SIMULTANEOUS DETERMINATION AND INTERACTIONS BETWEEN INVESTMENT, FINANCING AND REMUNERATION DECISIONS

AMMAR YASER MANSOUR
KAMARUN NISHAM TAUFIL MOHD

ABSTRACT

This study focuses on the internal determinants of the remuneration, financing, and investment decisions in an equilibrium setting. In addition explore the theoretical relationship between all three decisions simultaneously. Thus, the goal of this study is to add to the existing literature by presenting an equilibrium model of remuneration, financing and investment decisions. To the knowledge of the researcher this is one of the few studies in the literature to jointly model each decision in a simultaneous framework. Argue controlling for the endogeneity is important as it may help explain why previous studies report varying conclusions regarding the tests of certain hypotheses.

Keywords: *investment decisions, financing/financial leverage decisions, remuneration decisions*

Background

A significant role is played by Malaysian corporate firms in contributing to economic growth in the Malaysian marketplace. Firm managers need to efficiently manage their funds in order to attain their objectives. Massive capital investment in modern technologies, infrastructure, product development, and product promotion are required to respond to global competition. These investments promote productivity and efficiency and there are several financing sources for those investments which will affect financial leverage. Financial leverage is an important element amongst the many factors that influence investment planning. According to the arguments of Jensen and Meckling (1976) and Haugen and Senbet (1981) managers stock and stock options are directly correlated with their managerial incentives. In other words a good remuneration package given to managers induces them to make optimal investment and financing decisions.

Financial leverage is an important resource for production of goods and services and their distribution as well. In addition financial leverage is an important component in capital structure, beside equity and retained earnings. In short, financial leverage is the total debt used to finance a firm's assets and projects therefore the term financing decision refers to the way companies construct their total combination of debt - equity to finance their investments. "How financial decisions are made" is a question that still remains unanswered as pointed to by Brealey and Myers (2006).The term "Remuneration Decision" refers to the total compensation received by an executive such as bonuses, options, expense accounts and other compensation's forms along with the base salary.

Investment opportunities play an important role in corporate finance and a significant role in the capital market as future growth is related to the shareholder's predicted future wealth. According to Myers (1977), the market value of a firm is divided into two parts: the present value of assets already in place and the present value of future investment and growth opportunities. Adding, the fundamental difference of the two is that the value of growth opportunities depends on future discretionary investments, while the value of assets in place does not. Therefore, the concept of the investment opportunity set (IOS), which was first noted by Myers (1977), refers to the level to which firm value depends on future discretionary expenditures by the firm.

Basically, corporate finance is concerned on the choice of new investments, focusing on how to finance those investments, and remuneration choice decisions. These three decisions have been studied extensively separately therefore it may be inappropriate to study financing, investment and remuneration decisions separately. As stated above, investors' expectations and stock holdings play an important role in new investments and financing decision (Jensen and Meckling, 1976; Haugen and Senbet, 1981; Amihud and Lev, 1981; Walkling and Long, 1984; Benston, 1985.

In general, studies focused on measuring and model the relationship for each decision in isolation or for different pairs of these three decisions have reached conflicting conclusions. For example, studies focused on measuring the impact of financial leverage on investment decision, and they reached conflicting conclusions using various approaches. (e.g., Modigliani & Miller, 1958; Gregg, 1984; Jensen, 1986; Cantor, 1990; Harris et al, 1991; Whited, 1992; McConnell et al, 1995; Novaes et al, 1995; Lang, 1996; Myers, 1997; Lally, 2004; Childs, 2005; Johnson, 2003; Korajczyk et al, 2003; Baker et al, 2002; Chevalier et al, 2004; Carlos et al, 2005).

The association between compensation and investment opportunities also follows from the agency model. In particular, Smith and Watts (1992), Gaver and Gaver (1993) argue that the management of investment opportunities is difficult to supervise, hence firms with substantial investment opportunities are expected to connect compensation to indicators of firm performance. Thus, both Smith and Watts (1992), G&G (1993), examine the existence of incentive compensation plans.

In addition, Wen et al (2002), Friend and Hasbrouck (1988) and Friend and Lang (1988) find a negative relationship between fixed compensation and financial leverage which support the argument that CEOs with attractive compensation might chase lower leverage in order to reduce the financial risk and may choose low leverage to keep their job for the attractive remuneration (Stulz1988; Harris and Raviv 1988). However, empirical evidence has shown contradictory findings. Jensen and Meckling (1976), Leland and Pyle (1977) and Berger et al (1997) show positive relationship between compensation and capital structure of the firm.

This study focuses on the internal determinants of the remuneration, financing, and investment decisions in an equilibrium setting because these determinants can be controlled by the firm, besides to explore the theoretical relationship between all three decisions simultaneously. Thus, the goal of this study is to add to the existing literature by presenting an equilibrium model of remuneration, financing and investment. Moreover, to see the financing decision as a function of investment and remuneration decisions, in other words, examine the joint determination of compensation and investment decisions to analyze the impact on the choice of leverage decision.

Problem Statement

One of the main debatable issues in corporate finance is the impact of financial leverage on a firm's investment, since it is perceived to have both positive and negative attributes as a debt financing instrument. In the business environment, firms utilize leverage and try to generate shareholder wealth, but if that fails, the interest expense and credit risk of default payment can destroy shareholder value. Financial leverage is one of financing sources to pay for an investment and firm value will necessarily be affected by investor's changing forecasts of their own future wealth. Therefore, it is important to relate these decisions to compensation package granted to managers in order to make optimal investment and financing decisions based on theoretical and empirical

evidence of Jensen and Meckling (1976) Benston (1985), among others, who suggested that the compensation received by managers does affect managerial incentives. This implies that investment decision and financial leverage of firms may be influenced by remuneration decisions. Given media attention and the global interests in executive remuneration payments, when there is a change in financial performance and decision making, would any changes in both financing and investment decisions affect companies' decisions to structure management incentive payments?

It is important to study the effect of critical decision on another among corporations namely investment, financing and remuneration decisions due to the belief that it will produce wealthier models and more effective econometric data analysis methods based on well balanced interaction between theory and testing in corporate finance. There are many studies that model the relationship for each decision in isolation or with various paired factors, for instance, studies focused on measuring the impact of financial leverage on investment decision that reached conflicting conclusions using various approaches (Baker et al, 2002; Korajczyk et al, 2003; Johnson, 2003; Chevalier et al, 2004; Lally, 2004; Childs, 2005; Carlos et al, 2005).

The relationship between remuneration and investment decision follows from the agency model. In particular, Smith and Watts (1992), Gaver and Gaver (1993) examine the existence of incentive compensation plans and they argue that firms with substantial investment opportunities are expected to connect remuneration to indicators of firm performance. In addition, Friend and Hasbrouck (1988), Friend and Lang (1988) and Wen et al (2002), find a negative relationship between fixed compensation and financial leverage which support the argument that CEOs with good remuneration package might pursue lower leverage to decrease the risk that associated with leverage and to maintain their job for the attractive compensation (Stulz, 1988; Harris and Raviv, 1988). On the other hand, empirical evidence has revealed opposing findings. Jensen and Meckling (1976), Leland and Pyle (1977) and Berger et al (1997) show positive relationship between remuneration and financial leverage of the firm.

If the belief is that all three of these choices are made simultaneously, then previous empirical analyses are flawed, as endogeneity biases the results one obtains when looking at one or at any two of the choices while ignoring the third. Hence this study examines theoretically and empirically the endogenous determination of remuneration, financing,

and investment decisions in an equilibrium setting. Although most existing theories discuss how various capital market imperfections impact joint remuneration and financing decisions, or remuneration and investment decisions, or investment and financing decisions, no work has yet explored the theoretical relationship between all three decisions simultaneously.

To the knowledge of the researcher, this is one of the few first studies to jointly model each decision in a simultaneous framework. Controlling for the endogeneity is important as it may help explain why previous studies report varying conclusions regarding the tests of certain hypotheses. Thus, the goal of this research is to clear this deficiency in the literature by presenting an equilibrium model of remuneration, financing and investment.

An empirical model that allows for documented interactions among explanatory variables is used in the analysis to finally examine the combined effects of financing, investment and remuneration decisions on each other.

Research Objectives

General Objective

The main objective is to examine the endogenous determination of remuneration, financing, and investment decisions in an equilibrium setting theoretically and empirically.

Specific Objectives

Specifically, the objectives of this study are listed below:

1. To examine how the combined effects of compensation and investment decisions may influence the financial leverage decision.

2. To examine the joint determination of compensation and leverage decisions in a dynamic framework and to analyze the impact on the choice of investment decision.

3. To examine the combined effects of financing and investment decisions on remuneration decision.

Scope of the Study

This study investigates the determinants of remuneration, financing, and investment decisions within a common empirical framework, the analysis will be built on research in each of these areas to study interdependence among the three policies. The motivation for simultaneous study is clear. Careful analysis is required to distinguish any direct effects from indirect effects resulting from the firm's operating choices. A simultaneous equations framework is the natural tool to identify the effects of interdependent decisions.

Doing a theoretical study such as this in Malaysia, with its regulatory framework and corporate governance structure will enhance the generalizability of the IOS effects to emerging economies with different market environments and will provide a needed understanding of the applicability of the IOS theory.

The Malaysian economy is growing rapidly, any economic incentives are likely to be magnified, and as a consequence, tests based on Malaysian data would provide a more powerful test of the underlying theoretical relationships between investment, financing and remuneration decisions. This study will employ data from the Malaysian stock market over the period 2007-2009. The year 2007 is chosen because the Malaysian ESOS in Note 17 is disclosed in this year with regard to remuneration decision. The ending year of this study is 2009. This year is chosen for data collection purposes.

Significance and Contribution of the Study

Many parties will get benefits from this study, including corporations, regulators, policy makers as well as analytical and empirical researchers. This research will give them the necessary understanding on which corporate policies affect each other, and will increase their information about this area via providing additional evidence on the IOS theory.

This research goes beyond previous studies in this area by considering the association between the IOS and financing decisions on remuneration decision.

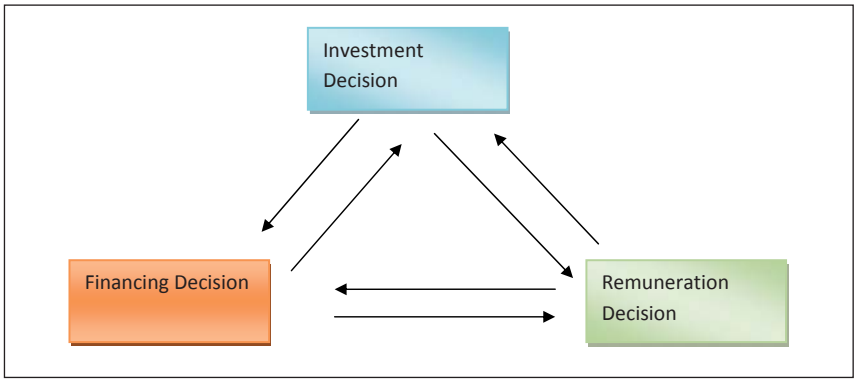
This study contributes to the theoretical body of knowledge analyzing the impact of investment and remuneration decisions on the financing decision. Various theories have been used to explain financing, investment and remuneration decisions. In this study, however, the theories used

are agency cost hypothesis, signaling hypothesis, picking order, trade off theory, tax hypothesis, and contracting hypothesis. A new hypothesis shall be developed to interpret and explain the interactions between the three decisions. Thus, this study will enhance the application and understanding of the decisions theories, in an emerging economy like Malaysia, among others.

To the knowledge of the researcher this is one of the first studies that jointly model each decision in a simultaneous framework. Argue controlling for the endogeneity is important as it may help explain why previous studies report varying conclusions regarding the tests of certain hypotheses.

Lastly, this research will improve the understanding on which corporate governance factors that affect the extant of corporate policies. Information about this area via providing additional evidence on corporate governance will definitely be disseminated more, faster, and more economical.

Framework



References

Aboody, D. (1996)." Market valuation of employee stock options". *Journal of Accounting and Economics*, 22, 357-391.

Anderson, M. C., Banker, R. D. and Ravindran, S. (2000). "Executive compensation in the information technology industry". *Management Science*, 46, 530-547.

Bergman, N. K. and Jenter, D. (2007). " Employee sentiment and stock option compensation". *Journal of Financial Economics*, 84, 667-712.

Berger, P. G., Ofek, E. and Yermack, D. L.: (1997), "Managerial Entrenchment and Capital Structure Decisions". *Journal of Finance*, 52(4), 1411-1438.

Bizjak, J., J. Brickley, and J. Coles, (1993). "Stock-based incentive compensation and investment behavior". *Journal of Accounting and Economics*, 16, 349 372.

Baker, M. and Wurgler, J., (2002), "Market Timing and Capital Structure", *Journal of Finance*, vol57, pp.1-32.

Bradley; Michael; Gregg, J. and E. Han Kim, (1984). "On the existence of an optimal capital structure; theory and evidence", *Journal of Finance,* vol39, pp. 857-878.\

Brealey, R. A. and S. C. Myers,(2006). "Principios de Finanzas Corporativas", McGraw-Hill, 8th Edition.

Cantor; Richard, (1990), "Effects of leverage on corporate investment and hiring decisions", Federal Bank of New York Quarterly Review, pp. 31-41.

Childs, P., (2005), "Interactions of corporate financing and investment decisions: The effects of agency conflicts", *Journal of Financial Economics*, working paper.

Chevalier, J., (2004), "What do we know about gross subsidization? Evidence from merging firms", *The B.E. Journals in Economic Analysis and Policy*, vol4, Article 3.

Carlos, A., (2005), "Are firms underleveraged? An examination of the effect of leverage on default probabilities", *The Journal of Finance*, vol3, pp.1427-1458.

Chen, C. Y. (2003). "Investment opportunities and the relation between equity value and employees' bonus". *Journal of Business Finance and Accounting*, 30, 941-973.

Chen, M.-L. (2007). "Incentive and Dilution Effects of Employee Stock Bonuses and Stock Options: Evidence from Taiwan". *Journal of Chinese Economic & Business Studies*, 5, 65-73.

Chen, H.-L. and Huang, Y.-S. (2006). "Employee stock ownership and corporate R&D expenditures: evidence from Taiwan's information-technology industry". *Asia Pacific Journal of Management*, 23, 369-384.

Dhillon, U. and Ramirez, G. (1994). "Employee stock ownership and corporate control: an empirical study". *Journal of Banking and Finance*, 18, 9-26.

Friend, I. and Hasbrouck, J.: (1988). "Determinants of Capital Structure". *Research in Finance*, 7(1), 1-19.

Friend, I. and Lang, L.H.P.: (1988). "An Empirical Test of the Impact of Managerial Self-interest on Corporate Capital Structure". *Journal of Finance,* 47, 271-281.

Frye, M. B. (2004). "Equity-based compensation for employee: Firm performance and Determinants". *Journal of Financial Research*, 27, 31-54.

G. Benston (1985). "The Self-Serving Management Hypothesis: Some Evidence." *Journal of Accounting and Economics,* 7, 67-84.

Gaver, J. and K. Gaver, (1993). "Additional evidence on the association between the investment opportunity set and corporate financing, dividend, and compensation policies". *Journal of Accounting and Economics,* 16, 125-160.

Harris, M. and Raviv, A.: (1988). "Corporate Control Contests and Capital Structure". *Journal of Financial Economics*, 20, 55-86.

Jensen; Michael, C., (1986), "Agency costs of free cash flow, corporate finance and takeovers", *American Economic Review,* vol76, pp. 323-329.

Johnson, Shane, A., (2003), "Debt maturity and the effects of growth opportunities and liquidity risk on leverage", *Review of Financial Studies*, vol16, pp.209-236.

Jensen, M.C. and Meckling, W.H.: (1976). "Theory of the Firm: Managerial Behaviour, Agency Costs and Capital Structures". *Journal of Financial Economics*, 3, 305-360.

Korajczyk, Robert, A. and Levy, A., (2003), "Capital Structure Choice: Macroeconomics conditions and financial constraints", *Journal of Financial Economics*, vol68, pp.75-109.

Lang, L.E.; Ofek, E.; Stulz, R., (1996), "Leverage, investment, and firm growth", *Journal of Financial Economics*, Vol40, pp. 3-29.

Lally, M., (2004), "The Fama-French Model, Leverage, and the Modigliani-Miller Propositions", *the Journal of Financial Research*, Vol. XXVII, No. 3, pp. 341-349.

Leland, H. and Pyle, D.: (1977). "Information Asymmetries, Financial Structure and Financial Intermediation". *Journal of Finance*, 44, 771-787.

Myers, S., (1977). "Determinants of corporate borrowing", *Journal of Financial Economics* 5, 147–175.

Mohun Prasadsing and Hemant B. Chittoo (2008). "Does financial leverage influence investment decisions?" *Journal of Business*, vol4, No. 9.

M. Jensen and W. Meckling (1976). "Theory of the Firm: Managerial Behavior, Agency Costs and OwnershipS tructure."*Journal of Financial,* conomics3, 305-60.

Modigliani; Franco and Merton, H.; Miller (1958), "The cost of Capital, corporation finance, and the theory of investment", *American Economic Review,* vol48, pp. 261-297.

McConnell, John, J. and Servaes, H., (1995), "Equity ownership and the two faces of debt", *Journal of Financial Economics*, vol39, pp.131-157.

Myers; Stewart, C. (1997), "Determinants of corporate borrowing", *Journal of Financial Economics,* vol5, pp. 147-175.

Mayer, Colin, and Oren Sussman (2004). "A new test of capital structure", Working Paper, Said Business School, Oxford.

Novaes, W.; Zingales, L., (1995). "Capital structure choice when managers are in control: entrenchment vs. efficiency", NBER working paper No. 5384.

R. Haugen and L. Senbet (1981). "Resolving the Agency Problems of External Capital through Options". *Journal of Finance,* 36, 629-47.

R. Walkling and M. Long (1984). "Agency Theory, Managerial Welfare, and Takeover Bid Resistance". *The Rand Journal of Economics*, 15, 54-68.

Smith, C. and R. Watts, (1992). "The investment opportunity set and corporate financing, dividend, and compensation policies". *Journal of Financial Economics,* 32, 263 292.

Stulz, R.: (1988). "Managerial Control of Voting Rights: Financing Policies and the Market for Corporate Control". *Journal of Financial Economics*, 20, 25-54.

Whited, T. (1992). "Debt, Liquidity constraints and corporate investment: Evidence from panel data". *Journal of Finance*, vol 47, pp.1425-1461.

Wen, Y., Rwegasira, K. and Bilderbeek, J.: (2002). "Corporate Governance and Capital Structure Decisions of Chinese Listed Firms', Corporate Governance: An International Review", 10, 2, 75-83.

Y. Amihud and B. Lev (1981). "Risk Reduction as a Managerial Motive for Conglomerate Mergers". *The Bell Journal of Economics,* 12, 605-17.

Zenovia, G and Anca, B. (2009). "Theoretical aspects of firms' financing decisions". The International Conference on Administration and Business.