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The Impact of Audit Committee Independence and Auditor Choice on Firms' Investment Level

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ABSTRACT

The purpose of this study is to examine the relationship between audit characteristics and firm investment efficiency level. Audit characteristics have been characterized using audit committee (AC) independence and external auditor choice. Top 200 Malaysian listed companies based on market capitalization were selected as a sample. Binomial logistic regression analysis was employed to test the hypotheses for 3 years, that is, 2009, 2010, and 2011. The statistical results show no relationship between AC independence and investment inefficiency, while auditor choice was shown to be positively significant only in 1 year of the study, but was not significant in the other 2 years of study. The results provide further confirmation of the role of corporate governance in enhancing the investment performance of the company. This study provides an indicator to shareholders and investors that a company with strong governance structure will likely make better investment decision. Managers under strong governance are prevented from taking an aggressive investment risk approach that may result in overinvestment. In addition, the company will carefully plan to have an adequate capital so that a good opportunity investment will not being passed due to insufficient financing that will result underinvestment. This study is original, as it focuses on the direct relationship between corporate governance mechanism and firm investment efficiency level that is scarce in the literature, with a special focus on emerging markets in the process of developing their best governance practices.

Keywords: Audit committee independence, auditor choice, corporate governance, firm size, investment efficiency, Malaysia

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INTRODUCTION

Corporate governance is the process and structure used to manage the business affairs of a company that allows for accountability. Its ultimate objective is realizing long-term shareholder values, while also taking into account the interests of other stakeholders. Strong corporate governance enhances the transparency of financial statements and improves financial reporting quality (Brown et al., 2010; Firth et al., 2007; Hamid et al., 2011) and thus the investment performance of the company. Reliable company's information will attract prospective investors to invest in the company for a longer term. In addition, company with a good governance has a lower cost of capital. For that reason, good governance will have a positive impact, which may lead to better and more efficient investment decisions and hence, higher firm value (Chen et al., 2011).

Effective corporate governance also will reduce information asymmetry and minimize agency problems via quality financial reporting. Previous studies have shown that information asymmetry and agency cost will ruin a company's performance if the corporate governance of the company is weak. Consequently, this may affect firm's decisions in investment, which leading to existing gap among managers and capital suppliers' interests. Due to this, a company will improvise governance practices, such as enhancing board quality if the company performs poorly (Mulcahy, 2014).

There is a dearth of literature examining the direct impact of corporate governance and firm investment in general, and in the context of developing country like Malaysia in particular. Most of the previous literature has concentrated on the studies related to corporate governance and financial reporting quality (e.g., Agrawal & Chadha, 2005; Ahmad et al., 2016; Brown & Caylor, 2006; Brown et al., 2010; Firth et al., 2007; Hashim et al., 2014; Husnin et al., 2013; Jaafar et al., 2014; Karamaou & Vafeas, 2005) as well as studies concerning financial reporting quality and investment efficiency (e.g., Bushman & Smith, 2001; Gilaninia et al., 2012; Kangarlouei et al., 2011; Li & Wang, 2010; Lin et al., 2015; Shen et al., 2015; Tan et al., 2015). Hence, both areas of research are interrelated as effective corporate governance will lead to increased financial reporting quality, in turn influencing a firm's investment efficiency.

In addition, previous study shows that Malaysians were hit hard by the 1997–1998 Asian financial crisis due to poor governance such as poor capital structure, uncontrollable gearing level, lack of accountability, and weak corporate ethical practices (Khadijah et al., 2015; Manan et al., 2013; Shariman et al., 2018; Salin et al., 2017). Suto (2003) found that the Malaysian corporate sector was too dependent on debt that led to excessive corporate investment before the crisis. Coupled with the weak corporate governance practices, this financial distress is exacerbating. Although many reforms were implemented, Muniandy and Ali (2002) found that more needed to be done to improve the transparency of corporate financial reporting practices to build the confidence and attract potential investors.

Thus, it is interesting to study whether the Malaysian companies have learned a lesson from the financial crisis by making investment in the most efficient way and avoiding excessive or insufficient investment. Deesomsak et al. (2004) found that the financial crisis had a significant impact on firms' capital structure in Thailand, Singapore, and also Malaysia. As one of the most developing country in South East Asia, Malaysia is working very hard to promote itself as a premier investment location and the Greater Kuala Lumpur area as the premier location for multinational company's regional headquarters. In addition, the 6th Prime Minister, Najib Razak has embarked various economic transformation programs (ETPs) with the objective of turning Malaysia into a high income nation by 2020.

Based on this scenario, the purpose of this study is to examine whether corporate governance mechanisms, represented by audit committee (AC) independence and external auditor choice, are able to determine a Malaysian firm's investment efficiency. These two mechanisms that have become the variables in this study are of interest, because a lack of the studies conducted to examine these variables as determinants of the corporate investment efficiency. Previous study shows that these variables are good monitoring corporate mechanism tools to discipline managers in discharging their duty including the roles and responsibilities that are related to the corporate investment.

AC independence, for example, may influence the quality of financial reporting of the company and thus, affecting investment performance. Companies with a higher number of independent directors in an audit committee have a higher tendency to generate better quality accounting earning information (Qinghua et al., 2007), preventing company from managing their earnings (Klein, 2002) and contribute to better performance of the company (Huang & Chan, 2013; Knyazeva et al., 2013). This will attract high-quality capital, which in turn can be used by the firm to only participate in the profitable investment and avoiding from investing in low-quality investment project. A similar scenario is also expected for a company that chooses one of the Big 4 firms as their external auditor, because financial statements audited by this type of auditor tend to be more reliable as compared to smaller audit firms (DeFond & Lennox, 2011; Guy et al*.,* 2010; Jais et al., 2016; Kim et al*.,* 2013; Sundgren & Svanstrom, 2013), because they conform to relevant financial reporting standards (Healy & Palepu, 2001) and are thus viewed as more credible by outsiders.

There are several contributions of this study. First, the study narrows the research gap by examining the relationship between audit characteristics with firm's investment level. This is important in determining whether the check and balance mechanisms are functional and worthwhile to protect the interest of shareholders. Second, it documents evidence showing that strong corporate governance is beneficial

to both investors and shareholders in determining the value of a firm as it will determine whether the corporate governance practice is an effective mechanism to reduce agency cost and information asymmetry and consequently, determine the optimum level of investment of the firms. Practically, this gives assistance to a potential investor to select the right company with the right amount of investment to ensure that their venture in the company is commensurate with the risk taken. Finally, this study will improve the knowledge of shareholders and stakeholders of the current condition of corporate governance and firms' investment level, specifically in the Malaysian corporate context, more than a decade after the country experienced a financial crisis. It is expected that the governance practices of the company should reach the maturity stages because it has been proven that a company with stronger corporate governance are less impacted by the financial crisis.

This paper is organized as follows. The next section contains a review of the literature, an explanation of the theoretical background to support this study, and development of the hypotheses. The third section contains research methodology followed by findings and discussions. The last section contains conclusion and limitations.

LITERATURE REVIEW

Malaysian Corporate Governance

The economic crisis of 1997–1998 increased awareness of good governance in every organization. Sound corporate governance will ensure the integrity of leaders in the organization as well as create a conducive environment for the efficient and sustainable growth of the companies (Suhaimi et al., 2016; Singam, 2003). When there is an increase in corporate governance practices, this strengthens public confidence to invest and participate in the market because they can get better investment information (Abidin & Hashim, 2010).

Realizing this, the High Level Financial Committee on Corporate Governance was founded in 1999 by the Malaysian government with the mission to establish corporate governance framework that is suitable for the Malaysian business and economic environment. As a result, the first Malaysian Code of Corporate Governance was introduced in 2000. This important code guides board of directors in carrying out their duty and responsibilities via highlighting principles and best practices of good governance. This code is revised in 2007 to strengthen the role of the directors particularly their contribution in various board committees in the organization. In 2012, this code underwent another round of revision to include responsibilities of other external stakeholders and market players in the corporate governance system.

Corporate Governance and Investment Efficiency

Li and Wang (2010) described investment efficiency as the positive net present value (NPV) of the investment project undertaken by an organization under a predictive scenario and free from market friction

such as adverse selection or agency cost. McNichols and Stubben (2008) posit that expected benefits and interest from investments such as future growth and product demand are critical factors in investment decision making.

According to previous studies, to increase investment performance level, a firm needs to strengthen their capital structure so that the organization gains ability to finance a good investment opportunity (Verdi, 2006) such as an investment with positive net present value. However, due to financial constraints, a manager will tend to pass some positive net present value projects due to the inability to finance those projects, which will result in underinvestment (Hubbard, 1998).

Nevertheless, under a poor governance structure, although the company may have sufficient capital there is a tendency for the managers to commit fraud (Omar et al., 2016; Rahim et al., 2017; Zakaria et al., 2016) and expropriate the firm's resources by investing inefficiently due to their personal interest that will lead the organization to overinvest (Verdi, 2006). In addition, poor top management support (Suhaimi et al., 2017) and the problem of information asymmetry in an organization may lead a firm to an underinvestment or overinvestment situation (Myers & Majluf, 1984; Verdi, 2006).

Thus, strong corporate governance practices are needed so that the capital of company is optimally utilized to meet optimal investment level of the company. Biddle et al. (2009), for example, found that quality financial reporting information needed to be enhanced in order to improve investment performance levels. When there is a reduction in information asymmetry between the organization and its investors, this contributes to lower organization costs for rising funding and decreases the cost of monitoring managers. Hence, this will improve optimal project selection (Verdi, 2006).

This can be achieved by improving the corporate governance structure via strengthening AC independence and hiring high-quality external auditor to prevent the misalignment of interest between owners and managers of the company. According to Bushman and Smith (2003), a proper corporate governance structure would ensure that the shareholders and stakeholders would receive reliable information about the organization and the manager will not hide the value of their investment. Also, effective corporate governance can mitigate the agency problem and lead to stronger investment performance (Bushman & Smith, 2003).

Agency Theory

Agency theory predicts that even though a manager may be well informed about organizational details and the existence of a profitable investment opportunity, it might not be pursued due to moral hazard problem. Information asymmetry occurs when the managers (agent) knows more information than the capital provider (principal) who do not have access to the information (Phan & Yoshikawa, 2000; Shin & Kim,

2002). As a result, the manager may have an incentive to provide bias information flow. Thus, when there is a difference in goal between the principal and agent, the decision made by the agent may differ from the principal's perspectives. Managers may show tendencies to make investments or decisions that are harmful compared to the interest of the principal. For instance, managers can simply invest in a nonvalue maximizing project to satisfy their own interests and personal goals (Shin & Kim, 2002). According to previous research, agency theory would make a business's fixed investment inefficient due to the agency cost in corporations (Shin & Kim, 2002).

This theory will be used in the present study to examine the relationship between corporate governance structures (i.e., AC independence, auditor choice) and firm's investment level. The theory suggests that there is a conflict between the management self-interest behaviour that is not aligned with shareholder interests. Thus, it is critical to examine whether the monitoring cost incurred to monitor managers is sufficient to prevent this misalignment of interest.

Hypotheses Development

AC Independence. Since incidents of corporate scandal are on the rise, the importance of AC has received considerable attention in organizations (Azim, 2012; Sarens et al., 2009). The existence of AC will improve the efficiency of corporate governance through board monitoring (Leuz & Verrecchia, 2000). AC need to be independent to serve as an effective monitoring body (Azim, 2012) and improve corporate governance practice in the organization (DeZoort & Salterio, 2001) while ensuring that every decision and action taken by the organization is free from biases and personal interests. Barua et al. (2010) claimed that AC composition was an important determinant factor for an effective monitoring mechanism. Effective functions of AC roles and responsibilities include minimizing agency conflict, protecting shareholder interests, mitigating corporate failure, and consequently increasing a firm's value (Mohiuddin & Karbhari, 2010). AC independence is also able to enhance financial reporting quality and indirectly increase a firm's performance (Erickson et al., 2005).

In the Malaysian context, an organization with a lesser number of independent directors in AC associated with low corporate performance (Al-Mamun et al., 2014), has higher tendency to commit fraud (Hutchinson & Zain, 2009), amend financial reports (Ismail & Rahman, 2011; Wahab et al., 2014) and involve in earnings management (Bukit & Iskandar, 2009; Jamil & Nelson, 2011; Rahman & Ali, 2006; Salleh et al., 2007). All of these empirical findings show that AC independence can be an effective mechanism to monitor a company, including scrutinizing firm's investment efficiency in either overinvestment or underinvestment. Thus, the hypothesis is as follows:

H_1: There is a no relationship between AC independence and overinvestment or underinvestment level.

Auditor Choice. Fan and Wong (2005) found that auditors did take part in monitoring and controlling roles to mitigate agency conflicts that may arise between the owners and managers. This will reduce the information asymmetry and agency cost via increased disclosure (Bokpin, 2013; Ntim et al., 2012) and better reliable information (Husnin et al., 2016; You et al., 2003). Also, Jensen and Meckling (1976); Watts and Zimmerman (1983) suggested that an auditor can help the board and its shareholders to monitor the manager and safeguard the integrity of financial reports. In addition, the appointment of an auditor also can reduce managerial opportunities to perform earning manipulation related to the accounting information. This is documented by Lee and Lee (2013), who found that the size of audit firms improves the value relevance of earnings and book value of equity of the company.

DeFond and Zhang (2014) suggested that higher audit quality gave greater assurance of high financial reporting quality. Becker et al. (1998); Teoh and Wong (1993) found that financial reporting was more reliable and higher in quality if the financial reporting was audited by a large audit firm. Quality auditors who produce reliable financial reports will have the ability to reduce agency cost and information asymmetry (Chow, 1982) and will indirectly encourage the management to fulfil their roles and responsibilities to act in the interests of its shareholders (Asmuni et al., 2015). Furthermore, increased financial reporting quality will lead to optimal firm investment level through the mitigation of adverse selection (Balakrishnan et al., 2014; Kangarlouei et al., 2011).

Previous studies in Malaysia showed that bigger size audit firm would qualify audit report of the company with aggressive earnings management (Johl et al., 2007), associated with less audit delay (Che-Ahmad & Abidin, 2008) and hired with higher risk and complexity, indicating their capacity and expertise in monitoring this type of business entities (Nazri et al., 2012; Wahab et al., 2011). Gul (2006) also found that Malaysian auditors increased premium and hence, audit worked for high risk clients. Based on these literatures, it can be concluded that a higher quality auditor has the influence to diminish both overinvestment and underinvestment, hence increasing firm investment efficiency and performance level. The next hypothesis is as follows:

H_2: There is no relationship between the choice of auditors and the firm's overinvestment or underinvestment level.

METHODS

Sample Selection

The samples for this study consist of the top 200 public listed companies, based on their market capitalization at the end of 2011. This sample has excluded finance industries due to differences in nature of business as

well as accounting practices and treatment (Arce & Mora, 2002). Companies listed in the secondary market and without sufficient data were also excluded, leaving the final sample total at 163. The data for similar companies also collected for 2010 and 2009 (Table 1), making the total observations 489 firm-years.

Table 1
Sample selection

Top 200 ranking companies.	200
Less: Finance industry companies	(24)
Secondary market company	(1)
Companies with insufficient data	(12)
Total sample selected	163

Data Collection

The main sources of the data have been collected from the companies' annual reports and Thomson DataStream for 3 consecutive years, from 2009 until 2011.

Dependent Variable

Investment Level. The dependent variable (firm investment level) for the final model used in this study is the residual or error term of yet another regression model. To derive the residual, the preliminary regression model must be constructed. As the study examines data from 3 consecutive years, from 2009 until 2011, there will be three preliminary multiple linear regression models, that is, the base year 2011 (*t*), 2010 (*t*–1), and 2009 (*t*–2). The general preliminary regression models are explained below.

$$Y1 = \alpha 0 + \alpha 1\, Z1 + \alpha 2\, Z2 + \alpha 3\, Z3 + \varepsilon 1$$

Where:

Y_1 = Investment, measured by investment in plant, equipment, land, buildings, and research and development expenditure *less* revenue from selling fixed asset *over* total assets

Z_1 = Growth in revenue in the preceding years. This is coded as 0 or 1. The figure 0 means there was no growth or positive growth in years (*t*)* where *t* is the base year 2011. The figure 1 means there was negative growth in year (*t*)* [*For 2010 = (*t*–1), 2009 = (*t*–2)]

Z_2 = Percentage of firm's revenue growth in year (*t*)* where *t* is base year 2011[*For 2010 = (*t*–1), 2009 = (*t*–2)]

= ((Revenue (*t*)* less revenue (*t*–1)** over revenue (*t*–1)**) × 100 %
[*For 2010 = (*t*–1), 2009 = (*t*–2)]
[**For 2010 = (*t*–2), 2009 = (*t*–3)]

Z_3 = The product of Z_1 and Z_2 for the year (*t*)*

= $(Z_1 \times Z_2)$
[*For 2010 = (*t*–1), 2009 = (*t*–2)]

ε_1 = Residual or error term for the year (*t*)*
[*For 2010 = (*t*–1), 2009 = (*t*–2)]

Investment level has been measured by the deviation from expected investment using the investment prediction model as a function of revenue growth, per Biddle et al. (2009); Kangalouei et al. (2011); Li and Wang (2010). The differences or changes from normal standards of expected investment are considered inefficient investments. The differences will be determined through their residual error term. If there is negative residual error term, it is considered as underinvestment whereas positive residual error term is considered as overinvestment. For the purpose of running the overall regression model, the error term (residual) found in the preliminary multiple regression models will be used as the new dependent variable.

Independent Variables

AC Independence. AC independence has been measured by the proportion of the independent non-executive directors out of total number of directors (Azim, 2012).

Auditor Choice. In this study, the choice of auditor is measured by referring to the representation of the audit firm that audits the company either Big 4 or non-Big 4 audit firm. Big 4 auditors comprised of Deloitte, KPMG, Ernst and Young, and PriceWaterhouseCoopers. It is measured by the proxy of a dummy variable. If the auditor is Big 4, the dummy is 1 and 0 for non-Big 4 audit firms (Ahmad-Zaluki & Hussin, 2009).

Control Variable

Firm Size. Firm size is used as a control variable as measured by total assets of the company (Ghazali, 2010; Tian & Lau, 2001). To avoid non-normal distribution, total assets have been transformed into $\log_{10}$ value, consistent with many previous studies that have used assets as a control variable in the empirical research such as Nor et al. (2017).

Statistical Analysis

Binomial logistic regression analysis was used to test the research hypothesis in this study as the dependent variable is categorized (overinvestment, underinvestment) and the model has one or more independent variables (AC independence, auditor choice). In this study, there are three developed logistic regression equations that are represented for the years 2009, 2010, and 2011. The general logistic regression equation model for 2011 is as follows:

$$Y_2 = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon_2$$

Where,

Y_2 = Residual of the preliminary model. If ε_1 is less than zero or negative value (indicating underinvestment in previous studies), then coded as 0. Whereas, if ε_1 is more than zero or positive value (indicating overinvestment in previous studies), then it will be coded as 1 for the year (t)

X_1 = Proportion of independent non-executive directors in the AC for

the year (t).

X_2 = Whether the auditors come from the Big 4 firm (Ernst and Young, Deloitte, KPMG, PricewaterhouseCoopers) or not. If yes = 1, if no = 0 for year (t).

X_3 = Firm size in terms of value of the total asset, expressed as a $\log_{10}$ function for the year (t).

ε_2 = Residual or error term for the final model in the year (t)

The equation models for 2009 and 2010 are similar except that 2009, year = t–2 and for 2010, year = t–1.

RESULTS AND DISCUSSION

Descriptive Statistics

Table 2
Number and percentage of firms based on industries

Industry	Size	
	No	%
Trading and Services	46	28.2
Industrial Product	34	20.9
Plantation	25	15.3
Consumer Product	23	14.1
Property	20	12.3
Construction	7	4.3
Infrastructure	4	2.5
Hotel	2	1.2
Technology	2	1.2
Total	163	100

Table 2 shows the number of companies in the sample selected based on industry. Majority of the companies are from Trading and Services and Industrial Product segment, which make up almost 50% of the total sample.

Table 3 partly presents the finding of the descriptive analysis of the continuous variable for year 2011, 2010, and 2009 that consist of AC independence and log of the total assets. The minimum and maximum values of the proportion of independent AC members are 0.60 and 1.00, respectively. This shows that all the companies comply with the MCCG requirements to have a majority independence member in the AC, in this case 60%, while there are also companies that comprised 100% independence members. The averages of independent AC members are about 87.64% to 89.99%. In term of assets, the minimum number of the log total asset is 5.08, 5.29, and 5.2 in the years 2011, 2010, and 2009 respectively, while the maximum is 7.87 for years 2011 and 2010 and 7.85 for 2009.

Table 3
Descriptive statistics of all the variables

Variables	Years	Min	Max	Mean	SD
AC Independence	**2011**	0.60	1.00	0.8999	0.14804
	2010	0.60	1.00	0.8858	0.14731
	2009	0.60	1.00	0.8764	0.14319
Total assets$_{log10}$	**2011**	5.08	7.87	6.3937	0.52538
	2010	5.29	7.87	6.3451	0.52752
	2009	5.20	7.85	6.3020	0.53807
				No of Companies	%
Investment	**2011**	Overinvested		86	52.8
		Underinvested		77	47.2
	2010	Overinvested		86	52.8
		Underinvested		77	47.2
	2009	Overinvested		85	52.1
		Underinvested		78	47.9
Auditor choice	**2011**	Big 4		135	82.8
		Non-Big4		28	17.2
	2010	Big 4		135	82.8
		Non-Big4		28	17.2
	2009	Big 4		136	83.4
		Non-Big4		27	16.6

AC = Audit committee

Table 3 also shows the descriptive statistics for the categorical variables that includes firm's investment level and auditor choice. There is a slightly higher number of the companies that overinvest, approximately 52% to 53% for all the years indicating that there is no substantial difference between the numbers of companies that overinvest or underinvest in the period of study.

The auditor choice is represented by both Big 4 and non-Big 4 audit firms. It indicates that the majority of the companies (about 82%–83%) employed by Big 4 as their auditor, indicates their trust on the quality of work and accountability perform by this kind of firms. In addition, Big 4 is more competent to audit the company that is more complex in their operation and activities including investment activities. Besides, due to an increase in the perception of investors and stakeholders' on transparency, competent, and proficient auditors are in higher demand (Rahman & Ali, 2006).

Correlation Analysis

Table 4 presents the Pearson correlation matrix of all the variables. The investment is significantly correlated with auditor choice in 2011 ($r = 0.171$, $p < 0.05$) and firm size,

measured by total assets in all three years (2011 – r = 0.292, p < 0.01; 2010 − r = 0.222, p < 0.01; 2009 − r = 0.209, p < 0.01). Generally, all correlation values are less than 0.8, indicating no multicollinearity issue as suggested by Gujarati (2003).

Table 4
Correlation coefficient matrix of all the variables

	Investment	AC independence	Auditor choice	Total $assets_{log10}$
2011				
Investment	1			
AC independence	−0.060	1		
Auditor choice	0.171*	0.047	1	
Total $assets_{log10}$	0.292**	0.088	0.139	1
2010				
Investment	1			
AC independence	−0.087	1		
Auditor choice	0.090	0.002	1	
Total $assets_{log10}$	0.222**	0.037	0.147	1
2009				
Investment	1			
AC independence	−0.064	1		
Auditor choice	−0.030	-0.022	1	
Total $assets_{log10}$	0.209**	0.073	0.143	1

** Correlation is significant at the 0.01 level (two-tailed)
* Correlation is significant at the 0.05 level (two-tailed)

Results From the Logistic Regression Models

Logistic regression analysis was used in this study to explore the predicted ability of independent variable (AC independence, auditor choice) on the categorical dependent variable (overinvestment, underinvestment). There are three types of assumptions that must be considered before using these types of analyses, which are sample size, multicollinearity and outliers (Pallant, 2010). In this study, there are 163 companies selected for the sample in 2009, 2010, and 2011. This amount is a sufficient requirement to run logistic regression per Field (2009) as at least 50 cases are needed to run this type of analysis.

Multicollinearity has been investigated based on Tolerance and VIF (Variance inflation factor) values. Based on Table 5, all the variables have a tolerance value of more than 0.1 and VIF of below than 10, indicating no multicollinearity problem among the variables.

Table 5
Multicollinearity test - Tolerance and VIF

Variable		Collinearity Statistics	
		Tolerance	VIF
AC Independence	2011	0.829	1.206
	2010	0.798	1.254
	2009	0.836	1.196
Auditor choice	2011	0.972	1.028
	2010	0.976	1.025
	2009	0.960	1.042
Total $assets_{log10}$	2011	0.861	1.162
	2010	0.836	1.196
	2009	0.864	1.158

AC = Audit committee

For the third assumption, outliers, visual examination of the scatter plot confirmed that all cases were between 3.3 to −3.3 indicates that outlier conditions have been sufficiently met in order to conduct the logistic regression analysis (Tabachnick & Fidell, 2007).

Table 6
Logistic regression analysis of final model

	2011	2010	2009
AC independence			
B	−1.173	−0.455	−0.880
SE	1.293	1.258	1.199
Wald	0.823	0.131	0.538
Sig.	0.364	0.718	0.463
Odd Ratio or Exp(B)	0.309	0.635	0.415
Lower	0.025	0.054	0.040
Upper	3.9	7.472	4.349
Auditor choice			
B	0.867	0.364	-0.345
SE	0472	0.448	0.447
Wald	3.369	0.662	0.598
Sig.	0.066***	0.416	0.440
Odd Ratio or Exp(B)	2.379	1.439	0.708
Lower	0.943	0.599	0.295
Upper	6.002	3.461	1.699

Table 6 *(continue)*

	2011	2010	2009
Total assets$_{log10}$			
B	1.262	1.067	0.879
SE	0.373	0.363	0.342
Wald	11.419	8.658	6.600
Sig.	0.001**	0.003**	0.01**
Odd Ratio or Exp(B)	3.532	2.908	2.409
Lower	1.699	1.428	1.232
Upper	7.342	5.92	4.711
Constant			
B	−6.709	−4.044	−3.844
SE	2.422	2.285	2.199
Wald	7.676	3.132	3.056
Sig.	0.006	0.077	0.080
Odd Ratio or Exp(B)	0.001	0.018	0.021

*AC = Audit committee, *p < 0.05, **p< 0.01, ***p< 0.1*

Table 6 presents the finding of logistic regression analysis for all the years under examination. For 2011, only auditor choice has significant relationship with firm investment level significant at 10% (χ^2 (5, N = 163) = 6.926, $p > 0.05$). As a whole, the results explain between 12.4% (Cox and Snell R square) and 16.5% (Nagelkerke R square) of the variance in firm's investment level in the companies and correctly classified 65% cases. In this year, auditor choice is also the strongest predictor of 2.379 while the weakest predictor is AC independence at 0.309. The result from the regression shows that auditor choice has positive significant relationship with overinvestment level indicating most of the organizations that employ Big 4 auditors have a higher tendency to overinvest.

None of the independent variables show significant findings in 2010 and 2009. In 2010, the results explain between 9.6% (Cox and Snell R square) and 12.8% (Nagelkerke R Square) of the variance in investment efficiency in the companies and correctly classified 60.7% of the cases (χ^2 (5, N = 163) = 8.019, $p > 0.05$). In 2009, the result explains between 5.8% (Cox and Snell R square) and 7.8% (Nagelkerke R square) of the variance in investment efficiency in the companies and correctly classified 61.3% of cases (χ^2 (5, N = 163) = 0.783, $p > 0.05$). Auditor choice is the strongest predictor for both years (2010: 1.439; 2009: 0.708) compared to AC independence (2010: 0.635; 2009:0.415).

Total assets have shown a significant relationship with firm's investment level in all three years at a 1% significant level, indicating that the larger a firm size is, the greater tendency to overinvestment. This also implies that the higher the total assets of the company possess, the higher this variable may contribute to overinvestment.

Table 7
Result of the hypothesis testing

	2011	2010	2009
Hypothesis 1	Supported	Supported	Supported
Hypothesis 2	Reject	Supported	Supported

Table 7 summarizes the hypotheses that have been tested. It shows only hypothesis 2 being rejected, indicating that companies that employ Big 4 auditor have the tendency to overinvest. This result, however, needs to be deduced with precautions due to several reasons. First, it was only rejected in 1 year, 2011, but supported in 2 previous years, implying that it is actually supported or accepted in majority period of under examinations. Second, it is only significance at 10% level, which is considered the weakest level of statistical significant. If this research decides the significance level of 5% or 1%, this hypothesis will be rejected.

Hypothesis 1 was supported in all 3 years, while hypothesis 2 was supported in 2010 and 2009, consistent with many previous empirical findings such as Barua et al. (2010); Benlemlih and Bitar (2016); De Zoort and Salterio (2001); Nor et al. (2017), and Sun (2016). Although audit committee and external auditor do not directly responsible for investment decisions, their role as a watchdog entities ensure the rules, regulations, and guidelines of the company are to be complied by the managers. Thus, the managers need to properly manage the company so that the company has sufficient capital to finance high-quality investment when the opportunity come and avoid them to forego high-quality project due to insufficient financing as a result of poor capital management. Beside, credible and more transparent financial reporting, coupled with good corporate governance structure able to attract long-term genuine investors and business partners that generate huge positive return to the company,

In addition, close monitoring by audit committee and external auditor are effective as disciplinary tools to prevent managers from expropriate company's resources for personal gain and making poor decision to invest in low-quality investment project. Hence, the managers will be more accountable in managing corporate investment and aligned their interest with the corporate objective.

This is consistent with argument of agency cost within the Agency Theory in monitoring the behavior of the managers. Effective corporate governance can mitigate the agency problem and hence, lead to a stronger investment performance (Bushman & Smith, 2003). Previous studies also show that AC composition is an important determinant factor for effective monitoring mechanism (Azim, 2012; Barua et al., 2010; De Zoort & Salterio, 2001). Other researchers such as Becker et al. (1998); Benlemlih and Bitar, (2016); Chow (1982); DeFond and Zhang (2014); Fan and Wong (2005); Lee and Lee (2013); Nor et al.

(2017); Sun (2016); Teoh and Wong (1993), and You et al. (2003), also suggesting strong monitoring elements in corporate governance mechanism are able to improve the investment efficiency of a company.

CONCLUSION

Jensen and Meckling (1976) suggested that managers were more highly motivated to maximize their wealth rather than pursuing shareholders' interests through investment opportunities. The existence of information asymmetry between a firm and shareholders can impair investment efficiency due to moral hazard issues and an adverse selection may lead to either overinvestment or underinvestment. The implementation of corporate governance plays an important role in monitoring and controlling either overinvestment or underinvestment. This study intended to test the hypotheses whether corporate governance structure, proxies by AC independence and auditor choice has the influence to firm's investment level measured by overinvestment or underinvestment. Logistic regression analysis has been employed to examine the relationship between the variables.

The statistical results indicate no relationship between AC independence with overinvestment and underinvestment level, implying that the existence AC independence will improve the corporate governance through board monitoring on the efficiency of the company's investment. The analysis also shows that choice of auditor does not influence whether a firm is underinvested or overinvested in 2-year period under examination, showing company employing larger audit firm also has good and strong governance mechanism that lead to durable investment level and has stable and profitable investment in the longer outlook. Overall, this study has contributed to the accounting literature, particularly in the examination of corporate governance structure and investment level, by concluding that corporate governance is an effective mechanism to monitor and control company's overinvestment or underinvestment.

This study also gives additional knowledge on the effectiveness of the audit committee as a corporate governance mechanism to professional practitioners, accounting bodies and policy makers such as Bursa Malaysia, Securities Commission, Malaysian Institute of Corporate Governance and Malaysian Institute of Accountants. These institutions and bodies need to embark more efforts to strengthen the policies on the audit committee effectiveness and improving the accounting and auditing profession quality. For shareholders of the company, they need to influence the top management to select high-quality auditors such as a Big 4 audit firms and adopt the best practices in establishing the audit committee of the company. For other group of stakeholders such as lender and supplier, they need to carefully choose their clients and trading partners like select the companies that exercise good governance practices as this type of company manage

their assets and cash carefully and do not waste their resources in making wrong investment decision.

There are some limitations of this study. First, we have selected a limited number of samples based on the top 200 ranking from market capitalization. This is more likely to capture large-sized companies. Second, only 3 consecutive years, from 2009 till 2011 are selected. Another study should consider years both before and after the implementation of MCCG 2012 in order to scrutinize the effectiveness of corporate governance implementation among listed companies.

Third, this study has used two proxies to measure investment level that includes residual value of overinvestment or underinvestment (deviation from expected investment), which have not been measured as a single variable. Thus, individual measurement of each variable should be incorporated into future research.

Fourth, from a geographical perspective, this study has been limited to only Malaysia. It does not have a global outlook with countries with different economic levels. Therefore, this study is restricted to companies from developing countries. Future studies may expand the sample selection to more countries and examine whether there is a significance influence due to variations in economic and governance models.

Finally, this study is a cross-sectional study; thus, it may have limited the consequences and results of the hypothesis testing. Future studies should collect more years of data and employ a time series to obtain more robust and reliable results.

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