

馬來西亞企業：融資限制，高管薪 酬與大股東的關係

**Financial Constraints, Executive Compensations and
Large Shareholders in Malaysia**

周怡悅 *Ei-Yet Chu**
馬來西亞理科大學商學院
Graduate School of Business,
Universiti Sains Malaysia

宋素音 *Saw-Imm Song*
瑪拉工藝大學工商管理學院
Faculty of Business and Management,
Universiti Teknologi Mara

* Corresponding author: Ei-Yet Chu, Graduate School of Business, University Science of Malaysia, 11800 Minden, Pulau Pinang, Malaysia. Tel: 604 6535914 Fax: 604 6532792
email: (i) eyetchu@yahoo.com (ii) eychu@usm.my

摘要

該研究調查 196 馬來西亞上市公司財政緊縮的問題。調查結果顯示，馬來西亞企業的投資，一般不會面臨財政限制。然而，公司的大股東將降低企業使用外部融資於投資，並側重於內部現金流用。相反的，三名大股東聯盟的影響，能減少企業使用內部現金流於投資的依賴。此外，衡量董事的報酬激勵比卻能激勵企業使用內部現金流及外部債務融資，以加速投資。

關鍵詞：高管薪酬、財政緊縮、投資、大股東、新興市場

Abstract

The study investigates the issues of financial constraints in Malaysia. Using a sample of 196 Malaysian public listed firms, the findings show that generally firms do not face financial constraints in Malaysia. However, the presence of large shareholder reduces the use of external financing and emphasis on internal cash flow for firms' investment. The coalition effects of top three large shareholders are found to reduce the dependence on internal cash flow for investment. Moreover, directors' compensation measured as incentive ratio is found to accelerate investments through internal cash flow and external debt financing.

Keywords: executive compensation, financial constraints, investment, large shareholders, emerging market

1. Introduction

Financial literatures have long suggested that information asymmetry restrict firms from efficient investment. The problem of information asymmetry may cause firms be denied a profitable investment due to inaccessible to external capital markets as debt financing and equity financing are no longer perfect substitute after firms utilise internal capital (Myers & Majluf, 1984). These arguments align with firms which face financial constraints-measured as positive investment-cash flow sensitivity, are likely to foregone efficient investments as they are confined to limited internal cash flow (Fazzari et al., 1988). However, financial liberalizations and developments could reduce financial constraints and enhance investment efficiency especially in developing countries (Laeven, 2003; Love, 2003).

The issues on financial constraints continue to attract academic discourses and empirical researches. Fazzari et al. (1988) seminal work suggests smaller size firms and high pay-out ratio firms illustrate a higher sensitivity of investment-cash-flow relationship than those of less financially constrained firms. Andres (2011) proposes that family ownership firms are subject to financing constraints as the founding families usually employ their own personal wealth and assets, rather than external financing for investments. However, the findings based in Germany do not align to the findings that large controlling owners in East Asian economies use leverage (Faccio et al., 2003) and accelerate investments (Claessens et al., 2003) to facilitate entrenchment or expropriation in firms prior to the East Asian financial crisis. Pertaining to this, approximately 70 percentages of Malaysian firms pursue investments that lead to misallocation of capital in the 1990s (Claessens et al., 2003). Moreover, the prevalence of high debt finances and investment as compared to declining trends in return on assets indicating that there is a problem of information asymmetry in this economy (Claessens et al., 1998). Claessens et al. (2002) also prove that large shareholders control more than 60% of firms in Malaysia.

Investment in Malaysia and other East Asian countries were in the declining trend from 2005 to 2009. Park et al. (2009) argue that the level of investments rate

in these economies are in fact at appropriate levels in the post crisis period *vis-a-vis* over investment during pre-East Asia crisis period. In addition, Malaysia's private investments recorded a 1% growth in 2008 and a -17.2% decline in 2009 and a double-digit growth of 13.8% in 2010 (Bank Negara Malaysia, 2010). Apparently, inconsistency in investment has raised many interrelated questions such as problem of financial constraints, agency problem and information asymmetry as well as financial market development. In addition, financing from banking system and capital market towards private sectors has increased from 8.4% in 2009 to 11.3% in 2010 (Bank Negara Malaysia, 2010). Despite this, Ismail et al. (2010) proof that the issues of financial constraints exist for Malaysian firms from 1998 to 2005, and the firms are unable to access to external forms of financing. Hence, this raises an interesting issue on whether Malaysian investment strategy is moving to a higher efficient level as firms benefited from assessing to external capital market, especially between 2005 and 2010.

A few issues at firms' level may influence a firm's decision to invest. First, agency problems may affect the effectiveness of decision-making. For instance, a survey by Business Times showed that total directors' pay-out in Malaysia for top 20 companies increased 22% in 2009 (Hamsawi, 2011). This leads to an interesting question of whether executive compensation is indeed inducing managerial risk taking, and therefore are to exert firms' in investments. There is also a debate whether compensation schemes are insufficient for managers to align their interest with maximization of shareholders' objective (Jensen & Murphy, 1990). Second, the issue of ownership structure is mainly focusing on the influences of large shareholders' ownership concentration. Goergen & Renneboog (2001) suggest that the measurement of ownership concentration is subjective as the levels depend upon the distribution of ownership in a firm. However, researches generally ignore the role of relative power by group of large shareholders, which prevails in Malaysia. A few large shareholders in a firm may collude to governing and influencing decision making on financing and investment.

At the firm's level, following the argument of agency theory, enhancing managerial interests could reduce the problem of information asymmetry (Jensen & Meckling, 1976), and the presence of large shareholders could function to mitigate

the problem of agency conflicts and induce higher firms' value (Shleifer & Vishny, 1986). However, in a survey on large shareholders around the world, Shleifer & Vishny (1997) show that large shareholders in fact inflict substantial costs on other shareholders in the form of expropriation such as excessive salaries, inefficient investment and financing, which enhance their private interest. The evidence prevails not only in East Asian economies (Lemmon & Lins, 2003), but also in European countries (Thomsen et al., 2006).

Moreover, a firm controlled by large shareholders may not follow the hierarchy of financing and cause imperfect substitution between debt and equity financing. This causes financial constraints that influence financing an investment, despite capital market does not render firms from raising external financing. Pertaining to this, large shareholders may pursue risk adverse strategy such as less debt and invest lower than expected in firms (Shleifer & Vishny, 1986). On the same note, a large shareholder controlling firms may be reluctant to raise new equity, because any new share issues will dilute their outstanding controlling interest. Therefore, the limited financing based on internal cash flow could lead to an inefficient investment. The relationship is however uncertain as large shareholders may also pursue expropriation strategy and incur higher debt which lead to over-investment (Shleifer & Vishny, 1997).

Therefore, there are unanswered issues on firms' investments in Malaysia. Do the Malaysian firms face the problem of financial constraints and invest inefficiently? Apparently, increasing financing from banking system and capital market does not align well with the reducing trend in private investment in this economy. This could due to financial constraints caused by the issues of agency cost such as directors' compensations, ownership concentration and the collusion of large shareholders. Hence, the development in firms' investment in Malaysia provides a platform whether there is a problem of financial constraints caused by agency problem or not.

Using 196 firms from 2008 to 2010, this study adds to our knowledge of the problems of financial constraints that Malaysian firms are facing. This study applies smaller size firms and low cash-flow firms to represent firms with financial constraints. In addition, we apply the issues of agency problem on cash flow to

examine whether agency problem trigger firms to become financial constraints. Three hypotheses are tested in this study. The basic model based on Goergen & Renneboog (2001) to test the fundamental issues of whether Malaysian firms face financial constraints. The interaction effects of agency problem such as executive compensations-namely salary and bonus, and incentive ratio are applied to test on the second hypothesis, which examine whether executive compensations could affluence financial constraints. The third hypothesis that examines financial constraints is set based on the issues of largest shareholder and the coalitions among three large shareholders. The findings are useful in determining corporate financing policies towards investment in Malaysia.

The remainder of this paper is organized as follows. Section 2 reviews the related literature. Section 3 describes the methodology, while section 4 presents the empirical results. Lastly, Section 5 concludes the paper.

2. Literature Review and Hypotheses Development

Pecking order theory suggests that firms will first finance positive NPV projects with internal capital, followed by debt for a project that is the least risky and lastly using equity financing as last resort. This pecking order theory prevails especially in inefficient and incomplete market. In reality, the hierarchy of finance may not limit to the inefficient market. Myers & Majluf (1984) postulated that firms may rely on internal financing rather than external financing as managers may not want to issue external shares, as it will harm its current shareholders. Hence, they will forego the investment unless they have sufficient cash flow to undertake them. Fazzari et al. (1988) seminal work show that firms face external financing constraint have a positive cash flow coefficient for corporate investment because internal cost of capital is cheaper than external cost of capital. The finding has rejected the proposition of Modigliani & Miller (1958) that cost of capital is irrelevant in firms' decision-making.

Smaller size firms are more susceptible to financial constraints by virtue that external capital providers have little information on them (Bond & Meghir, 1994). Similarly, firms that are unable to form their affiliate or conglomerate (non-Keiretsu) facing higher financial constraints are more sensitive to firms' cash flow than keiretsu related firms in Japanese market (Hoshi et al., 1991). Cho (1996) find the issue of financial constraints affecting investment spending of smaller and non-Chaebol group affiliated firms in Korea.

In contrast to the findings of Fazzari et al. (1988), Kaplan & Zingales (1997) prove that companies that face least financially constrained are the most sensitive for their investment-cash flow relationship in the US market. They attribute the findings to firms use additional earnings to finance excessive and unprofitable investments. Using multiple discriminant analysis, Cleary (1999) provides the similar evidence that a creditworthy firm (less financing constrained) illustrate greater investment-cash flow sensitivity than those less creditworthy does. The findings align with Lamont (1997) that a large reduction in cash flow due to the 1986 decline in oil prices, lead to lower collateral value and decline in investment.

Apparently, two views prevail in the study of financial constraints: the asymmetric information hypothesis and the managerial discretion hypothesis. The first view centres on information asymmetry suggests that there are greater marginal returns on investments than the firm's neo-classical cost of capital, but shareholders' value is reducing if firms seek external financing which is higher in cost (Myers & Majluf, 1984). Hence, adverse selection problem prevails and firms forgo investments and may lead to the problem of under-investment. However, Singh (2003) find that 32 per cent of investments in 10 developing countries are financed using external capitals, despite a higher cost of capital than internally generated funds. Therefore, Kathuria & Mueller (1995) raise the question on why the investment in the U.S and the U.K is dependent on internal finance as compared to developing countries. Moreover, it is also interesting to know the reasons that firms in developing countries pursue external financing, which is more expensive.

The second managerial discretion view suggests that when there are lower marginal returns on investment than firms' cost of capital, the firms' shareholders

are deprived the benefits by the excessive investment that firms financed using internal cash flow. This managerial discretion view centres on free cash flow hypothesis that managers have to pursue activities and hence reduce shareholders' wealth (Jensen, 1986).

Aggarwal & Zong (2006) findings further confirm external financial constraints in the US, UK, Japan and Germany for their investments from 1999 to 2001. The finding is interesting because the countries have relied on internal financing despite their advanced development in debt and equity market. Moreover, financial unconstrained firms have a lower sensitivity towards investment in the US and UK. They also face a higher monitoring and agency costs as compared to their counterpart in Japan and Germany, which follow bank-based system as the debt holders provide monitoring directly.

Nonetheless, the studies of financial constraints on developing countries are limited. Ismail et al. (2010) show that the issues of financial constraints prevail in the Malaysia market based on a sample firms from 1988 to 2005. Nonetheless, the findings do not align well with Pandey (2002) that external debt financing is non-linearly associated at a lower and higher investment opportunities (Tobin's Q), which Pandey contributes this complex relationship to agency problem and bankruptcy cost in the country. Glen & Singh (2004) reported that the Malaysian corporate growth utilised 42% of internal financing vis-à-vis 40% of debt financing and 18% of equity financing from 1995 to 2000. Similarly, Suto (2003), Claessens et al. (1998, 2003) relate the debt relationship with over-investment prior to East Asian financial crisis.

In contrast to the above, Singh (2003) further suggests that specifications in emerging markets could provide firms to employ mostly internal finance rather than external debt and equity financing. Due to the problem of information asymmetry as discussed above, firms face financial constraints may also forgo investment unless they have sufficient internal cash flow to undertake the projects (Myers & Majluf, 1984), we propose that:

H1: There is a positive relationship between cash flow and investment in firms with financial constraints.

The first hypothesis suggests an under investment problem. However, the

firms with least financial constrained illustrate a higher sensitivity of investment-cash-flow relationship (eg. Kaplan & Zingales, 1997; Cleary, 1999) implying a free cash flow problem which dependent on managerial discretion. Due to the opportunities to expropriate free cash flow in firms, managers have incentives to pursue activities and subsequently reduce shareholders' wealth. Jensen (1986) proofs show that managerial received private benefits from their additional investment. In a similar vein, compensation is one of the mechanisms where managers benefited despite investing in negative NPV's projects (Stulz, 1990).

The ideal executives' compensation is to attract CEOs and incentivize them to exert efforts, develop growth opportunities, and minimize inefficient investments. Rose & Shepard (1997) provide evidence that executive compensations' scheme positively explains executives' ability rather than entrenchment purposes for a sample of 416 firms from 1985 to 1990. The study shows that in an investment that creates the marginal return, an executive with higher ability will be rewarded with a higher compensation. Nonetheless, the issue of inefficient investment is dependent on compensation horizons (Smith & Watts, 1992). Goergen & Renneboog (2011) conclude that basic salary and bonus are short-term compensations, which related to firms' size and complexities of responsibility, whilst equity compensation emphasizes long term duration which aim to address the problem of risk aversion behaviour. Kang et al. (2006) also confirm that equity based incentive compensation is related to long-term business investment. Nonetheless, empirical works on executive compensations and investment-cash flow are still lacking, despite the existing of theoretical and literature on agency conflicts and managerial compensation in investment decision contexts (Kang et al., 2006).

Jensen & Murphy (1990) conclude that equity compensation is more sensitive than cash incentive to motivate shareholders' value. Moreover, there is also a positive link between over-investment and greater compensations, perquisites and executive promotions (Chakraborty et al., 1999). Aggrawal & Samwick (2003) also confirm that insiders pursue investments by virtue of private benefits rather than business risks. Executive compensations are also corresponding to the risk of

investment. For instance, when managerial are paid higher, there is a corresponding increase in R&D investments than in property, plant and equipment (Coles et al., 2006). Apparently, there is a positive relationship between over-investment and greater compensation. Chu & Song (2012) show that for each percentage of over-investment, one per cent increased in share prices will increase 23 per cent of executive directors' equity value in Malaysia. However, the study did not address whether the firms face financial constraints or not. If a firm is indeed financially constrained, further investment is an essential instrument to enhance firms' value so that it aligns with executive's compensation. Hence, we propose that:

H2: There is a positive relationship between cash flow and compensation towards investments in firms with financial constraints.

On the other hand, the presence of large shareholders could reduce the information asymmetry and thus avoid adverse selection and under-investment problem (Shleifer & Vishny, 1986) as suggested in the first hypothesis. The findings are however inconsistent across countries. Hadlock (1998) relates a non-linear relationship between insider shareholdings and the cash flow-investment sensitivity. The findings indicate the issue of asymmetric information prevails for the under-investment problem, as there is a stronger positive cash flow when managers are incentivized to maximise shareholder value at the early stage of insider concentration. The relationship, however, decrease slowly after a certain point of ownership concentration which is inconsistent with the hypothesis of free cash flow problem that leads to over investment. The findings are similar to the empirical work by Goergen & Renneboog (2001) for the UK market, where the model includes the issue of voters' coalition.

Conversely, in Netherland, firms with a higher shareholders' concentration posit a lower cash-flow-investment sensitivity, implying the presence of large shareholders reduce adverse selection problem and firms pursue external financing for higher investment outlay (Degryse & de Jong, 2006). In addition, Pindado & de la Torre (2009) applied a non-linear interaction term, the presence of large shareholders illustrates the entrenchment and expropriation problem and further

made the under-investment and over-investment worsen. Lastly, in Germany, family ownership firms which have a higher concentration help to diminish information asymmetries with external supply of finance, therefore, family business seem to be responsive towards investment opportunities irrespective of cash flow availability (Andres, 2011).

In contrast to the above, Ameer (2011) shows that firms with concentrated ownership are not financially constrained, especially in developing countries and emerging countries for a sample of 14 Asian countries. In contrast, they are inclined to rely on debt financing as compared to equity financing to avoid the dilution of ownership and control. Nonetheless, the issues of financial constraints on individual developing countries are limited. Pertaining to this, large shareholders may pursue risk adverse strategy such as less debt and invest lower than expected in firms (Shleifer & Vishny, 1986). On the other hand, as their controlling stakes exit beyond certain stage, there is likely to engage in expropriation tactic which leads to over investment (Shleifer & Vishny, 1997). Moreover, the availability of debt financing induces the controlling large shareholder to exploit opportunities of risky investment with lower risk of losses. This is because a debt holder loses all debt investments when investment fails, but a controlling large shareholder defaults only in payment until all resources are exhausted. Thus, the large shareholder may view debt as risk shifting rather than as a monitoring mechanism.

Therefore, we propose that:

H3: There is a positive relationship between cash flow and investment in firms with financial constraints controlled by large shareholders.

3. Methodology

The first model is to examine whether firms face the problem of financial

constraints. We follow the model proposed by Goergen & Renneboog (2001), which follows the variant of the Bond & Meghir (1994) first-order conditions of a maximization process. The equation 1 shows the model. Apparently, the future investment is dependent on the current's investments, and would only be unaffected by financial constraints. It would follow a positive coefficient sign higher than one for the lagged investments towards current investments, and the negative coefficient lesser than one for the squared lagged investments variable (Bond & Meghir, 1994). A negative coefficient is expected for cash flow towards future investments¹ if market is perfect and there is no problem of financial constraints. This is due to a higher level of current cash flow implies lower net marginal adjustment costs of investing presently(t), which would lead to a lower expected investment next period($t+1$) to achieve an equilibrium². However, in an imperfect capital market, due to the effects of financial constraints, future investment may be positively related to cash flow.

$$\left(\frac{I}{S}\right)_{it} = \alpha_1 \left(\frac{I}{S}\right)_{i,t-1} + \alpha_2 \left(\frac{I}{S}\right)_{i,t-1}^2 + \alpha_3 \left(\frac{CF}{S}\right)_{i,t-1} + \alpha_4 \left(\frac{S}{K}\right)_{i,t-1} + \alpha_5 \left(\frac{D}{K}\right)_{i,t-1} + \varepsilon_{i,t} \quad \text{eq.1.0}$$

Where I stands for the investment levels, S for the total sales, K for the capital stock, D for total debt and CF for cash flow.

In addition, in order to capture the problem of financial constraints, we partitioned the sample into smaller size firms and low cash flow firms. Smaller size firms face higher information asymmetries to the external financial providers and thus, are more financially constrained as compared to bigger size firms (Kadapakkam et al., 1998; Cleary, 2006). We segregate the firms which total assets are below sample means as smaller size firms. Similarly, Pindado & de la Torre (2009) prove that firms with high cash flow are inclined to over invest, ceteris

¹ A negative coefficient cash flow on investment implying a higher level of current cash flow but a lower net marginal adjustment costs today. Therefore, it would lead to a lower expected investment tomorrow (Harrison & McMillan, 2003).

² If the marginal benefits from the installation of an additional unit of capital at time t exceeded the marginal costs for investment at time $t+1$, the firm would invest more in time t and vice versa.

paribus. Hence, this effect is captured by segregate firms' cash flow (CF_i) lower than its' respective industrial cash flow (CF_{ind}), i.e. $CF_i < CF_{ind}$. Thus, we expect a positive relationship between investment and cash flow for a smaller size firms and lower cash flow firms.

In addition, we follow the argument of Lang & Litzenberger (1989) that on average Q ratio which is less than 1 will prompt firms to over invest, while Q greater than 1 will prompt firms to under invest. Carpenter (1995) applies this method in his study and concludes that financial constraints and the agency cost of free cash flow affect investment which is consistent with firm's life cycle model. The basic of Carpenter's argument follows Jensen's (1986) free cash flow hypothesis, whereby firms will accept marginal investment projects despite a negative present value. Following Lang & Litzenberger's (1989) model, this will lead to a Q value which is less than unity. Therefore, if the firms make announcements for dividend changes, there will be changes of investors' expectations on the size of the firms future investment in negative net present value projects. Consequently, firms are inclined to over-invest with Q value less than unity.

The sub-group regressions will enable us to examine whether firms with Tobin's Q value which is under unity and over investment value is subject to financial constraints. We do not include Tobin's Q into regression equation 1 because it diminishes the effect of the cash flow variable (Fazzari et al., 1988).

Tobins's Q (TBQ) is defined as $\frac{MarCap + B.TDebt}{B.TAsset}$, where MarCap= market

value of equity; B.TDebt= book value of total debt; B.TAssets= book value of total assets.

To examine hypotheses 2 and 3, we use an interaction terms (IA) to represent governance mechanism that may influence independent variables towards investment decision making. These three main agency costs' variables are executive compensations-log salary (*DLNSALARY*) and incentive ratios (*DINTRAT*), the largest shareholder's ownership concentration (*DLARGEST*) and shareholder coalitions based on Shapley Value (*DSVP*) are applied into the empirical model.

$$\begin{aligned} \left(\frac{I}{S}\right)_{it} = & \alpha_1 \left(\frac{I}{S}\right)_{i,t-1} + \alpha_2 \left(\frac{I}{S}\right)_{i,t-1}^2 + \alpha_3 \left(\frac{CF}{S}\right)_{i,t-1} + \alpha_4 \left(\frac{S}{K}\right)_{i,t-1} + \alpha_5 \left(\frac{D}{K}\right)_{i,t-1} + \\ & \alpha_6 \left(\frac{I}{S}\right)_{i,t-1} \times IA + \alpha_7 \left(\frac{I}{S}\right)_{i,t-1}^2 \times IA + \alpha_8 \left(\frac{CF}{S}\right)_{i,t-1} \times IA + \alpha_9 \left(\frac{S}{K}\right)_{i,t-1} \times IA + \alpha_{10} \left(\frac{D}{K}\right)_{i,t-1} \times IA + \varepsilon_{i,t} \end{aligned} \quad -----eq. 2.0$$

where IA represents centralize value of salary and bonus ($DLNSALARY_{i,t-1}$), incentive ratio ($DINTRAT_{i,t-1}$), largest shareholder ($DLARGEST_{i,t-1}$) and Shapley value ($DSVP_{i,t-1}$).

In the view that the majority of Malaysia's executives have equity interest in firms, hence, this study follows Bergstresser & Philippon's (2006) executive incentives ratios ($INTRAT$) to capture executives' equity compensations.³ The dollar changes in the value of executives' directors' share is measured when there is one percentage point increases in the company's share price, $ONEPCT_i = 0.01 \times \text{Price}_i \times (\text{Shares}_i)$, where Price is the company's share price, and Shares is the total number of shares held by the directors. Incentive ratio is then computed as: $INTRAT_i = ONEPCT_i / (ONEPCT_i + SALARY_i + BONUS_i)$. In order to facilitate interpretation and reduce multicollinearity problem, we centralise $INTRAT_i$ by substrating the mean score for each industry from each data point.

In addition, we applied natural logarithm of salary and bonus ($LNSALARY_i$) to measure executive compensations for the short-term compensation packages. Ownership concentration for the largest shareholder ($LARGEST_i$) is the fraction of their controlling interests in the firm. This measurement is however static, and relatively compared to dispersed shareholders. We computed Shapley value (SVP) based on three largest shareholders to capture the coalitions among the largest shareholders. For instance, A holds 17.89%, B holds 15.86% and C has 11.19% in a firm. There are six combinations for a largest shareholders to take a de jure

³ In fact, it is vague to define directors' equity compensation in Malaysian firms. Firms' annual report do not differentiate portion of shares' option which directors already exercised and portion which directors bought from the open market, as well as the total equity's interest directors have when the companies were first public listed. To facilitate this study, we use directors' total equity interest as the compensation for our incentive ratio's variable.

33% effective corporate control in Malaysia. A relative importance of a largest shareholder in forming winning voting coalition can be measured by using Shapley values. For instance, A large shareholder winning coalition is $42\% \left(\frac{\sum V_{A1}}{\sum V_{A1}V_{A2}V_{A3}} \right)$. The calculation is shown in table 1. Similarly, to include *LARGEST* and *SVP* as interaction variables, we centralise these two variables by substratcing the mean score for each industry from each data point.

Firms listed on Bursa Malaysia at Industrial Classification Benchmark (ICB) subsector 2000 level are used as our sample. Based on the availability of hand-collected executive directors' compensation data from annual reports in 2008 and 2010, 196 firms have sufficient data for computing incentive ratio and executive salary. Executive share options are ignored as there are limited firms which report their outstanding options.

The sample firms are building materials (48 firms), heavy construction (35 firms), containers and packaging (15 firms), diversified industries (16 firms), electrical components and equipment (9 firms), electronic equipment (6 firms), commercial vehicles and truck (5 firms), industrial machinery (40 firms), transportation services (7 firms), trucking (4 firms) and business support services (11 firms). Other financial data were obtained from Thomson Financial Database. Table 2 summarizes the variables applied in this study.

Table 1 Computing Shapley Value

Combinations	Value added by P1	Value Added by P2	Value Added by P3
A, B, C	17.89	15.11	0
A, C, B	17.89	3.92	11.19
B, A, C	17.14	15.86	0
B, C, A	5.95	15.86	11.19
C, A, B	17.89	3.92	11.19
C, B, A	5.95	15.86	11.19
$\sum V_{A1}V_{A2}V_{A3}=198$	82.71	70.53	44.76
Winning Coalition	42%	36%	22.6%

Table 2 Description of Variables

Variables	Definitions
Investment (I/S) IS	Capital expenditure on fixed assets which represents the funds used to acquire fixed assets other than those associated with acquisitions. Total sales are applied to normalize investment of the firms.
Cash flow (CF/S) $CFSALES$	Cash flow over sales
DEBT (D/K) $DEEQ$	Total Debt divided by equity
Sales (S/K) $SALCAP$	Total Sales divided by equity
Incentive Ratio ($INTRAT_i$) $DINTRAT$	$INTRAT_i = ONEPCT_i / (ONEPCT_i + SALARY_i + BONUS_i)$ $ONEPCT_i = 0.01 \times Price_i \times (Shares_i)$ Centralised by substrating the mean score for each industry from each data point
SVP $DSVP$	Shapley Value Centralised by substrating the mean score for each industry from each data point
$LARGEST$ $DLARGEST$	Percentage shares held by largest shareholders Centralised by substrating the mean score for each industry from each data point
Tobin's Q (TBQ) $DTBQ$	Firms' market value plus total debt divided by book assets Dummy for Tobin's Q value less than 1
DCF	Firms' cash flow (CF_i) lower than its' respective industrial cash flow (CF_{ind}), i.e. $CF_i < CF_{ind}$
$DSIZE$	Dummy for smaller size firm. Smaller size firms' total assets are smaller than sample total assets' mean.

4. Findings

Table 3 presents descriptive statistics. The sample mean of the total executive directors' salary and bonus were approximately RM1.7 million in 2009 and 2010, a RM0.1 million improvement from 2008. Executive directors owned about 26m of shares. Interpreting these two compensations in incentive ratio give us the average of 0.0926 in 2009 and 0.1324 in 2010, respectively. This indicates that the value for the executives' compensation increases by 13.24 cents for each one per cent

increases in share price in 2010. On the average, investment level in our sample was 8% from the sales. Cash flow in our sample firms is around 9 times as compared to sales. There are 106 firms in 2010 with cash flow lower than their respective industrial means. The sample firms also show a debt ratio of 0.7 to equity. On average, firms' in Malaysia are on the average of Tobin's Q value of 0.66 indicates their likelihood of over invest as suggested by Lang & Litzenberger (1989). Lastly, largest shareholders show a control of about 41.13%, and their power of collation with the other top two shareholders (SVP) further increase their winning chances to a value of 72%. We segregate the firms into smaller size firms if the total assets is lower than RM1319 million. A total of 181 firms fall into this category.

Table 4 gives the Pearson correlation matrixes of the variables in our sample. None of the variables shows significantly high correlations among each other's. The initial findings indicate that with the exception of salary (*LNSALARY*) and largest shareholder (*LARGEST*), incentive ratio (*INTRAT*), cash flow (*CFSALES*), leverage (*DEEQ*), sales (*SALCAP*) and Tobin's Q (*TBQ*) are positively correlated to investments (*IS*) in our study. However, it is ambiguous to confirm the prevalence of financial constraints as *CFSALES* and *DEEQ* show a moderate low correlations. The positive sign of *INTRAT*, and a negative sign of *LNSALARY* towards investment implying investment is subject to compensation horizons. Interestingly, *LARGEST* and *SVP* value show a negative link to investment suggesting an underinvestment in these high ownership firms. However, we are uncertain whether largest shareholders are risk adverse at this stage.

In table 5, model 1, we regress the equation 1 based on all sample firms without segregating the firms into sample that facing financial constraints or not. The results show a positive coefficient sign, which is more than one for the lagged investments towards current investments, and a negative coefficient sign, which is less than one for squared lagged independent variable. These relationships comply with the theoretical predictions as suggested by Bond & Meghir (1994) for financial constraints absent scenarios. There is also a negative sign between cash flow and investment. This follows the argument of Harrison & McMillan (2003), firms with a higher level of cash flow will adjust their marginal cost at current t , so

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that there will be a lower investment in the next $t+1$ period, and firms will achieve equilibrium. In addition, there is a non-significant relationship between leverage and investments which further illustrate the issues of firms' financing for investment in this economy, especially when they have better investment opportunities.

Table 3 Descriptive Statistics

	Mean	Median	Maximum	Minimum	Std. Dev.
<i>Salary 2008</i>	1,646,381	1,099,420	11,646,887	0	1,572,747
<i>Salary 2009</i>	1,721,269	1,145,000	14,886,000	0	1,737,294
<i>Salary 2010</i>	1,754,578	1,157,237	14,886,000	0	1,862,854
<i>LNALARY 2008-2010</i>	13.89073	13.97038	16.51593	0	1.413755
<i>Dir Share 2008-2009</i>	25,843,430	10,353,046	502,000,000	0	49,352,874
<i>Dir Share 2009-2010</i>	26,172,833	10,271,686	502,000,000	0	49,609,695
<i>INTRAT 2009</i>	0.0962	0.0378	1	0	0.1464
<i>INTRAT 2010</i>	0.1324	0.0514	1	0	0.2018
<i>Investment/Sales 2008-09</i>	0.081399	0.030041	3.7682	0	0.2383
<i>Investment/Sales 2009-10</i>	0.082442	0.028302	3.7682	0.000112	0.2601
<i>Cash flow/sales 2008-2009</i>	8.7377	7.73	80.62	-99.26	16.4021
<i>Cash flow/sales 2009-2010</i>	8.9341	7.84	137.46	-139.02	18.167
<i>DEEQ 2008-2009</i>	0.7132	0.3523	6.9762	0	1.0014
<i>DEEQ 2009-2010</i>	0.6992	0.3253	6.9762	0	0.9628
<i>DEEQ 2008-2010</i>	0.7085	0.3498	6.9762	0	0.9884
<i>Sales/Equity</i>	0.6992	0.3253	6.9762	0	0.9628
<i>TBQ</i>	0.6601	0.5656	4.8476	0.110932	0.3969
<i>LARGEST</i>	41.1288	28.83	6707	4.09	251.3929
<i>SVP</i>	0.7234	0.7239	1	0.1153	0.2073
<i>Total Assets</i>	1319.778	287.19	41055.38	22.9	4508.473

Table 4 Correlations

	<i>INTRAT</i>	<i>LNSALARY</i>	<i>IS</i>	<i>CFSALES</i>	<i>DEEQ</i>	<i>SALCAP</i>	<i>TBQ</i>	<i>LARGEST</i>	<i>SVP</i>
<i>INTRAT</i>	1	-0.2573	0.104	0.1221	-0.0674	-0.0811	0.2283	-0.1954	-0.1828
<i>LNSALARY</i>	-0.2573	1	-0.0738	-0.032	0.1254	0.2056	-0.0225	-0.022	-0.141
<i>IS</i>	0.104	-0.0738	1	0.1783	0.1259	0.0212	0.125	-0.029	-0.0482
<i>CFSALES</i>	0.1221	-0.032	0.1783	1	0.1443	0.0134	0.1623	0.1106	0.0245
<i>DEEQ</i>	-0.0674	0.1254	0.1259	0.1443	1	0.2557	0.0565	0.0766	0.0772
<i>SALCAP</i>	-0.0811	0.2056	0.0212	0.0134	0.2557	1	0.1685	0.1453	-0.0185
<i>TBQ</i>	0.2283	-0.0225	0.125	0.1623	0.0565	0.1685	1	-0.0323	-0.0327
<i>LARGEST</i>	-0.1954	-0.022	-0.029	0.1106	0.0766	0.1453	-0.0323	1	0.4968
<i>SVP</i>	-0.1828	-0.141	-0.0482	0.0245	0.0772	-0.0184	-0.0327	0.4968	1

Table 5 Regression-Hypothesis 1

Variable	Model 1	Model 2	Model 3	Model 4
	All Firms	Small	Small and Q<1	DCF
<i>C</i>	-0.0102 (-2.3028)**	0.0002 (0.0295)	-0.00735 (-1.3853)	0.0043 (0.8661)
<i>(IS)_{i,t-1}</i>	1.2738 (52.9714)***	1.0808 (23.6031)***	1.1336 (25.5588)***	0.9475 (21.2496)***
<i>(IS)²_{i,t-1}</i>	-0.1749 (-38.7907)***	0.0439 (1.2819)	0.020031 (0.6220)	0.0410 (1.3618)
<i>(CFSALES)_{i,t-1}</i>	-0.0683 (-4.8135)***	-0.0584 (-3.6053)***	-0.02352 (-1.4216)	-0.0355 (-2.0665)**
<i>(SALCAP)_{i,t-1}</i>	-0.0002 (-1.5913)	-0.0022 (-1.7971)*	-0.00139 (-1.2229)	-0.0001 (-0.3610)
<i>(DEEQ)_{i,t-1}</i>	0.004 (1.2652)	0.00805 (1.8438)*	0.0086 (2.1317)**	0.0010 0.2353
R-squared	0.8353	0.8446	0.8779	0.9063
Adj. R-squared	0.8339	0.8431	0.8767	0.9048
S.E. of regression	0.0777	0.076869	0.0687	0.0575
F-statistic	637.7832	585.8168	707.7594	590.1838
Durbin-Watson	1.8575	1.9331	1.5827	1.9889
Observations	588	490	443	256

P<0.01***, P<0.05**, P<0.10*

In model 2 and model 3, we check on firms which face financial constraints. The sub-sample of firms with total assets below average and cash flow below their industry peers, a priori, are expecting to face financial constraints. In model 2, the coefficient sign for IS is reducing, but close to one, while the coefficient of IS^2 has become insignificant, which implies an imperfect market for smaller size firms and would be facing financial constraints. Against the expectation of a positive sign in the first hypothesis, the negative coefficient of cash flow and investment implies that a lower expectation in future investment at $t+1$ for future investment. However, there is a positive debt financing which suggest that these smaller firms are able to access to external financing for investment. Therefore, a smaller size firm, despite facing a linear expansionary investment's model does not seem to face financial constraints as it could rely on external debt financing. In model 3, we further investigate whether a smaller size firm but over-invest face financial constraints problem or not.

In model 3, the negative coefficient for cash flow has become insignificant, but the external debt financing has strengthened. This explains that smaller sized firms that likely to over invest and expanding linearly and will very much dependent on external debt financing for future growth. Overall, a smaller size firm does not face the problem of financial constraints.

In model 4, firms with lower cash flow as compared to their industrial peers (DCF), are neither relying on cash flow, internal financing nor external debt or equity financing. The negative coefficient between cash flow and investment indicate that there will be a lower investment in the next period for the firms. Taking the issue of smaller sized and cash flow firms, **we do not find the support for the first hypothesis** that firms face financial constraints in our study.

In summary, we do not find the evidence which align with the first view which suggested in Myers & Majluf (1984) that firms avoid external financing due to higher cost of capital. In fact, our findings align with Glen & Singh's (2004) finding on developing countries that rely on external debt financing rather than internal finance. Moreover, smaller size firms could over-invest due to external debt financing despite lower Tobin's Q value.

We regress the equation-2 using centralise of logarithm of salary and incentive

ratio, respectively, to examine whether managerial discretion has a role on the issue of financial constraints. The findings corresponding to correlations in Table 4 that different direction of salary and incentive ratio towards investments, which implies investment, is subject to compensation horizons. Generally, short-term executive compensations such as basic salary and bonus do not affect firms financial and investment issues. The interaction terms between *CFSALES*, *SALCAP* and *DEEQ* are not significant to explain investments.

However, model 3 shows the interaction effects of incentive ratio towards investments. In contrast to the models in table 5 which follow the prediction of Bond & Meghir (1994), the coefficient of *IS* is at 1.14 and *IS*² at a lower magnitude of 0.10, which implies a non-perfect market when managerial discretions are taking into account. Although *IS* x *IA* produce a negative total coefficients, implying the value of investment is decreasing at the beginning stage (*IS*), but, when reaching a certain stage of investment (*IS*²), the positive sign of *IS*² x *DINTRAT* indicates that the investment is increasing on an average of directors' incentive ratio.

Directors who have average incentive ratio show a positive 4% (*DEEQ* x *DINTRAT*) towards investments in model 3. This further proves that smaller size firms do not face the problem of financial constraints. Moreover, there is a positive 11.43% (*CFSALES* x *DINTRAT*) towards investment when directors held an average of incentive ratio. We do not find that smaller size firms face financial constraints and the support **for hypothesis 2 is therefore inconclusive**. This is because smaller size firms in this country are still able access to external debt financing.

We further investigate whether firms, which over-invest face financial constraints, the findings in model 4 show that over-invest firms could rely on external debt conditional on average directors' incentive ratio. Apparently, in over investment firms, when directors earn an average incentive ratio, they do not use internal cash flow for over investment as shown in the non-significant coefficient of *CFSALES* x *DINTRAT*. As in model 4, table 5, we do not find significant relationship for variables under studied for smaller cash flow firms toward investment, the results are therefore not reported here.

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Table 6 Regression-Hypotheses 2

Variable	Model 1 <i>Small</i> <i>IA=DLNSALARY</i>	Model 2 <i>Small and TBQ<1</i> <i>IA=DLNSALARY</i>	Model 3 <i>Small</i> <i>IA=DINTRAT</i>	Model 4 <i>Small and TBQ<1</i> <i>IA=DINTRAT</i>
C	0.0058 (1.2012)	-0.0040 (1.1169)	-0.0002 (-0.0309)	-0.00714 (-1.5666)
$(IS)_{i,t-1}$	1.0784 (28.7948)***	1.1398 (39.3546)***	1.1385 (21.7721)***	1.278496 (30.2612)***
$(IS)^2_{i,t-1}$	-0.0166 (-0.5815)	-0.0383 (-1.8237)*	0.1056 (3.0796)***	0.032955 (1.2076)
$(CFSALES)_{i,t-1}$	-0.0754 (-4.4455)***	-0.0207 (-1.6039)*	-0.0291 (-1.9062)**	-0.006 (-0.4566)
$(SALCAP)_{i,t-1}$	-0.0026 (1.7065)*	-0.0013 (-1.10527)	-0.0033 (-2.4453)**	-0.00264 (-2.3058)**
$(DEEQ)_{i,t-1}$	0.0011 (0.2759)	0.0014 (0.5093)	0.0062 (1.3759)	0.00601 (1.6917)*
$(IS)_{i,t-1} \times IA$	0.0706 (1.5880)	0.0350 (0.9582)	-4.4041 (-13.3308)***	-4.59032 (-14.4201)***
$(IS)^2_{i,t-1} \times IA$	-0.3204 (7.9768)***	-0.2889 (-9.0161)***	7.7579 (16.335)***	8.547376 (19.0386)***
$(CFSALES)_{i,t-1} \times IA$	-0.0180 (1.2153)	-0.0106 (-0.9753)	0.1143 (2.0959)**	-0.05335 (-0.6927)
$(SALCAP)_{i,t-1} \times IA$	0.0010 (1.1426)	0.0006 (0.8977)	0.0322 (3.7354)***	0.035638 (4.4631)***
$(DEEQ)_{i,t-1} \times IA$	-0.0026 (1.1259)	-0.0010 (-0.5478)	0.0400 (2.2693)**	0.044953 (3.0767)***
R-squared	0.92	0.96	0.92	0.96
Adjusted R-squared	0.91	0.96	0.92	0.96
S.E. of regression	0.06	0.04	0.06	0.04
F-statistic	499.72	968.90	371.54	617.68
Durbin-Watson stat	2.59	2.19	2.24	2.45
Observations	475	437	316	290

$P<0.01***$, $P<0.05**$, $P<0.10*$

Fama & Jensen (1983) argue that a smaller firm becomes more effective with the presence of large shareholder. In such firms, the higher ownership

concentration results in higher degree of association between decision management and decision control, hence reducing the problem of information asymmetry and monitoring costs. Hence, firms face fewer problems of financial constraints as information asymmetry will be reduced, and firms are likely to access to external financing. On the other hand, the presence of large shareholder could also expropriate the internal resources for their personal benefits. We examine hypothesis 3 that there is a positive relationship between cash flow and investments in large shareholders controlled financial constrained firms.

The findings in model 1, table 7 indicates that in a smaller size firms, the presence of large shareholder with average large shareholding will incur positive cash flow financing ($CFSALES \times DLARGEST$) of 0.13% for investment purposes. The coefficient reaches 0.17% in over investment firms (model 2, table 7) while the debt financing consistently declining at 0.08%. In firms with average large shareholdings, the negative coefficient of $DEEQ \times DLARGEST$ and positive coefficient of $CFSALES \times DLARGEST$, suggesting smaller size firms are constrained to access to external capital and therefore dependent on internal cash flow. **The findings lend support to our third hypothesis that there is a positive relationship between cash flow and investment in financial constrained firms controlled by large shareholders.**

Apparently, the finding shows that large shareholders in fact pursue less debt strategy to avoid external monitoring, but focuses on internal cash financing strategy for investment purpose. These, however, may lead to under-investment problem. Another explanation may due to firms controlled by an average large shareholder incur higher information asymmetry between firms and debtor and hence, lead to a lesser external debt financing. In model 2, when firms are over-invest, the internal cash flow explains 0.17% of firms' investment. The result supports the second managerial discretion view that firms' shareholders are deprived the benefits by the excessive investment that firms financed using internal cash flow. Apparently, large shareholder controlled firm will expropriate any free cash flow for the investment but will reduce shareholders' wealth.

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Table 7 Regression-Hypothesis 3

Variable	Model 1 <i>Small</i> <i>IA=DLARGEST</i>	Model 2 <i>Small and TBQ<1</i> <i>IA=DLARGEST</i>	Model 3 <i>Small IA=DSVP</i>	Model 4 <i>Small and TBQ<1</i> <i>IA=DSVP</i>
C	-0.0010 (-0.17877)	-0.0001 (-0.0143)	0.0144 (2.9377)***	0.0067 (1.6431)*
$(IS)_{i,t-1}$	1.0790 (13.4463)***	0.9577 (13.3932)***	0.6480 (12.5434)***	0.7026 (15.9369)***
$(IS)_{i,t-1}^2$	0.0524 (0.3721)	0.1901 (1.5497)	1.0495 (18.2414)***	1.0043 (21.0525)***
$(CFSALES)_{i,t-1}$	-0.0072 (-0.4845)	-0.0107 (-0.8351)	-0.0586 (-4.6135)***	-0.0325 (-2.76038)**
$(SALCAP)_{i,t-1}$	-0.0039 (-2.6551)***	-0.0028 (-2.2123)**	-0.0003 (-0.2571)	0.0005 (0.4166)
$(DEEQ)_{i,t-1}$	0.0218 (3.0735)***	0.0209 (3.4262)***	0.0021 (0.5061)	0.0059 (1.7856)*
$(IS)_{i,t-1} \times IA$	-0.0193 (-4.4316)***	-0.0101 (-2.6762)**	2.1206 (9.3279)***	1.8241 (9.2062)***
$(IS)_{i,t-1}^2 \times IA$	0.0285 (3.4688)***	0.0171 (2.4301)**	-5.4304 (-19.7376)***	-5.1921 (-23.2373)***
$(CFSALES)_{i,t-1} \times IA$	0.0013 (1.7779)*	0.0017 (2.7567)**	-0.2750 (-4.9733)***	-0.1017 (-1.9693)**
$(SALCAP)_{i,t-1} \times IA$	0.0002 (2.9093)***	0.0001 (2.1486)**	-0.0031 (-0.7148)	-0.0045 (-1.2455)
$(DEEQ)_{i,t-1} \times IA$	-0.0008 (-2.6876)***	-0.0008 (-3.2518)***	-0.0056 (-0.2751)	0.0107 (0.6408)
R-squared	0.8646	0.8952	0.9345	0.9604
Adjusted R-squared	0.8582	0.8897	0.9327	0.9592
S.E. of regression	0.0452	0.0377	0.0537	0.0425
F-statistic	136.00	164.83	502.39	776.79
Durbin-Watson stat	2.23	1.69	2.19	1.79
Observations	224	204	363	331

P<0.01***, P<0.05**, P<0.10*

In model 3 and 4, using the centralised value of Shapley value, we investigate whether coalitions among first three large shareholders could influence the

financing for investment. The finding clearly indicates that $CFSALES \times DSVP$ has reduced by 27.50%. In an over investment firm, the average coalition among three large shareholders could reduce internal cash financing by 10.2%. Lastly, the coalitions among large shareholders do not seem to influence leverage financing on investments.

Taking together the findings in model 3 and model 4, we could conclude that a single large shareholder could lead to expropriation of shareholders' value by avoiding external debt financing and increase internal cash financing. In the scenario of coalition among three large shareholders, there will be less internal financing and insignificant external debt financing for investment. These further lead to under investment problem when a few large shareholders controlled the firm.

5. Conclusions

This study explains whether there is an issue of financial constraints in Malaysia. Apparently, smaller size firms do not show that they face the problem of financial constraints. The issue of financial constraints prevails only when a dominant large shareholder controls a firm. Large shareholder uses less debt but emphasises on internal cash for firms' investment. The effects however, adverse when three large shareholders could collide and reduce using internal cash investments in firms. Directors' short-term salary and bonus are not positively influencing cash flow for investment. Although long-term compensation measured as incentive ratio asserts a positive impact on cash flow and its investment, it also incurs higher debt in firms.

In contrast to Myers & Majluf (1984) that firms avoid external financing due to higher cost of capital, smaller size firms are in fact relying on external debt financing for investments. One reason may due to smaller size firms face less information asymmetry with external debtors in this economy. Moreover, the risk

sharing benefit foregone is smaller than in a large organisation. Hence, a smaller size firms could over invest despite does not have a good prospect of investment.

The presence of large shareholder in smaller size firms appear to have incurred less debt, but emphasize on internal cash flow. The concentration of ownership on one particular individual increase asymmetric of information and therefore firms use less debt, as the risk sharing benefits forgone has increased to the debtors. Clearly, large shareholder controlled firms have a better opportunity to deprive internal resources especially on free cash flow. Hence, the issues of financial constraint lend support to the second managerial discretion view that shareholders are deprived the benefits as firms rely on internal cash flow.

The coalition among large shareholders appears to reduce large shareholders from using cash flow for investment. In fact, it helps firms to achieve equilibrium in investment as there is a higher level of current cash flow but a lower net marginal adjustment cost at present, therefore, it will lead to a lower expected investment at next period. The roles of identity of large shareholders should also be considered to control the effects on executive directors, as owner such as family owners are generally more conservative in terms of investment.

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About the Authors

Ei Yet Chu

Ei Yet Chu is a Senior Lecturer at University Science Malaysia (USM). He was attached to a local bank before joining academia. He obtained Bachelor of Business Administration from the Northern University of Malaysia in 1991, MBA from the University of Birmingham, UK in 1998 and PhD in financial economics from USM in 2007. Dr. Chu's research interest focuses on corporate ownership and control, corporate governance and corporate finance. He has published in Capital Market Review, Advances in Financial Economics, International Journal of Business and Economics, Asean Economic Bulletin and Asian Academy of Management Journal of Accounting and Finance. He also participated actively in research project from government agencies and private companies. Dr. Chu current interests are in executive compensation and issues on firms' investment.

E-mail: eyetchu@yahoo.com; eychu@usm.my

Saw-Imm Song

Saw-Imm Song is currently an Associate Professor of Finance at the Universiti Teknologi Mara (UiTM), Pulau Pinang Campus, Malaysia. Prior to joining UiTM, she was working in the electronic industry where her main responsibilities included operations planning and material procurement. She graduated from the Northern University of Malaysia with a Bachelor's degree in Economics (Hons) in 1992 and had obtained her MBA from the University of Birmingham, UK, in 1998. She completed her PhD in 2007 from the Science University of Malaysia (USM). Her research interests include corporate finance, investment and corporate governance. Over the past ten years, she has published several papers in the local and international journals. Her research projects which are sponsored by various agencies include cross-border M&As, financial advisors and M&As, as well as R&D investment and financing decision.

E-mail: songsi@ppinang.uitm.edu.my

