SUBSTITUTION RELATIONSHIP BETWEEN
THE AGENCY PROBLEM CONTROL MECHANISMS IN MALAYSIA:
SIMULTANEOUS EQUATION ANALYSIS

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Abstract

This study investigates the substitution relationship (substitutability) between debt policy, insider ownership, and dividend policy as the agency problem control mechanism in Malaysia. If the substitution relationship exists between the agency control mechanisms, the agency problem can be reduced through this relationship. Reducing the agency problem as a result can increase the firm value proxied by Tobin's Q. This study employs 396 firms sample listed on Malaysian Bourse from 2001 to 2004. To achieves the objectives, this study uses two-stage least square method. The results of this study indicate that the substitutability between debt policy, insider ownership, and dividend policy as agency problem control mechanism does not fully exist in Malaysia. Apparently the substitutability only exists for debt policy and dividend. There is no substitution between debt policy and insider ownership as well as between dividend policy and insider ownership.

Key words: debt policy, insider ownership, dividend policy, agency problem, firm value

INTRODUCTION

The agency conflict that occur in a firm appeared up because the agency relationship of those firm. The agency relationship between the principal and agent will increase the agency cost. Jensen and Meckling (1976) stated that the agency cost included the monitoring cost, bonding cost and residual cost. The agency conflict could be mitigated by the increasing of debt policy, insider ownership and the dividend payout policy (Jensen et al 1992; Chen & Steiner 1999; Miguel et al. 2005). The reducing of agency conflict will increase the firm performance.

Some studies had empirically used the Tobin's Q as the measurement of evaluation the firm performance. Morck, Shleifer, and Vishny (1988), and McConnell and Servaes (1990) found the non-linear relationship between the stockholder by manager or board of director with the performance of the firm that be measured with Tobin's Q. If the board of director holds stock in a large number, thus it will relieve the good performance of the firm. This research used the Tobin's Q value s proxy for measuring the firm values.

LITERATURE REVIEW AND HYPOTHESIS

The agency conflict could be reduced with the giving of incentive, controlling, increasing the ownership of manager (insider ownership) and bonding for manager (Jensen and Meckling, 1976). The bonding mechanism is done by increase div-

idend payout and amount of debt. Such way will reduce the opportunity for the manager to do deviation in order to increase the firm values. Although, this way appear the cost that could reduce the firm value that called agency cost. Jensen (1986) found the controlling mechanism is present by reducing the free cash flow that could be misused by the manager is limited the amount in order to decrease the agency conflict. The effort for reducing the free cash flow could be executed by increasing debt and cash split to the stockholder either through dividend payout or even rebuying those stocks.

The study about the mechanism of controlling the agency conflict had been approved to the present of the relationship between those mechanism variables. But, the type of relationship that present had not been final, either as a substitution relationship or complementary relationship in the role of controlling agency conflict (Miguel et al, 2005). Substitution relationship shows a mechanism that if a mechanism is strong, thus the other mechanism become lack of functions. Whereas, the complementing relationship shows that every controlling mechanism will complete one to each other. If a mechanism is strong, thus the other mechanism will increase its role as the solution of agency conflict.

The relationship between the ownership structure and the decision of dividend payout could be fine in either the substitution relationship or completing relationship (Miguel et al, 2005). Rozeff (1982) found that the model of dividend payout ratio negatively affected by the insider ownership and concentrate ownership. It means that the substitution relationship occur between the dividend relationship and insider ownership or concentrate ownership. The result of Rozeff study (1982) is supported by the findings of Moh'd, Perry and Rimbey (1995) that the result of their study showed that the companies with the higher percentage of insider ownership has the lower dividend payout and pay the lower agency cost.

Substitution Relationship between Debt, Insider ownership and Dividend

This research proposed three hypotheses, to know the substitution relationship between debt policy, insider ownership and dividend policy in controlling agency conflict case in Malaysia. The hypotheses are used to know the validation of substitution between the debt policy, insider ownership and the dividend policy in reducing the agency conflict that had been pointed out by the firm value.

Hypothesis 1: Valid the substitution relationship between the debt policy and insider ownership in the role of controlling for reducing the agency conflict.

Hypothesis 2: Valid the substitution relationship between the debt policy and dividend payout in the role of controlling for reducing the agency conflict.

Hypothesis 3: Valid the substitution relationship between insider ownership and dividend payout in the role of controlling for reducing the agency conflict.

DATA AND METODOLOGY

This research used secondary data that is the financial report and annual report of companies from various sectors that listed in Malaysian Stock Exchange from 2001 to 2004. The amounts of companies that complete the requisitions to be the sample of this research are 396 companies.

There are four endogenous variables (dependent) and six exogenous variables (independent) that be analyzed in this research. Endogenous variables include the debt ratio (DEBT), insider ownership (IOWN) and dividend (DIVD) used to know about the substitution relationship between those three variables in the role of controlling the agency conflict. Whereas the fourth endogenous variables are firm values (TOBIN). It occur the substitution relationship between debt, insider ownership and dividend hopeful to could reduce the agency conflict that pursued to increase the firm value (TOBIN). Exogenous variables, as control variables, included the institution of ownership (INST), fixed asset ratio (FASET), business risk (RISK), size of the firm (SIZE), profit (PROFIT) and the growth level (GROWTH).

The assumption based this analysis is that every three endogenous variable that is debt policy (DEBT), insider ownership (IOWN), and dividend policy (DIVD) is a function of two other endogenous variables. Thus, the method of equation jointly done to analyze the endogenous that occur in this research with the function and the equations as follows:

a. Debt equation:

DEBT = f (IOWN, DIVD, FASET, RISK, PROFIT)

$$DEBT = \alpha_1 + \beta_1\,IOWN + \beta_2\,DIVD + \beta_3\,FASET + \beta_4\,RISK + \beta_5\,PROFIT + e_i \quad .(1)$$

b. Insider ownership equation:

IOWN = f(DEBT, DIVD, INST, RISK, SIZE)

$$IOWN = \alpha_2 + \beta_6\,DEBT + \beta_7\,DIVD + \beta_8\,INST + \beta_9\,RISK + \beta_{10}\,SIZE + e_i \quad .... \quad (2)$$

c. Dividend equation:

DIVD = f(DEBT, IOWN, GROWTH, PROFIT, RISK)

$$DIVD = \alpha_3 + \beta_{11}IOWN + \beta_{12}\,DEBT + \beta_{13}\,GROWTH + \beta_{14}PROFIT + \beta_{15}\,RISK + e_i$$

$$.. \quad (3)$$

d. Firm value equation:

TOBIN = f(DEBT, IOWN, DIVD, SIZE, PROFIT, RISK)

$$TOBIN = \alpha_4 + \beta_{16}IOWN + \beta_{17}\,DEBT + \beta_{18}\,DIVD + \beta_{19}\,SIZE + \beta_{20}\,PROFIT +$$

$$\beta_{21}RISK + e_i \quad .... \quad (4)$$

where:

$\alpha_1,\ \alpha_2,\ \alpha_3,\ \alpha_4$ = constant

$\beta_1 ... \beta_{21}$ = coefisien of variable

DEBT = debt ratio; ratio of total debt to total asset.

IOWN = insider ownership; ratio of officier and director ownership to total shares outstanding.

DIVD   = ratio of dividend payment divided by operating income.
TOBIN   = (market value of equity + book value of total debt)/book value of total asset.
INST   = institutional ownership; the percentatge of the firm owned by institutional investors.
FASET   = fixed asset ratio; ratio of fixed asset to total asset.
GROWTH = firm growth; the sales growth rate over the previous four years.
RISK   = business risk; measured by the standard deviation of operating income over the previous four years.
SIZE   = firm size; the natural log of the total asset in the firm.
PROFIT   = ratio of operating income to total asset.

EMPIRICAL RESULT

Descriptive Statistics

Table 1 shows the statistic descriptive of the characteristic of the endogen and exogen variables in the relationship between debt policy, insider ownership and dividend policy of this study:

Table 1: Descriptive Statistic of the variables

Variables	N	Mean	Standar deviation	Minimum	Maximum
DEBT	396	0.2108	0.1395	0.0220	0.5048
IOWN	396	0.0957	0.1133	0.0002	0.4240
DIVD	396	0.1442	0.1271	0.0000	0.4885
TOBIN	396	0.8987	0.4931	0.0000	4.2819
INST	396	0.0646	0.0839	0.0000	0.4029
FASET	396	0.4264	0.2042	0.0801	0.9004
RISK	396	0.0326	0.0244	0.0000	0.1527
SIZE	396	0.0562	0.0051	0.0414	0.0739
PROFIT	396	0.0404	0.0588	-0.1592	0.1973
GROWTH	396	0.0339	0.1176	-0.3094	0.6721

Mean value of the debt ratio (DEBT) is 0.2108 (21.08%). It shows that the firms in Malaysia use debt not so much for financing their activity. Minimum value of using debt is 0.0220 (2.2%) and maximum value is 0.5048 (50.48)% with standar deviation is 0.1395 (13.95%). Minimum and maximum value of the stocks owned by board of director (insider ownership) are 0.02% and 42.40 % respectively with standar deviation is 11.33% and mean value is 9.57%. While the mean of the dividend payment (DIVD) is 0.1442 (14.42%). Minimum and maximum value of the dividend payout ratio are 0% and 48.85% respectively with standar deviation is 12.71. Firm value proxied by Tobin's Q (TOBIN) has mean value 89.87%. Minimum and maximum value are 0% and 428.19% respectively with standar deviation is 49.31%. The low level of Tobin value's Q has range between 0 and 1, while the high level of Tobin's Q value is more than 1 (100%).

Substitution Relationship among the Control Mechanisms

Test jointly to the substitution relationship between the debt policy, insider ownership and the dividend policy in the mechanism of controlling the agency conflict in this research used analysis method of two-stage least square, 2 SLS. The analysis for every variable could be seen in Table 2.

Table 2: Two-stage Least Square regression of the relationship between the debt, insider ownership and the dividend

Independent Variable	Dependent variable			
	DEBT	**IOWN**	**DIVD**	**TOBIN**
CONSTANT	0.2320 (11.3305)	0.2958 (4.6274)***	0.1932 (11.8351)***	1.7783 (6.5201)***
DEBT		0.0179 (0.3742)	-0.2727 (-5.9877)***	0.5073 (2.5305)***
IOWN	0.0382 (0.6599)		-0.0257 (-0.4877)	-0.2443 (-1.1338)
DIVD	-0.3171 (-5.1964)***	-0.0732 (-1.4225)		0.6775 (3.0769)***
INST		-0.1475 (-2.0257)**		
FASET	0.1321 (4.1829)***			
SIZE		-3.0920 (-2.7089)***		-23.1225 (-4.7992)***
RISK	-0.4057 (-1.4414)	-0.3110 (-1.2525)	-0.4518 (-1.7907)*	4.0716 (3.9716)***
PROFIT	-0.5498 (-2.5682)***		0.6354 (6.1805)***	2.5932 (5.8241)***
GROWTH			0.0009 (0.0191)	

Notes: *** significance at the 0.01 level
      ** significance at the 0.05 level
      * significance at the 0.10 level
      t-statistics value in parentheses

Debt Ratio Equation

The result of regression analysis 2 SLS to the debt dependent variable (DEBT) showed in Table 2 in second column. The insider ownership variable (IOWN) has the positive relationship but insignificant to the debt ($\beta = 0.0382$; $t = 0.6599$). The positive coefficient but insignificant showed it doesn't valid the substitution relationship between the insider ownership with the debt in the role of controlling the agency conflict. Insider ownership significantly could substitute the role of debt in controlling the agency conflict. The first hypothesis (H1) stated the substitution relationship be-

tween the debt to the insider ownership doesn't proved. This result is contrary or inconsistent with some result of the past studies (Friend & Lang 1988), (Jensen et al. 1992), (Chen & Steiner 1999), (Tandelilin & Wilberforce 2002) and Miguel et al. (2005).

Coefficient of dividend payout ratio (DIVD) to the debt ratio (DEBT) shows the negative coefficient (β= -0.3171; t = -5.1964) and significant to the significant level of 1%. The negative and significant relationship between the dividend to the debt shows that the increasing dividend will reduce the using of debt amount that available in a firm. In context of agency conflict, this negative relationship aim that the mechanism of dividend payout could be used to substitute the debt role in controlling the agency conflict. Hypothesis 2 stated that the substitution relationship between debt to the dividend payout is proofed. The result of this research also support the research had been completed by Chen and Steiner (1999) and Jensen et al. (1992).

Fixed asset variable has positive and significant relationship with the debt at the significant level of 1% (β= 0.1321; t = 4.1829). It shows that the debt of firm will increase if the asset continuously increases. Whereas, the profit variable (PROFIT) has negative and significant relationship to the debt ratio at the significant level of 1% (β = -0.5498; t = -2.5682). The result of this research also support the research had been completed by Chen and Steiner (1999), Jensen et al. (1992).

Insider Ownership Equation

Table 2 (column 3) shows the result of regression analysis between the debt variable (DEBT), dividend (DIVD) and control variable to the insider ownership (IOWN). Debt variable coefficient shows the positive but insignificant relationship to the insider ownership (β = 0.0179; t = 0.3742). It shows that the increasing of debt will cause the increasing of insider ownership but insignificant. In the context of controlling, it shows that the role of insider ownership in Malaysia couldn't substitute the debt role in the mechanism of controlling agency conflict. Both mechanism of controlling should be done together. The result of this research didn't support the first hypothesis (H1) that stated there is any substitution relationship between the debt policy with the insider ownership as mechanism of controlling about agency conflict. The result had been completed by Jensen et al. (1992) and Miguel et al. (2005) didn't support the result of this research. However, the research of Huson et al. (2005) showed the result supporting this research. Their research showed that the managerial ownership (insider ownership) couldn't substitute the role of debt in mechanism of controlling agency conflict.

Dividend payout ratio (DIVD) has negative but insignificant relationship with the insider ownership (β= -0.0732; t= -1.4225). It could be said that between the dividend payout with the insider ownership don't have any substitution relationship effectively in the mechanism role in controlling the agency conflict. The role of insider ownership to the mechanism of controlling the agency conflict couldn't be substituted with the increasing of dividend payout. Thus, Hypothesis 3 that stated there is any substitution relationship between insider ownership and dividend payout is not proofed.

Institution ownership variable (INST) has negative and significant relationship to the insider ownership at the significant level of 5% (β= -0.1475; t= -2.0257). The result of this research shows that the increasing sum of the institution ownership will reduce the insider ownership in the firm. The firm size variable (SIZE) has negative and significant relationship to the insider ownership (β= -3.0920; t= -2.7089). The result of this study supports the research of Bathala et al. (1984), Jensen et al. (1992) and Tandelilin and Wilberforce (2002).

Dividend Equation

Table 2 (column 4) shows the result of regression to the dividend dependent variable. The result of analysis showed the coefficient debt ratio variable in the dividend equation (DIVD) is negative and significant (β= -0.2727; t= -5.9877) at the significant level of 1%. This negative relationship shows there is any substitution relationship between the debt policy to the dividend payout policy in mechanism of controlling the agency conflict. The role of dividend as mechanism to reduce the agency conflict will decrease with the increasing of debt level. The result of this research support the first hypothesis (H2) that consistent with the result that had been explained in the equation of debt ratio had been mentioned above. The result of this study support the research had been completed by Jensen et al. (1992) and Chen and Steiner (1999). However, the result of this research is contrary with Tendelilin and Wilberforce (2002).

In dividend equation, it gained that the variable of insider ownership (IOWN) has negative coefficient but not significant (β= -0.0257; t= -0.4877). The increasing of insider ownership to emerge the alignment between the stockholder and manager in increasing the firm profitability didn't bring any effect significantly to the decreasing of dividend payout. In the context of mechanism in controlling the agency conflict, this condition shows that the increasing of insider ownership couldn't substitute the role of policy in dividend payout to reduce the agency conflict. The result of this research didn't support the result of research by Chen and Steiner (1999), Jensen et al. (1992), and Rozeff (1982). However, the result of this research supported the result of result by Tandelilin and Wilberforce (2002) and Miguel et al. (2005). These two researchers showed there isn't any substitution relationship between insider ownership and dividend payout.

Business risk variable (RISK) has negative and significant relationship to the dividend payout at the significant level of 10% (β= -0.4518; t = -0.7907). Whereas the profit variable (PROFIT) has positive and significant relationship to the dividend payout (β= 0.6354; t=6.1805). The increasing of profitability level will increase the level of dividend payout. The result of this research supported the result of finding research by Battacharya (1979), Miller and Rock (1985) and Jensen et al. (1992).

Firm Value Equation

The substitution relationship between debt, insider ownership and the dividend policy in the role of controlling the agency conflict hopeful could reduce the conflict or problems in the agency. Then, the reducing of agency conflict had hope could increase the firm value under this study measured by Tobin's Q value.

The effect of debt ratio variable (DEBT) to the firm value (TOBIN) is positive and significant (β =0.5073; t= 2.5305). It shows that the increasing of debt will increase the firm value. Jensen (1986) stated that the positive relationship between the debt to the firm performance (firm value) is related to the role of debt in controlling the firm manager. The using of high debt required manager to work harder because they are responsible to repay the debt and the interest regularly with increasing the firm profitability. The high profitability likely to results the bigger return to the investor in future because the firm value hopeful could be increased.

Then, the effect of ownership insider variable (IOWN) to the firm value is negative but insignificant (β= -0.2443; t = -1.1338). It shows that the increasing of stock amount that being held by manager likely will reduce the firm value. The result of this study didn't support the research of Jensen and Meckling (1976), Chen and Steiner (2000). Jensen and Meckling (1976) argued that the concentrate ownership will increase the firm value because the concentrate ownership as mechanism in reducing the agency conflict. Whereas Chen and Steiner (2000) showed that Tobin's Q has a positive and significant relationship to the insider ownership.

Dividend payout ratio variable (DIVD) has positive and significant relationship to the Tobin's Q (β = 0.6775; t = 3.0769). Increasing of dividend payout gave a positive mark to the investor about the future desire in order to make them sure for investing their funds in the firm to execute the new project. Beside, the high dividend payouts also become a signal to the investor that the agency conflict had been reduced. Dividend payout as mechanism in reducing agency conflict could be used as controlling medium by the owner to reduce the agency conflict. If the agency conflict had been reduced or had been solved up, the firm performance hopeful could increase.

CONCLUSION AND IMPLICATION

Based on this research, it concluded that there is any substitution relationship between the debt policy, insider ownership and debt policy in the role of controlling agency conflict does not fully exist in Malaysia. This substitution relationship between those three variables of agency mechanism is only valid apart, that is the substitution relationship between the debt policy and dividend policy (H2). Whereas, the first hypothesis (H1) stated that there is any substitution relationship between the debts policies with the insider ownership in controlling the agency conflict didn't proofed in this study. Similarly with the hypothesis 3 (H3) stated that there is any substitution relationship between insider ownership with the dividend policy in con-

trolling the agency conflict is not proofed. From this result, it could be said that the debt and dividend as the financial policy couldn't substitute the role of insider ownership as the non-financial policy in reducing the agency conflict.

The implication of this research could be seen from the implication to the investor and companies that listed in Malaysian Stock Exchange. Investors always want to get more return if they invest in various kind of investment. These investors not precisely know whether a firm is getting a higher agency conflict. This condition is implemented to the small investor that indirectly has the ability for doing control to the firm. With the absence of control to the agency conflict it could reduce the firm value and then it interfere with the return will be get by the investor. Thus, the precise policy is needed to reduce this agency conflict. This policy is through increasing the controlling by the related parties to the corporate governance. The corporate governance quality needs to be taken into consideration for increasing the effectiveness of controlling the current agency conflict.

The policy that needs to be done by Malaysia Stock Exchange for reducing the agency conflict that may be occurred in the companies that listed in the Stock Exchange by agreeing with the laws that rules about the corporate governance of firm. Second, make the rule to be effective about the disclosure of firm information to the investor transparently, especially about the debt using, insider ownership and the dividend payout.

The absence of substitution relationship between the financial policy (increasing the debt and dividend) with the non-financial policy (increasing the insider ownership) showed that the role of insider ownership is very dominant in the firm. This condition could occur because the concentrated ownership and the family ownership dominate in Malaysia (Claessens et al. 1998, 2000). They found that apart of manager is the family members from the owners of the firm that be majored by a family.

REFERENCES

Barclay, M.J., & Smith, C.W.JR. (1995). The maturity structure of corporate debt. *The Journal of Finance* 50(2): 609-631.

Bathala, C.T., Moon, K.P. & Rao, R.P. (1994). Managerial ownership, debt policy, and the impact of institutional holdings: An agency perspective. *Financial Management* 23 (3): 38-50.

Bhattacharya, S. (1979). Imperfect information, dividend policy and the "bird in the hand" fallacy, *Rand Journal of Economics* 10**:** 259–270.

Chen, C., & T. Steiner. (1999). Managerial ownership and agency conflicts: A nonlinear simultaneous equation analysis of managerial ownership, risk taking, debt policy, and dividend policy. *Financial Review* 34, pp. 119-136.

Chen, C., & T. Steiner. (2000). Tobin's q, managerial ownership, dan analyst coverage: A nonlinear simultaneous: A nonlinear simultaneous equations model. *Journal of Economics and Business* 52: 365-382.

Claessens, S., Djankov, S. & Lang, L. (1998). Who control East Asian corporation. *World Bank Paper*: 1-40.

Claessens, S., Djankov, S. & Lang, L. (2000). The separation of ownership and control in East Asian corporations. *Journal of Financial Economics* 58: 81-112.

Crutchley, C.E. and R.S. Hansen. (1989). A test of the agency theory of managerial ownership, corporate leverage, and corporate dividends, *Financial Management* 18, 36-46.

Friend, I. & Lang, L.H.P. (1988). An empirical test of the impact of managerial self-interest on corporate capital structure. *The Journal of Finance* 43(2): 271-281.

Harvey, C.R. et al. (2004). The effect of capital structure when expected agency costs are extreme. *Journal of Financial Economics* 74: 3-30.

Huson, J et al. (2005). The impact of ownership structure on corporate debt policy: Two stage least square simultaneous model approach. *Asian Financial Association Proceedings*. Kuala Lumpur.

Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance and takeovers. *American Economic Review* 76: 323-339.

Jensen, G., Solberg, D. & Zorn, T. (1992). Simultaneous determination of insider ownership, debt and dividend policies. *Journal of Financial and Quantitative Analysis* 27(2): 247–263.

Jensen, M., & W. Meckling. (1976). Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics*. October: 305-360.

McConnell, J. and H. Servaes. (1990). Additional evidence on equity ownership and corporate value. J*ournal of Financial Economics* 27(2): 595-612.

Miguel, A., Pindado, J. & de la Torne, C. (2005). How do entrenchment and expropriation phenomena affect control mechanism? *Corporate Governance: An International Review*, 13(4): 1-29.

Miller, M. & Rock, K., (1985). Dividend policy under asymmetric information. *Journal of Finance* 40: 1031-1052.

Moh'd, M., L. Perry and J. Rimbey. (1995). "An Investigation of the Dynamic Relationship between Agency Theory and Dividend Policy." *Financial Review* 30 (2), 367-385.

Morck, R., A. Shleifer, and R. Vishny. (1988). Management ownership and market valuation: An empirical analysis, *Journal of Financial Economics* 20, 293-315.

Rozeff, M. (1982). Growth, beta, and agency costs as determinants of dividend payout ratios. *Journal of Financial Research* 3: 249-259.

Tandelilin, E. & Wilberforce, T. (2002). Can debt and dividend policies substitute Insider ownership in controlling equity agency conflict? *Gadjah Mada International Journal of Business 4: 31-43.*