



EXTERNAL MONITORING, MANAGERIAL OWNERSHIP AND FIRM
PERFORMANCE IN MALAYSIAN CAPITAL MARKET: A GMM BASED
PANEL DATA APPROACH

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Abstract

This study re-examines whether the structure of share ownership by both directors and institutional ownership provides explanation for firm performances. These relationships are modelled and estimated using GMM based dynamic panel data over a period from 1997 to 2001 with a sample of 100 CI components companies listed on Main Board of Malaysia. The findings provide strong evidence of simultaneity between firm performance and managerial ownership. Although an insignificant relationship between firm performance and institutional ownership is observed, the institutional holdings provide strong substitute for managerial ownership with a strong negative relationship between managerial ownership and institutional ownership. This is in line with the managerial incentive hypothesis, which suggests that manager's share in the firm's ownership leads to better performance and the monitoring substitute hypothesis, which suggests that managerial ownership could be effectively replaced by institutional ownership.

Keywords: corporate governance, performance, non-executive independent directors,

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1 Introduction

The issues of Managerial ownership and external monitoring have been long-standing among researchers and policymakers due to the strategic impact of such operating structures on firms' value and monitoring of management of investment activities. The existence of divergence of interest between the agent and principal is the classical

example of agency relationship (Jensen and Meckling, 1976). Ownership is assumed to be an internal control mechanism and serves as positive monitoring substitutes to reduce agency conflict. Hence, the level of managerial ownership concentration may have important implication for the conduct of the managers to act at the best interest of principal or maximization of their own value. Therefore, it is of interest to

determine whether managers perform best once they have higher stake.

Institutional ownership serves as external monitoring substitute for managers for better performance. The issue was first addressed in the seminal work by Jensen and Meckling (1976). They argued that there is a separation of ownership and control in the organizational structure, which creates potential conflict of interest between two parties. Therefore, two forms of mechanisms are suggested namely; aligning managerial interest with that of shareholders by making the managers part of the owners and putting external control mechanism such as institutional ownership to oversee management activities with the view to maximize firm investment returns.

The earlier studies on these issues were focused on relationship between the existence of good corporate governance and firm's profitability in developed (Gugler et al., 2002) and in developing markets such as Malaysia (Huson and Ali, 2005). However, so far no systematic evidence on monitoring management activities is well documented in Malaysian capital market using dynamic pooling analysis based on models such as Generalised Method of Moments (GMM). Therefore, the aims of this study are twofold: Firstly, to analyze the contemporaneous relationship between managerial ownership and accounting performance measured by return on asset using panel based GMM model. Such analysis does not only provide direction of relationship, but also

simultaneity of such relationship. Secondly, the study aims to understand whether or not external monitoring in the given set of financial environment provides any value added monitoring substitutes for firm performance. The paper is organized as follows. Section two discusses the theoretical underpinnings on control mechanism, managerial ownership and value of the firm. Section three briefly describes the methodology used to examine the said relationship. Section four presents the findings of the study and section five concludes.

2 Theoretical Overviews on Managerial Ownership and Firm Value

Recent development in the theory of the firm emphasizes the importance of monitoring management activities. It is also emphasized that by ensuring manager's share in the ownership of a firm provide strong precursor for better performance. Jensen and Meckling (1976) argue that an inherent agency conflict exists between outside owners and managers (directors) because of divergence of interest and utility maximization. One way to mitigate this problem is to have in place an external control mechanism with a sizable institutional ownership that can provide objective judgement about the firm's performance and oversee the management activities, while making the managers own a part of the firm, which would better align the interest of managers with that of outside shareholders.

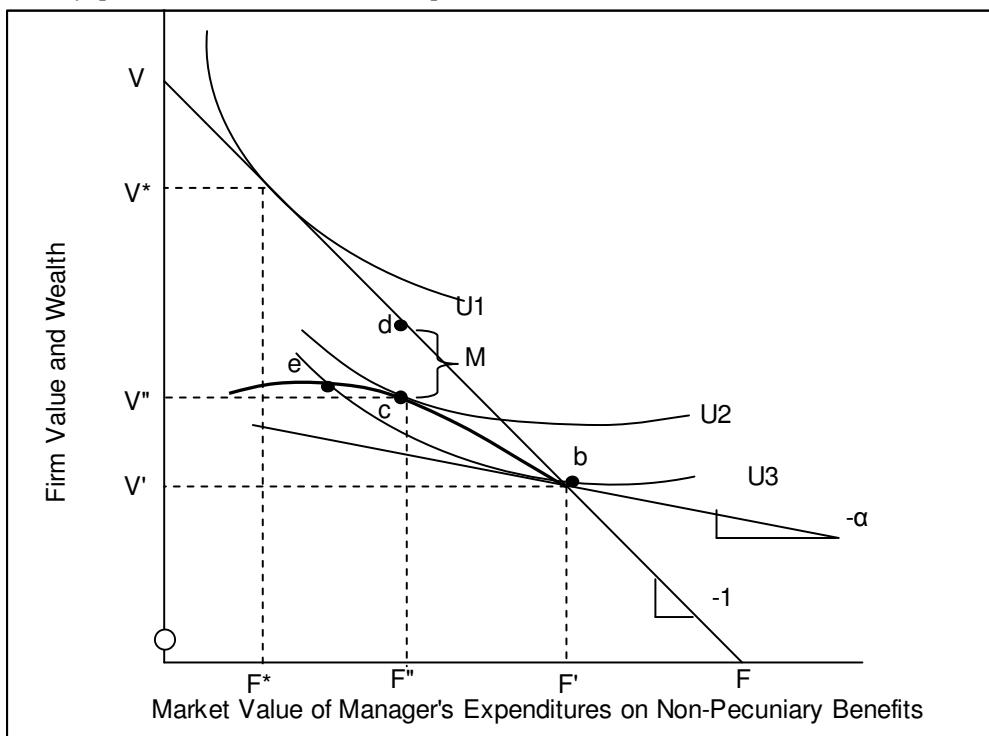


Figure 1. The Role of Monitoring activities and value of firms

Where

F = the market value of Manager's expenditure on non-pecuniary benefits

V = value of the firm

The curve bce = the opportunity set of an agent (manager).

$c - d (M)$ = optimum monitoring expenditure (engaging more independent non-executive directors, and remuneration committee)

VF = budget constraints that a manager face in deciding in the choice of firm value (V) and non-pecuniary benefits

c = equilibrium points when monitoring is in place to limit the consumption of non-pecuniary benefit from F' to F''

Figure 1: above provides a clear picture on how external monitoring can limit management use of extra pecuniary benefits once managers face choice between increase in shareholders' value and consumption of extra pecuniary benefits (see Jensen, and Meckling, 1976 for more details).

By definition V is the value that a firm generates in a given period for given money wages (pecuniary benefit only) for the managers when the managers' consumption of non-pecuniary reward is zero. Given the definition of F as the current market value of the stream of manager's expenditure on non-pecuniary benefits, the constraint faced by managers as to how much extra non-pecuniary benefit income they may extract from the firm and their share of firm value is presented by the budget line, VF . This is analogous to budget constraint, for given level of investment and money wages that an economic agent faces in making choice between uses of F and creating value for firm. Note that by definition the slope of the constraint VF is -1, which indicates that any amount of current value of non-pecuniary benefits withdrawn from the firm by the manager reduces the market value of the firm by the same amount (i.e., $\Delta V = \Delta F$). The stream of utility curves ($U1, U2, U3$) presents the manager's taste for wealth and pecuniary benefits. These utility curves are convex as long as marginal rate of substitution between use of extra non-pecuniary benefit and wealth diminishes with increasing level of benefit. When a firm is 100 percent owned and managed by manager, market value of firm is to be at V^* where utility curve is tangent to VF . However, when firm sells a portion $(1-\alpha)$ of stake to outsiders, with no effective monitoring system the manager may try to expropriate as much of F benefits because she will bear only part of the cost. Thus value of the firm will decline from V^* to V' , where the

utility curves $U3$ is tangent to the new budget line with slope equals $-\alpha$ (Fig. 1).⁸⁵

Now let us see whether the placement of monitoring activities has important impact on firm value when the manager sells part of his claim $(1-\alpha)$. If the manager is free to choose the level of perquisites, F , subject to losses in wealth he incurs as part owner, his welfare might be maximized by increasing his consumption of F . This might be noticed by external investors as part of rational investors and hence they may no longer pay value equal to $(1-\alpha)V^*$ level. To encourage outsiders investors' participation and to control manager's behaviour, it is usually possible to impose external monitoring as a formal control system. Then manager will face opportunity set bce in deciding between the value of the firm and perquisites he enjoys from firm's activities. The curve bce is tangent to utility curve ($U2$) whereby the agent will have maximum satisfaction. Without monitoring in place with outside equity holders, the value of the firm will be V' with non-pecuniary benefit of F' . However, by incurring monitoring cost amount equal to $d-c (M)$, the outside monitoring can restrict the management's consumption of non-pecuniary benefit less than F' to F'' thus increasing firm's performance, with the increased value of the firm V'' (Fig. 1). It is also assumed that increase in monitoring activities may likely to reduce F , albeit at a decreasing rate, that is $\partial F/\partial M < 0$ (Jensen and Meckling, 1976). But at higher monitoring level, F will reduce at increasing rate with $\partial^2 F/\partial M^2 > 0$. Therefore, given the positive monitoring cost, the value of the firm is given as:

$$V'' = V - F'' - (M)$$

Given the market competitiveness, with monitoring in place by outside equity, investors may willing to pay a price of $(1-\alpha)V''$ and expend M amount of resources to discipline the management behaviour.

Now let us see how with a manager having a share in the ownership can align interest of agent and principal. Although equity holding by insider manager may provide a management's incentives to maximize equity value by adopting activities that help to achieve such objective, such ownership could also lead to expropriation of minority, as shown by Jensen and Meckling (1976). Thus, large voting stakes held by insiders may not necessarily lead to performance improvement. In fact, McEachern (1978) argued that owner-managers may have goals similar to hired managers and hence, may not necessarily reflect the average stockholder's view in respect to firm's growth. Since then more studies, such as Morck, Shleifer and

⁸⁵ This reduction in value of the firm is equivalent to residual loss. As per agency theory, this is defined as the divergence between the agent's decisions and those decisions that maximise the welfare of the principal, given the optimal monitoring and bonding activities of the principal and the agent (see Jensen and Meckling, 1976).

Vishny (1988) and Gugler, Mueller and Yurtoglu (2002), have been carried out on the relationship between managerial ownership and firm performance.

The early empirical work on such issue was documented by Demsetz and Lehn (1985). They documented a positive causal relationship between managerial ownership and risk taking. Later, Saunders, Strock, and Travlos (1990) suggested that the higher managerial ownership might even worsen the agency problems between owners and managers because of higher risk undertaking. However, more recently, Chen and Steiner (1999) suggested that managerial ownership is to be jointly determined by risk taking, firm's leverage and firm's dividend policy. While on the other front, the documented evidence suggest that determinants of managerial ownership may include risk, debt and dividend in addition to total equity value, research and development. Chen and Steiner (1999) documented that the firm size which is proxied by market value of the equity, the capital expenditure on R&D and institutional ownership were found to be determinants of managerial ownership. Chen and Steiner (1999) documented a negative relationship between the level of institutional ownership and managerial ownership. This was earlier confirmed by Brickley et al. (1988) who reported that institutional investors serve as positive monitoring role for agency conflict. Hence the presence of institutional investors may further diminish the need for managerial ownership as a mechanism to control for agency cost.

Anup and Charles (1996) examined seven mechanisms to control agency problems between managers and shareholders. These are shareholdings of insiders, institutions, and large block shareholders, use of outside directors, debt policy, the managerial labour market and the market for corporate control. The findings show a significant relationship between firm performance and four of the mechanisms stated above when each is included in a separate OLS regression. Further search on the issue was again documented by Scott and Rosenstein (1998). Scott and Rosenstein (1998) examined the relationship between board composition, managerial ownership and firm performance. The results indicate some support for the curvilinear relationship between managerial ownership and performance posited by Stulz (1988) and empirical research of Morck, Shleifer and Vishny (1988) and McConnell and Servaes (1990). Ferris et al. (2003), report that firm performance is positively associated with the number of directorships subsequently held by directors of the firm. In a more recent study, Mura (2007) examines the influence of share ownership by executive and non-executive directors on market performance proxied by Tobin-Q but found no evidence of such relationship.

3. The Analytical Model

The interdependencies of relationship between firm performance and managerial ownership could be represented with the following model:

$$\begin{aligned} ROA_{it} &= \sigma_1 Z_{1t} \sqrt{F_{1t}} \\ MOWN_{it} &= \mu_2 F_{2t} + \sigma_1 Z_{2t} \sqrt{F_{2t}} \end{aligned} \quad (1)$$

Where, ROA is return on asset proxy to for value create of the firm. *MOWN* represents the combined managerial and directors' ownership. F_j ($j=1,2$) is the latent mixing variable that affect both firm performance and managerial ownership. Z_{1t} and Z_{2t} represent mutually and serially independent stochastic processes with zero mean.

The above model could be estimated using GMM (Hansen, 1982). One major merit of the GMM method is that it goes beyond the nonlinear two-stage least squares (2SLS) method of Amemiya (1974) as it incorporates nonlinear moment conditions beyond those generated by orthogonality of exogenous regressors with disturbances in a model. Further, the key advantage of the use of GMM as compared to Maximum Likelihood Estimator (MLE) is that it is less stringent on statistical parameter in hypothesis tests. Comparable to MLE, GMM choose parameter which minimize the quadratic⁸⁶,

$$J_t = M(\theta) Wm(\theta)$$

Where,

θ represents the parameters and $m(\theta)$ is k-vector orthogonal moment condition.

W is the $L \times L$ positive definite weight matrix.

Based on this objective function, orthogonal condition sets the following restriction for both mean and variance.

The moment condition $m(\theta)$ set mean function of the data as

$$E(y_t) = \mu$$

Given the orthogonal condition:

$$E[y_t - \mu] = 0$$

The sample counterpart

$$m(\theta) = \frac{1}{T} \sum y_t - \mu$$

The restriction on Variance (σ) is set as: $E(y_t - \mu)^2 = \sigma^2$

Similarly, the restriction on covariance structure of series y_t and X_t as

$$E[(x_t - \mu_x)(y_t - \mu)] = \sigma_{xy}$$

The parameters μ_x , μ_y , σ_x , σ_y , σ_{xy} are to be estimated from GMM model, while Y_t (Return on asset) and X (a set of instruments variable) are observed.

Therefore, a general theoretical model could be constructed as:

$$Y_{T \times 1} = F(X_{[T \times k]} | \theta) + \varepsilon$$

Where observation Y is function of X given the set of parameters θ .

⁸⁶ See Cliff (2003).

The GMM operational model

The interrelationships between firm performance and managerial ownership as depicted by equation (1) can be specified with the following estimable econometric model,

$$ROA_{it} = \beta_0 + \beta_1 MOWN_{it} + \beta_2 INTOWN_{it} + \beta_3 RETURN_{it-1} + \beta_4 FATA_{it} + \beta_5 ACQUIFA_{it} + \beta_6 INTATA_{it} + \beta_7 SGR_{it} + \beta_8 ROA_{it-1} + \varepsilon_{it} \quad (2)$$

$$MOWN_{it} = \beta_0 + \beta_1 ROA_{it} + \beta_2 INTOWN_{it} + \beta_3 RETURN_{it-1} + \beta_4 FATA_{it} + \beta_5 ACQUIFA_{it} + \beta_6 INTATA_{it} + \beta_7 SGR_{it} + \varepsilon_{it} \quad (3)$$

Where,

MOWN = the level of managerial ownership concentration.

RETURN = the changes in stock return represent level of

INTOWN = institutional ownership measured as the percentage of the share owned by institutional investors.

ROA = return on asset

INTATA = the ratio of research and development to total asset

SGR = per year sale growth.

FATA = the ratio of fixed asset to total asset.

ACQUIFA = acquisition of fixed asset

The following set of hypotheses is developed and would be examined in view of the empirical evidence obtained from the above model.

H1: *There is no contemporaneous relationship between firm performance measured by accounting measure (ROA) and managerial ownership*

It is hypothesized that firm performance measured by ROA is not related to managerial ownership. Alternatively, firm performance would depend on the level of managerial ownership for two reasons. Firstly, as the level of managerial ownership increases in the firm, it is less likely that management may take activities that are detrimental to the firm value, since any impact on firm value might also directly impact on their holdings. Secondly, managerial ownership will serve as an internal control mechanism that aligns the interest of the manager with that of outside shareholders. Hence, any activity undertaken at the firm level by the manager would suit the best interest

of shareholders. Therefore a positive association is expected between the two variables.

H2: *External monitoring in the form of institutional ownership will not serve as a control mechanism that enhances firm performance.*

It is also hypothesized that the presence of external monitoring such as institutional ownership will not be effective in controlling managerial activities aiming to enhance firm performance. Alternatively, presence of a strong institutional ownership will serve as a monitoring tool by outside equity holders that will discipline the management activities that are detrimental to shareholders. The institutional shareholders have a strong bargaining chip that can serve as a monitoring device for manager to perform better. Therefore, a positive association is expected between the presence of institutional owners and firm performance.

H3: *Institutional ownership cannot be a monitoring substitute for internal control mechanism, i.e., managerial ownership.*

It is hypothesized that external monitoring (institutional ownership) can not serve as a substitute for internal control mechanism (managerial ownership). Alternatively as evidence supported in the past, it is likely that firms having higher institutional ownership have lower managerial ownership. Hence institutional ownership serves as an effective monitoring substitute for internal control mechanism.

Sample and data description

This study uses data collected from Annual Hand Book of Kuala Lumpur Stock Exchange (KLSE) Library. A sample of 100 firms was collected for the period 1997-2001. Most of these firms are drawn from Composite Index (CI) component firms which serve as market barometer.

Table 1 reports the descriptive statistics of the variables used in this study. The table reports the mean, standard deviation and the curvature characteristics of the distribution of each variable of 500 observations in the pooled series. The means and standard deviations of the variables such as *FATA* and *INTATA* are lower, while those of the other variables are substantially higher.

Table 1. Descriptive Statistics

	ROA	MOWN	INTOWN	RETURN	FATA	INTATA	SGR
Mean	4.1135	13.4013	14.1213	9.5914	0.3269	0.0234	11.2196
Std. Dev.	10.8959	19.1980	11.6149	44.4610	0.2629	0.0656	50.5980
Skewness	-1.3481	1.1570	1.2397	2.5614	0.4109	4.8232	7.6150
Kurtosis	17.1659	2.9356	4.2447	18.5954	2.0970	34.5580	99.5337
Observations	500	500	500	500	500	500	500

The spread of the data on *ROA*, *MOWN* and *INTOWN* seem to be similar with the standard deviations of these variables approximately ranging

from 11 to 19. These deviations are much higher in *RETURN* and *SGR* (Table 1).

4 Empirical Evidence

Tables 2 and 3 summarize GMM based panel regression estimates for firm performance and managerial ownership equations, respectively (Equations 2 and 3). Of major interest are the two major policy variables namely managerial ownership (*MOWN*) and institutional ownership (*INTOWN*) that are included in the model. Findings from the

performance equation presented in Table 2 suggest that *MOWN* exerts a significant and positive impact on returns on assets (ROA). The market performance measured by return on asset provides strong dynamic impact on accounting performance. It is also observed that firms that employ higher level of fixed assets relative to their total assets (*INTATA*) as investment tend to have strong inclination to have better performance (Table 2).

Table 2. Panel GMM Estimates for ROA

Explanatory Variables	Estimated Coefficients	Standard Errors	p-value
<i>C</i>	0.011852	0.321987	0.9707
<i>MOWN</i>	0.022280*	0.011691	0.0574
<i>INTOWN</i>	-0.002514	0.008986	0.7798
<i>SGR</i>	0.001436	0.001564	0.3591
<i>RETURN (-1)</i>	0.015197***	0.002934	0.0000
<i>FATA</i>	1.615096***	0.414236	0.0001
<i>ACQUIFA</i>	-4.87E-09	1.10E-07	0.9648
<i>INTATA</i>	-5.835398**	2.744624	0.0341
<i>ROA(-1)</i>	0.556373***	0.032603	0.0000
Weighted Statistics			
R-squared	0.525186	Mean depend. Var	10.07283
Adjusted R-squared	0.515471	S.D. depend. Var	13.37707
S.E. of regression	9.038426	Sum sq. resid	31942.02
Durbin-Watson stat	2.263606	J-statistic	4.56E-28
Instrument rank	9.000000		

* Significant at 10% level; ** Significant at 5% level; *** Significant at 1% level

Table 3. Panel GMM Estimates for MOWN

Explanatory Variables	Estimated Coefficients	Standard Errors	p-value
<i>C</i>	16.14001***	1.237683	0.0000
<i>ROA</i>	-0.347438***	0.074482	0.0000
<i>INTOWN</i>	-0.208577***	0.028302	0.0000
<i>SGR</i>	0.007861	0.010258	0.4439
<i>RETURN(-1)</i>	-0.011897	0.008283	0.1517
<i>FATA</i>	-11.36012***	1.649685	0.0000
<i>ACQUIFA</i>	2.51E-08	1.66E-07	0.8802
<i>INTATA</i>	1.669618	8.216611	0.8391
Weighted Statistics			
R-squared	0.172742	Mean depend. var	12.52251
Adjusted R-squared	0.157970	S.D. depend. var	16.60296
S.E. of regression	16.84693	Sum sq. resid	111257.1
Durbin-Watson stat	0.924356	J-statistic	75.64179
Instrument rank	9.000000		

*** Significant at 1% level

This indirectly indicates an efficient use of fixed asset that generates higher rate of returns. The observation of a positive relation between firm performance and managerial ownership provides an idea that managers have more incentive to work harder, as they become part of the owners as the level of their stakes in the firm increases significantly. The level of J-statistics suggests that the data fit well into the model.

Table 3 shows the dependence of managerial ownership on a number of explanatory variables including *INTOWN*, as shown in equation 3. It is to be noted that although *INTOWN* does not exert any significant impact on *ROA*, it has significantly large negative effect on *MOWN* (Table 3). This is consistent with study by Chen and Steiner (1999) who documented a negative relationship between the level of institutional ownership and managerial ownership.

Combining the results reported in Table 3 with those in Table 2, it is implied that institutional ownership would be a more effective means to substitute managerial ownership for growth in Malaysian firms.

5 Conclusions

This study examines whether share ownership by both directors and institutional investors provides explanation for firm performances. The study uses GMM based dynamic panel data over a period from 1997 to 2001 with a sample of 100 CI components companies listed on Main Board of Malaysia. The findings provide strong evidence of simultaneity between firm performance and managerial ownership. Despite an insignificant relationship observed between firm performance and institutional ownership, institutional holdings provide a strong monitoring substitute for managerial ownership with a significant negative relationship evidenced between managerial ownership and institutional ownership. These support both managerial incentive hypothesis which suggests that manager's share in the firm's ownership leads to better performance and monitoring substitute hypothesis which confers that managerial ownership could be replaced by institutional ownerships as effective monitoring mechanism. These findings have significant policy implications for investors and policy makers in Malaysian economy. Firstly, the evidence of a significant relationship between managerial ownership and firm performance in Malaysia provides a guideline to investors to position their investment in the firms which have higher managerial concentration as investment in these firms is likely to exhibit better accounting performance. Secondly, the finding that a strong negative relationship exists between managerial ownership and institutional ownership provides a policy guidance to ensure that institutional ownership can serve as a positive monitoring substitute for internal control mechanism. From a broader perspective, these results also point to the need for improved institutionalisation, accountability and transparencies for sustainable growth of Malaysian firms.

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