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## Institutional ownership and market-based performance indicators: Utilizing generalized least square estimation technique

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### Abstract

This study investigates the relationship between institutional ownership and company performance of public listed companies in Malaysia. Three years panel data of 730 Malaysian public listed companies were examined. The results showed that institutional ownership had positive and significant relationship with Tobin's Q and share price. Therefore, the involvement of institutional investor in monitoring and controlling activities reduced agency conflict and enhanced corporate performance in the emerging economy.

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### 1. Introduction

Institutional investors are considered as the key players in most financial markets and their influence on corporate performance is increasing because of the privatization policy adopted by various countries. Accordingly, one can argue that the major actors in many capital markets are institutional investors. This argument is based on the fact that institutional investors may affect the management performance and the activities directly through their ownership and indirectly by their ability to trade the shares (Gillan & Starks, 2003). Further, the institutional investors may play a key role in monitoring firms and transmitting information to other shareholders.

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Agency theory proposed that agency relationship occurs whenever one party hires another party to act on behalf of its interests. In corporations, institutional shareholders as owners of the firm delegate the managers to act on behalf of their interests. Therefore, shareholders are considered as the principals and the managers are considered as the agents. This separation of ownership and management in a corporation creates a principal-agent relationship. The agency theory assumes that each party is acting on its self-interests who are concerned with maximising their own utility.

Many authors argued that the involvement of institutional shareholders in monitoring or controlling activities has the potential to reduce the agency problems (Shleifer & Vishny, 1986; Huddart, 1993; Admati, Pfleiderer, & Zechner, 1994; Maug, 1998; Noe, 2002; Alireza & Ali Tahbaz, 2011). Empirical evidence on the monitoring role played by large institutional shareholders has provided some support for this theory (Gillan & Starks, 2003). An early study by Bethel, Leibeskind, and Opler (1998) reported that company performance improved after an institutional investor purchases a block of shares.

Institutional investors can act as a monitoring device. They might reduce the need for capital markets to procure external monitoring systems. Gillan and Stark (2003) suggested that institutional investors play a key role in minimizing the agency conflicts. This can be done by monitoring the management performance or even taking control of the firm itself (Huddart, 1993; Admati *et al.*, 1994; Maug, 1998). They also stated that only institutional shareholders with large ownership have significant incentives to monitor the management.

Further, the entrenched management is difficult when institutional investors play an effective monitoring role as suggested by McConnell and Servaes (1990). They stated that performance is significantly and positively related to institutional investors. This is consistent with the findings by Han and Suk (1998). Other studies by Kaplan and Minton (1994), and Kang and Shivdasani (1995) found that the presence of large institutional shareholders is associated with increased management turnover. This suggests that institutional shareholders provide a monitoring function to oversee the management.

In addition, a credible monitoring occurs when the institutional shareholders need to maintain the investment for a long period of time and hold enough shares to mitigate the free rider problems (Gillan & Starks, 2003). They added that under certain conditions, there will be a pay-off for the institutional investors who perform costly monitoring to oversee the managers. There will also be a pay-off for the managers who cooperate with this effort. Chidambaran and John (2000) stated that this type of monitoring which can be termed as 'relationship investing' will be able to produce optimal benefits for both the institutional investors and managers.

## **2. Literature review and theoretical development**

### *2.1 Institutional investors*

A study by Hartzell and Starks (2003) provided empirical evidence suggesting that institutional investors serve a monitoring role with regard to executive compensation contracts. First, they found a positive relationship between institutional ownership and the pay-for-performance sensitivity of executive compensation. Second, they reported a negative association between concentration of institutional ownership and excess salary. Another study by Chung, Firth, and Kim (2002) hypothesized that there will be less opportunistic earnings management in institutional investor-owned companies because they will be pressured to adopt better accounting policies. Therefore, companies with significant institutional ownership are expected to have more reliable financial information.

Signalling theory proposed that another potential role of institutional investors is to provide a credible mechanism for sharing information among investors. This is because the outsiders have different information compared to the insiders. This information gap means that the firm has to provide signals about the firm performance to the market and among investors. Signalling theory assumes that investors can deduce information regarding the future position of the firm through a signal which comes from any signalling mechanisms including ownership changes, leverage or dividend announcements. Therefore, the institutional investors are considered as one of the firm signalling devices. The existence of institutional investors or large shareholders mitigates the need for other tools to signal good performance. According to Gillan and Starks (2003), the institutional investors play a significant role in transmitting information to other investors and the financial markets. Another study by

Chidambaran and John (2000) stated that institutional shareholders can convey private information that they obtain from the management to other shareholders.

The incentives and effectiveness of monitoring vary among the institutional ownership community. A study by Pound (1988) stated that institutional ownership has the tendency to help entrenched managers by voting for the management team. In addition, Brickley, Lease, and Smith (1988) categorized institutional ownership into two groups: pressure-sensitive and pressure-insensitive. They noted that pressure-sensitive shareholders might prefer to go along with management decisions. This is because the pressure-sensitive shareholders might have business relations with the company. They added that companies with greater holdings by pressure-sensitive shareholders, for example bank and insurance companies have more proxy votes favoured by the management. In contrast, companies with greater holdings by pressure-insensitive shareholders such as pension funds and mutual funds have more proxy votes against the management's recommendations.

Since 1980s, the Malaysian government has been encouraging institutional investors as strategic vehicles to hold equity issues arising from the privatization and corporatization of government enterprises and to support equity finance of the growth sectors. Any new equity issues in the stock market were apportioned to these institutions at favourably low prices (Suto, 2003).

According to Thillainathan (2001), although institutional investors are making their presence felt in the Malaysian corporate sector, they are rarely active in monitoring the management. The concentrated shareholding of Malaysian corporations has been attributed to weaknesses in the shareholders' rights or the poor enforcement of these rights. In certain activities, restriction on competition has led to higher returns or lower risks and thus reducing the incentives of the controlling shareholders to share these benefits with other shareholders (Abdul Rahman, 2006). These ownership concentrations imposed a severe constraint on the market for corporate control as they provide little or no role for hostile takeovers to play a disciplinary role on insiders who are not working towards the maximisation of shareholder values (Thillainathan, 2001).

Institutional investors in Malaysia are high as compared to other nations in Southeast Asia (Abdul Wahab *et al.*, 2009). They added that in 2003, the total institutional investors in Malaysia was approximately 13 per cent of the total market capitalization of Bursa Malaysia. Major local institutional investors in the Malaysian capital market including the Employees Provident Fund (EPF), Khazanah Holdings (KH), Lembaga Tabung Angkatan Tentera (LTAT) and Pilgrims' Fund (LUTH) have significant investments in Malaysian corporations. In addition, Permodalan Nasional Berhad (PNB), which often has a sizeable minority or even controlling interests, is normally represented on board and plays an active role in monitoring the performance of the companies. Another institutional investor is Pertubuhan Keselamatan Social (PERKESO) which serves as an insurance scheme for all Malaysians working in either the public or the private sector.

## 2.2 Market-based measures

Most of the previous studies adopted the accounting measures as indicators of firm performance and placed less attention on the market measures. According to Chakravarthy (1986) and Oswald and Jahera (1991), academics and researchers argued that accounting measures seemed to be inadequate as an indicator to evaluate the efficiency of firm performance. According to Wiwattanakantang (2001), although accounting information is useful and important in measuring company performance, not all of the agency costs are reflected in the accounting measures. This limitation has led researchers to utilise information based on the market indicators of performance such as stock prices. Therefore, this study adopts two types of market measures as tools to measure the firm performance, which are Tobin's Q and share prices.

Tobin' Q is one of the popular market measures pioneered by James Tobin who intended to examine the causal relationship between the q value and investment. He introduced the variable of q as scaled by the ratio of the market value to replacement cost (Brainard & Tobin, 1968; Tobin, 1969, 1978). He claimed that firms have the incentives to invest if the margin q value exceeds unity, since the new capital investment value will exceed its cost (Lindenberg & Ross, 1981). In addition, Tobin's Q has been used extensively among academics, researchers and practitioners, and is claimed as one of the best market measurement tools.

Chakravarthy (1986) and Oswald and Jahera (1991) suggested that stock prices can be a good measure and indicator of firm performance. In addition, Lindenberg and Ross (1981) stressed that stock prices have to reflect the true value of the firm where the capital market is fully developed in order to use it as a performance measure.

The stock market-based performance measure is used as the performance indicator for two reasons. First, unlike accounting-based measures, market-based measures are not influenced by firm-specific reporting idiosyncrasies and potential managerial manipulation. Second, the use of stock price measure is consistent with an important principle in agency theory which is the manager should maximize the market value of the firm. Utilizing stock prices as one of the performance indicators is expected to produce more accurate results to explain the institutional ownership and performance relationship.

**3. Institutional ownership and corporate performance**

The role of institutional ownership in economy is a debatable subject. As one of the owners of companies, institutional shareholders have certain rights, including the right to elect the board of directors. The board has the responsibility to monitor corporate managers and their performance. If institutional shareholders are dissatisfied with the company performance they will choose either to sell their shares, hold their shares and voice their dissatisfaction or hold their shares and do nothing. Hirschman (1971) characterized these alternatives as exit, voice and loyalty.

Institutional investors normally hold large equity ownership. Therefore, institutional investors have the potential to influence management’s activities directly through their ownership and indirectly by trading their shares (Gillan & Stark, 2003). Many authors argued that the involvement of large shareholders in monitoring or controlling activities has the potential to limit agency problems (Shleifer & Vishny, 1986; Huddart, 1993; Admati, Pfleiderer, & Zechner, 1994; Maung, 1998; and Noe, 2002). A study by Han and Suk (1998) and Jiang and Yamada (2011) found that stock return has a positive relationship with institutional ownership. These authors have further argued that only large shareholders have the incentives to monitor company activities. This initiative will lead to improvement in the company performance.

According to Thomsen and Pedersen (2000), institutional ownership is likely to imply advantages in terms of finance, low risk aversion and a relatively long-time horizon. Therefore, institutional investors are characterized by portfolio investments and normally they have strong relationship with the company that they invested in. Thomsen and Pedersen (2000) added that for institutional ownership that is relatively specialised as the owner, their performance is often measured in terms of financial success, and their objectives can be described as shareholder value liquidity. It is believed that institutional investors have positive effects on firm performance. Consistent with the arguments, following hypotheses are proposed:

- H1: *The higher the concentrated institutional ownership in a company, the higher the Tobin’s Q.*
- H2: *The higher the concentrated institutional ownership in a company, the higher the share prices.*

**4. Model for ownership structure and performance**

The econometric model developed comprises two equations. The first model utilizes Tobin’s Q as performance indicator and second model utilize share price as the performance indicator. These equations are tested in the current paper and are formally presented below:

$$Q_{it} = \alpha_0 + \beta_1 LINST_{it} + \beta_2 LSIZE_{it} + \beta_3 GROW_{it} + \beta_4 LEV_{it} + \beta_5 LPRO_{it} + \beta_6 AGE_{it} + \epsilon_{it} \tag{1}$$

Notes:

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Q	Tobin's Q
$\alpha_0$	Intercept/constant term.
LINST	Log of institutional ownership
LSIZE	Log size (log of total assets)
GROW	Growth
LEV	Leverage
LPRO	Log of profitability
AGE	Company age
$\epsilon$	Error term

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$i$	$i$ th firm
$t$	$t$ th period

$$SP_{it} = \alpha_0 + \beta_1 LINST_{it} + \beta_2 LSIZE_{it} + \beta_3 GROW_{it} + \beta_4 LEV_{it} + \beta_5 LPRO_{it} + \beta_6 AGE_{it} + \epsilon_{it} \quad (2)$$

Notes:

SP	Share price
$\alpha_0$	Intercept/constant term.
LNST	Log of institutional ownership
LSIZE	Log size (log of total assets)
GROW	Growth
LEV	Leverage
LPRO	Log of profitability
AGE	Company age
$\epsilon$	Error term
$i$	$i$ th firm
$t$	$t$ th period

## 5. Data

Data of this study was collected from secondary sources. Ownership data was collected from the list of 30 largest shareholding in annual reports downloaded from Bursa Malaysia website. After considering the incomplete information, there were 730 usable samples covering three periods from the 2007 to 2009. Therefore, the study comprises 2190 observations. However, the companies classified under the finance sector were excluded in this study because of their unique features and business activities, as well as differences in compliance and regulatory requirement. The 3-year period was chosen since from 2007 to 2009, UNCTAD (2010) reported that on average, capital outflow amounted to 28 per cent of the gross fixed capital formation annually, double the size of capital inflow within the same period. The change or variation in shareholding would provide richer panel data since the main interest is to examine the effect of institutional shareholding on corporate performance.

Normality check of the data was also carried out and some of the measures were transformed into logarithm to control for skewed nature of data. As multivariate regression is used to analyze the data in this study and all assumptions of multicollinearity, homoscedasticity and linearity are also examined rigorously.

## 6. Results

### 6.1 Result of data: Stationary normality test

The result of data stationary normality test using data mean, medium, standard deviation, skewness and kurtosis are shown in Table 1. According to Tabachnick and Fidell (2001), normality of data is important especially when parametric statistical techniques are utilized in the study. Population or sample is assumed to be normally distributed when mean of variables is similar to the value of median, skewness value is zero and kurtosis value equal to 3. Skewness and kurtosis are two components in determining normality (Pallant, 2005). The diagnostic test showed that no variables have the value of mean equal to value of median. In addition the skewness value of some variables are mixed, both positively and negatively, indicating that their distributions are skewed to the right side or to left side of the curve. The sample is assumed to be normally distributed if the skewness value is zero. The kurtosis value of variables showed no variable with a value of 3. Therefore, it indicates that the results for some variables violate the assumption of normally distribution.

Table 1. Results of normality test

	TQ	SP	LINST	LSIZE	GRW	LEV	LPRO	AGE
Mean	0.617	1.559	0.979	5.531	1.422	0.188	4.239	15.396
Median	0.330	0.070	1.190	5.480	0.710	0.060	4.192	13.000
Maximum	38.000	45.500	2.190	7.850	14.900	16.174	6.962	50.000
Minimum	-1.350	0.010	-2.700	0.780	0.010	-0.062	1.041	0.000
Std. Dev	1.638	2.870	0.779	0.661	1.940	0.877	0.782	11.242
Skewness	12.668	7.110	-1.372	-0.324	3.014	13.292	-0.022	1.312
Kurtosis	233.686	80.235	6.051	7.998	13.876	203.880	3.868	3.984
SKtest	3932.55	2852.87	571.81	284.39	1413.49	3992.05	28.27	428.90
Probability	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*

Notes:

1. The \* denotes p-value significance at 1 percent level ( $P < 0.01$ ).
2. TQ = Tobin's Q ratio, SP = Share price, LINST = Log institutional ownership, LSIZE = Log total assets, GRW = Market value of share divided by book value of share, LEV = Total debt divided by total assets, LPRO = Log profit or loss, AGE = Year of listing.

Utilizing SK test to evaluate the normality for all variables also showed all variables are significant at 1 percent ( $P < 0.01$ ). This means that all of the variables failed to fulfill the normality requirement. Since the data distribution is not normally distributed, the estimation method of ordinary least square (OLS) to analyse the sample data would produce bias and inefficient estimators. Therefore, the generalized least square (GLS) method of estimation is more appropriate and it is expected to yield a much better result (Gujarati 2003). The issue which involves the variables of non-normal distribution is quite common in research that involves a large sized sample (Pallant, 2005). In fact, this argument is also put forward by Kleinbaum et al., (1998), who explain that variance analysis is not heavily dependent on the assumption of normality since the data is large. As a result, the assumption of normality is not seriously offended since this study covers a large sample size. In addition, GLS is normally suggested for panel data analysis. In fact, the poolability test and the subsequent Hausman test suggest that the fix effect model is preferable and hence, the panel data regression analysis will utilize this method.

## 6.2 Results of multicollinearity test

This analysis would ensure that the data must be independent of one another. It means that observations or independent variables must not be influenced by other independent variables (Pallant, 2005). According to Steven (1996), it is very serious if this assumption is violated. He added that each study must ensure that all observations are independent. This study is based on Pair-wise Pearson correlation matrix for the variables and the results are provided in Table 2.

Table 2. Result of multicollinearity test using Pearson Correlation matrix

	TQ	SP	LINST	LSIZE	GRW	LEV	LPRO	AGE
TQ	1.000							
SP	0.232*	1.000						
LINST	-0.175*	-0.358*	1.000					
LSIZE	-0.021	0.365*	0.122*	1.000				
GRW	0.187*	0.774*	0.340*	0.460*	1.000			
LEV	0.255*	0.003	0.308*	-0.107*	0.003	1.000		
LPRO	0.242*	0.463*	0.008	0.657*	0.547*	0.025	1.000	
AGE	0.015	0.263*	0.353*	0.322*	0.273*	0.020	0.255*	1.000

Notes:

1. The \* and \*\* indicate correlation are significant at the 0.01 (2-tailed) and 0.005 (2-tailed) levels, respectively.
2. TQ = Tobin's Q Ratio, SP = Share price, LINST = Log institutional ownership, LSIZE = Log total assets, GRW = Market value of share divided by book value of share, LEV = Total debt divided by total assets, LPRO = log profitability, AGE = Year of listing.

It indicates that multicollinearity is not a problem, as the correlations between all variables are relatively low. According to Gujarati (2003), multicollinearity could be a problem when the correlation exceeded 0.80. The low intercorrelation among the explanatory variables used in the regression indicates no reason to suspect serious multicollinearity. In addition, panel data analysis also alleviates multicollinearity problems Gujarati (2003).

### 6.3 Results of regression analyses

Table 3. Result of regression analyses

Independent variables	Hypotheses	Tobin's Q		Share Price	
		Coefficient	p	Coefficient	p
Constant		1.724	0.424	0.0242	0.542
LINST	H1 & H2	0.063**	0.031	0.015**	0.038
Control variables					
LSIZE		-0.429*	0.054	0.003	0.054
GROW		0.181*	0.016	0.990	0.018
LEV		0.342*	0.025	0.029	0.021
LPRO		0.151*	0.045	0.053	0.042
AGE		0.001	0.002	0.016**	0.006
R <sup>2</sup>		0.29		0.61	
Adjusted R <sup>2</sup>		0.28		0.60	
F-statistics		623.83*		3401.14*	
Durbin-Watson stat		1.512		Na	
Baltagi-Wu LBI (Locally best in variance)		2.390		Na	

Notes:

- The \* indicates significant at 1 percent ( $P < 0.01$ ), \*\* indicates at 5 percent ( $P < 0.05$ ) and \*\*\* indicates at 10 percents ( $p < 0.1$ ). For the hypothesis variables, a one-tailed test is utilised.
- LINST = Log institutional ownership, LSIZE = Log total assets, GRW = market value of share divided by book value of share, LEV = total debt divided by total assets, LPRO = log profitability, AGE = year of listing.

The analysis begins with the report of the regression analyses using generalized least square (GLS) estimations technique on Tobin's Q in Model 1 and share price in Model 2. The F-statistic for Model 1 and Model 2 are statistically significant at 1 % level. The R<sup>2</sup> for Model 1 and Model 2 indicated the value 0.29 and 0.61 respectively. The adjusted R<sup>2</sup> for Model 1 recorded the value 0.28 and 0.60 for Model 2. The regression analyses using GLS estimation technique on Tobin's Q and share price are reported in Table 3.

#### 6.3.1 The effect of institutional ownership on Tobin's Q

Model 1 on Table 3 reported that the institutional ownership showed a positive and statistically significant relationship at 5 per cent ( $p < 0.05$ ) level. In other words, one per cent increase in institutional ownership will lead to an increase of 0.063 per cent in Tobin's Q. This finding supported H01 which proposes that the higher the concentrated institutional ownership in a company, the higher is the company performance. This is consistent with the findings by Shleifer and Vishny (1986), and Han and Suk (1988) who found that the presence of institutional investors will have a positive effect on the market value of the firm due to the more effective monitoring. Many other authors proposed that the involvement of institutional investors in monitoring and controlling activities has the potential to reduce the agency costs (Shleifer & Vishny, 1986; Admati *et al.*, 1993; Huddart, 1993; Maung, 1998; Noe, 2002; Jiang & Yamada, 2011).

#### 6.3.2 The effect of institutional ownership on share price

The regression utilizing GLS estimation technique for Model 2 in Table 3 also showed that the institutional ownership coefficient is positive and statistically significant at five percents level. The institutional ownership showed a positive and statistically significant relationship at five per cent ( $p < 0.10$ ) level with a coefficient of 0.015. Therefore, one per cent increase in institutional ownership will lead to an increase of 0.015 per cent in share prices. This finding supported H02 which proposes that the higher the concentrated institutional ownership in a company, the higher the company performance. Both models gave consistent results namely the higher the institutional shareholding, the higher is the corporate performance.

## 7. Conclusions

The results suggest that institutional ownership can enhance firm performance in Malaysia. This is due to the institutional investors who are believed to play an active role in monitoring the management. Their efforts contribute to realignment of the manager and shareholders' interests and reduced agency conflicts as well as reduced the agency costs. As a result, the company performance improves. The reason for the positive results could be that the Malaysian capital market is financially and managerially not as competitive as those in more developed countries and therefore the institutional investors may have an additional incentive to monitor the managers, thereby mitigating the agency problem and improving the firm performance. Further, the institutional investors have much stronger incentives to monitor the companies that they invest in; especially when they have larger ownership and that the exit option is rather costly. In addition, the institutional investors normally hold large equities. Therefore, they have the potential to influence the management directly through their representation on the board of directors or indirectly by trading their shares.

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