	0.000	0.000
R-squared	0.108	0.060
Adj R-squared	0.107	0.059

*** are significant at $p < 0.01$, ** are significant at $p < 0.05$ and * are significant at $p < 0.10$.

5.4 Robustness Tests

5.4.1 Multicollinearity

Table 6 shows the result of VIF and tolerance value for the firm performance model. According to result, none of the independent variable and control variables had value more than 10 and tolerance value lower than 0.10, suggesting that there is no multicollinearity

problem between independent variables and other independent variables in firm performance model.

Table 6: Multicollinearity test for firm performance model

AFEE			AUDROT		
Variable	VIF	1/VIF	Variable	VIF	1/VIF
LNASSET	1.58	0.634	LNASSET	1.09	0.917
LNAFEE	1.51	0.662	LEV	1.07	0.936
LEV	1.07	0.936	B	1.03	0.975
B	1.03	0.975	AUDROT	1.01	0.992
SG	1.01	0.99	SG	1.01	0.993
Mean VIF	1.24		Mean VIF	1.04	

5.4.2 Heteroskedasticity

This section uses Breusch-Pagan or Cook-Weisberg test to confirm whether heteroskedasticity in firm performance is exists or not. The insignificant p-value shows that the variance of error terms is constant and thus null hypothesis would be accepted. Table 7 indicates that p-value is significant at $p < 0.01$, therefore the null hypothesis has to be rejected and shows the presence of heteroskedasticity.

Table 7: Heteroskedasticity test

Breusch-Pagan or Cook-Weisberg test			
Ho: Constant variance			
Reject H0 if p-value is significant			
		ROA	TQ
LNAFEE	chi2(1)	2247.65	27.74
	Prob > chi2	0.000	0.000
AUDROT	chi2(1)	2258.93	19.22
	Prob > chi3	0.000	0.000

5.4.3 Serial Correlation

Table 8 shows the result of Wooldridge test for serial correlation of firm performance. The insignificant p-value considers that there is no first-order autocorrelation and thus the null hypothesis would be accepted. According to the result of serial correlation test, the p-value is significant at $p < 0.01$ and null hypothesis has to be rejected and shows the presence of serial correlation.

5.4.4 Endogeneity

For the dealing with endogeneity problem recent studies use two econometric methods such as instrumental variable and lag structure [79, 80]. Instrumental variable method and lag structure deals with the potential problem caused by omitted variables and measurement errors. This study uses lag structure, previous studies suggest that there is a time lag in firm performance [81, 82]. It means that audit quality structure may be associated with next year performance. Therefore this study uses lag to show whether the result of lag regression is consistent and robust with main finding or not.

Table 8: Serial correlation

Wooldridge test			
Ho: no first-order autocorrelation			
Reject H0 if p-value is significant			
		ROA	TQ
LNAFEE	F(1, 541)	17.897	31.873
	Prob > F	0.000	0.000
AUDROT	F(1, 541)	17.676	32.318
	Prob > F	0.000	0.000

The results of lagged regression for firm performance models are present in Table 9 which shows that results are consistent with the main finding except LNAFEE and AUDROT in ROA lagged regression model, therefore, it seems that audit fees and audit firm rotation have not effect to return on assets. In the lagged firm performance regression models audit fees is significantly and positively related to firm value and result is consistent with the main finding. Additionally, in the lagged firm performance regression models audit firm rotation is insignificantly related to firm value and this results is consistent with the main finding. Therefor in this regression model the potential endogeneity problem do not seem to be harmful to the results based on lagged structure test.

Table 9: Endogeneity

Variable	LAGROA	LAGTQ	Variable	LAGROA	LAGTQ
Intercept	-0.113 (-5.69)***	0.287 (2.34)**	Intercept	-0.106 (-7.36)***	0.618*** -6.96
LNAFEE	0.001 -0.57	0.0572 (3.97)***	AUDROT	0.002 -0.27	0.038 -0.91
LEV	-0.0683 (-8.27)***	-0.679 (-13.36)***	LEV	-0.0682 (-8.26)***	-0.672*** (-13.21)
LNASSET	0.0132 (9.48)***	0.015 (1.71)*	LNASSET	0.0137 (11.81)***	0.0344*** -4.8
SG	0.0401 (8.7)***	0.048 (1.69)*	SG	0.04 (8.68)***	0.041 -1.46
B	-0.0216 (-7.48)***	-0.161 (-9.04)***	B	-0.0216 (-7.48)***	-0.161*** (-9.01)
Adj R ²	0.0515	0.0497	Adj R ²	0.0514	0.0471

*** are significant at p<0.01, ** are significant at p<0.05 and * are significant at p<0.10.

5.4.5 Additional Estimators

Table 10 and Table 11, show the result of firm performance models that is regressed with robust and GLS estimators to show whether the results are consistent with OLS regression or not. According to the heteroskedasticity and serial correlation problems that mentioned previously, this section used GLS regression which is efficient in controlling

heteroskedasticity and serial correlation problems. It can be clearly seen that the result of robust regression and GLS regression are consistent with the main finding (OLS), suggesting that the main result are robust to different estimators.

Table 10: Additional regression estimators for Audit fees and firm performance model

Variable	ROA			TQ		
	OLS Coefficient (t-statistics)	Robust Coefficient (t-statistics)	GLS Coefficient (z-statistics)	OLS Coefficient (t-statistics)	Robust Coefficient (t-statistics)	GLS Coefficient (z-statistics)
Intercept	-0.170 (-8.78)***	-0.170 (-7.720)***	-0.170 (-8.78)***	0.583 (4.780)***	0.583 (4.210)***	0.583 (4.780)***
LNAFEE	-0.005 (-2.100)**	-0.005 (-2.050)**	-0.005 (-2.10)**	0.037 (2.570)***	0.037 (2.430)**	0.037 (2.5700)**
LEV	-0.094 (-11.75)***	-0.094 (-8.610)***	-0.094 (-11.75)***	-0.810 (-16.03)***	-0.810 (-13.6)***	-0.810 (-16.01)***
LNASSET	0.023 (17.32)***	0.023 (9.260)***	0.023 (17.33)***	0.009 (1.010)	0.009 (0.700)	0.009 (1.010)
SG	0.052 (11.68)***	0.052 (7.080)***	0.052 (11.69)***	0.150 (5.330)***	0.150 (5.070)***	0.150 (5.330)***
B	-0.024 (-8.61)***	-0.024 (-6.370)***	-0.024 (-8.62)***	-0.131 (-7.410)***	-0.131 (-5.71)***	-0.131 (-7.41)***
Adj R ²	0.106	0.11	-	0.061	0.062	-

*** are significant at p<0.01, ** are significant at p<0.05 and * are significant at p<0.10.

Table 11: Additional regression estimators for audit firm rotation and firm performance

Variable	ROA			TQ		
	OLS Coefficient (t-statistics)	Robust Coefficient (t-statistics)	GLS Coefficient (z-statistics)	OLS Coefficient (t-statistics)	Robust Coefficient (t-statistics)	GLS Coefficient (z-statistics)
Intercept	-0.194 (-13.90)***	-0.194 (-7.71)***	-0.194 (-13.91)***	0.802 (9.110)***	0.802 (6.750)***	0.802 (9.110)***
AUDROT	-0.018 (-2.710)***	-0.018 (-1.72)*	-0.018 (-2.710)***	-0.002 (-0.050)	-0.002 (-0.060)	-0.002 (-0.050)
LEV	-0.094 (-11.75)***	-0.094 (-8.55)***	-0.094 (-11.76)***	-0.804 (-15.91)***	-0.804 (-13.34)***	-0.804 (-15.92)***
LNASSET	0.022 (19.190)***	0.022 (10.47)***	0.022 (19.20)***	0.021 (2.940)***	0.021 (2.020)**	0.021 (2.940)***
SG	0.053 (11.820)***	0.053 (7.170)***	0.053 (11.830)***	0.146 (5.190)***	0.146 (4.950)***	0.146 (5.190)***
B	-0.024 (-8.610)***	-0.024 (-6.35)***	-0.024 (-8.620)***	-0.131 (-7.390)***	-0.131 (-5.690)***	-0.131 (-7.390)***
N	5420	5420	5420	5420	5420	5420
Adj R ²	0.107	0.11	-	0.059	0.060	-

*** are significant at p<0.01, ** are significant at p<0.05 and * are significant at p<0.10.

6.0 CONCLUSIONS AND RECOMMENDATION

Using sample of 542 listed companies in Malaysia the results showed that in OLS regression audit fees is significantly and negatively related to return on assets as a measure of firm performance. However, result of lagged regression shows that audit fees is a positively but insignificantly related to return on assets. It means that weaker performance companies are more demand for high audit quality resulting higher audit fees. In addition higher audit fees is encourage auditors for better auditing their clients' financial statements, it also encourage to improve company's performance by transferring their knowledge to company and give appropriate recommendation to companies for achieving their goals. In contrast, audit fee is significantly and positively related to firm value as a measure of firm performance. This result consistent with signaling theory which suggests that companies make a signal to market that their companies audited with high audit quality that lead to enhance market value. These results also consistent with the previous studies related to audit fees and firm performance [39, 70]. We also found that audit firm rotation is significantly and negatively related to return on assets and insignificantly related to firm value, suggesting that companies with having audit firm rotation are more unlikely to have higher return on assets. These results suggest that current auditors are more likely to improve financial firm performance rather than new auditors, resulting of having previous experience and familiarity with their client system. The results are consistent with previous studies who claim that long term audit-client relationships enhance client specific knowledge [18, 31, 46, 83]. In contrast, according to result of lagged regression, there is insignificant relationship between audit firm rotation and three measures of firm performance, showing that switching of audit firm is not important factor for enhancing firm performance. In a relation to audit quality the findings of this study provide a guideline for companies in terms of the extent to which the rotation of audit firm can affect firm performance. The result of this research also can be useful for regulators to consider to issuing mandatory audit firm rotation to enhance auditors independence. This research recommended for future studies investigate other proxies of audit quality and examine that how firm performance can be influences by other proxies of audit quality such as industry specialist auditors and type of audit firm.

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