DETERMINANTS OF FIRM AFFILIATION TO PYRAMID STRUCTURE: A SURVEY FROM MALAYSIAN PUBLIC LISTED FIRMS

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ABSTRACT

This research seeks to examine the determinants of affiliation to pyramid structure of Malaysian public listed firms. A motivation of the research comes from the phenomenon of pyramid structure causing divergence of ultimate owners' actual ownership and control leading to severe expropriation of minority shareholders' interest. The method adapts Attig Model and employs Panel Generalised Least Square on 136 Malaysian pyramid firms over a twenty one-year period from 1990 to 2010. There are ten independent variables used including risk, cash, size, capital expenditure, tobinQ, debt ratio, dividend payout ratio, duality, financial institution as second largest shareholder and stock liquidity. The key findings show that pyramid structure in Malaysia has large differences between cash flow rights and control rights. The result of regression analysis reveals that all variables are statistically significant except for cash and dividend payout ratio. In order to get more accurate results, future research should increase the sample size and cover a larger geographical area. It is recommended to determine other extraneous factors which might lead to firm affiliation to pyramid structure particularly among Malaysian pyramid firms.
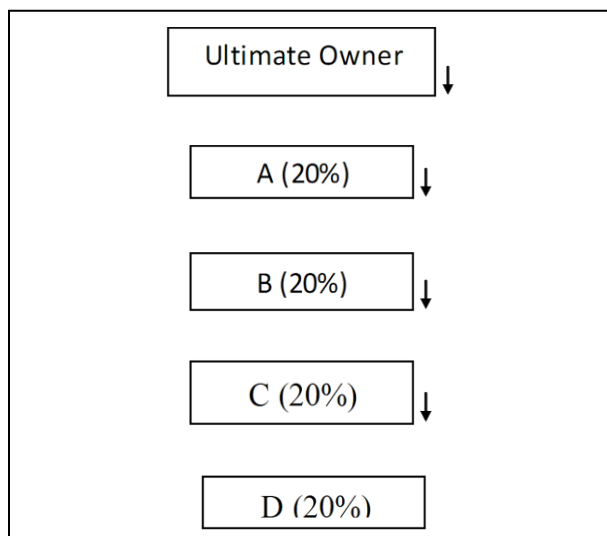
Keywords: Pyramid structure, Cash flow rights, Control rights, Attig model, Malaysia

INTRODUCTION

This research intends to examine the determinants of firm affiliation to pyramid structure among Malaysian public listed firms. Pyramid structure emergence is not a universal phenomenon. A pyramid structure is defined as a business entity comprising of a group of companies whose ownership structure displays a top-down chain of control. According to Attig *et al.* (2003), a firm is considered as affiliated to pyramid firms if it is controlled through pyramid structure and has at least one intermediary firm in its ownership chain. In such a structure, the ultimate owners are

located at the apex with successive layers of firms below. Accordingly, the length of layers of pyramid structures leads to the opportunistic behaviour of ultimate owners to expropriate the minority shareholders' interest. La Porta *et al.* (1999) is the first study that investigates the issue of pyramid structure and its ultimate control. For instance, they trace the chain of ownership to find who has the most voting rights. Ultimate owners around the world usually control an array of affiliated companies through hierarchical intermediary corporations forming a pyramid structure. Figure 1 shows an example of a pyramid structure with the ultimate owner placed at the apex and successive layers of firms below Attig *et al.* (2003).

Figure-1. Example of Pyramid Structure

A direct result of the pyramid structure is a separation of actual ownership, or cash flow rights, from voting power or control rights, especially for firms placed in the lower level of the structure (Claessens *et al.*, 2000),. Cash flow rights represent actual ownership in a company (Claessens *et al.*, 2000b). Chapelle (2005) defines control with respect to the majority voting rule where the control ratio of a shareholder is obtained by dividing the share of control he can exercise directly or indirectly over a given company, by the percentage of shares he actually owns in that company. Logically, the owner's cash flow rights that arise from his actual investment should represent owners' control rights in a company. However, because of the pyramid structure effect, these two rights may not be equal, violating minority shareholders' benefits. Under this background, research on the determinants of firm affiliation to pyramid structure has important practical implication. The divergence of actual ownership and control occurs because such structure enables the ultimate owner to establish control disproportionately to the amount of ownership in each of the successive firms. Consequently, the ultimate owner's actual ownership position needed for control becomes smaller at each succeeding layer of the structure. Claessens *et al.* (2002) and Lemmon and Lins (2003) empirically show that the separation of cash flow rights and control rights of the ultimate owner devalue the interest of other shareholders. Both studies conclude that the interest of other shareholders is adversely affected whenever cash flow rights and control rights divergence exists

because it enables the ultimate owner to misuse his control rights over the company's resources without being penalized for misconduct.

Many prior researches have been done about pyramid structure in term of its separation of ownership and control (Claessens *et al.*, 2000), (La Porta *et al.*, 1999) and (La Porta *et al.*, 2000a); correlation between firm performance and ownership structure (Baek *et al.*, 2004), (Hughes, 2009) and (Lemmon and Lins, 2003); tunnelling effect of pyramid structure (Cheung *et al.*, 2006), (Friedman *et al.*, 2003) and (Riyanto and Toolsema, 2008) and other aspects. However, this research explores the determinants of affiliation to pyramid structure among Malaysian firms. Basically, pyramid firms have many attributes that may distinct them from non-pyramid firms. Factors such as risk, size, cash, capital expenditure, tobinQ, debt ratio, dividend payout ratio, duality, financial institution as second largest shareholder and stock liquidity may significantly distinguish pyramid affiliated firms from others. These determinants may provide some insight on how the pyramid affiliated firms function. Dilution and ultimate owner misconduct are more obvious within the pyramid structure rather than other types of firms (Attig *et al.*, 2003). Empirical evidence of the determinants of affiliation to pyramid structure is still relatively limited especially in Malaysian context and an extensive investigation based on Attig Model in this direction is warranted. Malaysia has the most number of pyramid firms and it is reported that tunneling is quite significant compared to other countries (La Porta *et al.*, 1999). With completion of this review process, this research would have established the necessary empirical framework to explain such adverse phenomena. Thus, the objective of this research is to provide a comprehensive review of the empirical evidence for understanding the nature of Malaysian pyramid structure determinants as a whole.

LITERATURE REVIEW

Determinants of Firm Affiliation to Pyramid Structure

In Malaysia alone, the percentage of firms with pyramid structure is about 39.3% (Claessens *et al.*, 2000). This phenomenon is also observed in other East Asian countries. High voting power combined with close relationships between the ultimate owner and top manager increases the possibility of expropriation of minority shareholders. Attig *et al.* (2003) analyze a sample of Canadian listed firms and find that there is divergence between the cash flow rights and control rights in pyramid affiliated firms and it has a depressive effect on dilution of minority interests. The issue of separation of actual ownership is served as the basis for the framework of this research. The discussion focuses on investigating the determinants of firm affiliation to pyramid structure specifically for Malaysian firms. Research on pyramid structure characterization of Malaysian public listed firms within agency theory framework is relatively limited and thus warrants this research to be undertaken. A review of literature reveals that there are 10 determinants such as risk policy (Risk), firm size (Size), investment policy which is known as capital expenditure (CAPEX), dividend policy (DivR), leverage policy (DebtR), free cash flow (Cash), firm performance (TobinQ), stock liquidity (Liquidity), duality function (Duality) and financial institution as second

largest shareholders (FIH) that contribute to firm affiliation to pyramid structure. Studies by Bunkanwanicha and Wiwattanakantang (2008), Fauzias and Bany (2005) and Gugler and Yurtoglu (2003) have explored the phenomenon in emerging countries and they find that pyramid ownership structure has an influence on these factors and the ultimate owner may undertake policies to facilitate his private benefits. From the perspective of risk policy (Risk), expropriation and other opportunistic behaviour are more probable within pyramid firms than other structure (Attig *et al.*, 2003) and will probably invest in riskier projects to satisfy the interest of the ultimate owner. However, findings by Chu and Cheah (2004) regarding the ownership structure claim that conglomerate affiliation are risk averse due to the large voting rights which constitute large losses to bear if the investment failed. As for that, this research explores the context of risk policy whether it poses positive or negative relationship with pyramid firm.

Firm size (Size) and investment policy (CAPEX) are also considered as important determinants of firm affiliation to pyramid structure. Jang *et al.* (2005) said that large firm size would allow the family to use affiliated firms to provide additional equity especially when the family is unable to subscribe for new equity out of its personal wealth. For investment policy which is known as capital expenditure (CAPEX), Holmen and Hogfeldt (2009) claim that pyramid structure allows controlling owners to overinvest since they have access to a relatively inexpensive source of capital with lower requirements than the external capital markets. It means that highly leveraged control of internal cash flows provides firms with access to a large source of capital that is relatively inexpensive compared to external equity. Such a comparative financing advantage is particularly valuable for old firms in mature industries with large capital needs for long-term investments and low expected returns, the typical firm controlled by pyramids. Since such firms have limited growth opportunities, they are more likely to overinvest because of access to free cash flow (Jensen, 1986). Due to softer return requirements than on external capital, firms controlled by pyramids are more likely to be discounted because they make inferior acquisitions, overinvest in long-term research and development (R&D) projects with uncertain and unclear benefits in a distant future. This research tries to seek whether investment policy and firm size can either have positive or negative relationship with probability of firm affiliation to pyramid structure.

Lin and Zhang (2009) in their study in China suggest that firms with bank ownership tend to invest irresponsibly in project with negative net present value due to the availability of cheap bank financing. Furthermore, it seems that banks do not exercise sufficient monitoring over the companies to avoid these unprofitable investment projects and hence they fail to provide the needed governance over the companies that they own. Wolfenzon (1999) model predicts that larger firms tend to adopt a pyramid structure which in turn is associated with high diversion levels. Basically, there is a positive relationship between firm size and investment policy with the probability of firm affiliation to pyramid structure. So, this research examines whether investment policy and firm size either have a positive or negative relationship with pyramid structure.

For dividend policy variable (DivR), La Porta *et al.* (2002) report that higher dividends paid in order to offset investor anticipation of expropriation because it is believed that dividend payout may limit cash flow diversion to generate benefits. Other opinion comes from Faccio *et al.* (2002) who suggest that dividends can either have positive relation with loosely affiliated firms or negative relation with tightly affiliated firms. Firms that are further away from the ultimate owner tend to have higher dividend yields and payout ratios (Aganin, 2000) due to the concern of dilution of minority interest in the pyramid firms (Attig *et al.*, 2003). However, there is also argument that, lower dividends are paid in pyramid firms (Attig *et al.*, 2003). Thus, it is interesting to know whether the dividend payout ratio has positive or negative relationship with firm affiliation to pyramid structure. For leverage policy (DebtR), Attig *et al.* (2003) report that leverage policy influences the existence of firm affiliation to pyramid structure. They argue that since ultimate owner avoid external control, he would likely rely more on internal capital to compensate for capital scarcity. However, ultimate owner may decide on debt financing to gain a reputation as a firm that can take care of its minority shareholders. Khanna and Palepu (2000) in their study find that pyramid firms will use internal capital to finance their projects due to the difficulty in obtaining external financing. Hence, it is vital to see the relationship between leverage policy with probability of firm affiliation to pyramid structure.

Besides that, free cash flow (Cash) is also assumed as another important factor for the emergence of pyramid structure. A firm with large free cash flow is highly correlated to pyramid structure (Attig *et al.*, 2003). These firms are usually 'cash cows' in order to support other financially constraint firms in the conglomerate. According to Bebchuk *et al.* (2000), ultimate owner at the apex of the pyramid are likely to use internal free cash flows to finance projects. Thus, firms endowed with larger free cash flows should display a higher probability of firm affiliation to pyramid structure. Such firms (cash cows) might satisfy the cash preference of the ultimate owners. In this case, the authors try to investigate whether free cash flow either posits positive or negative relationship with pyramid firm.

In terms of firm performance (TobinQ), previous study such as Lemmon and Lins (2003) report that there is a negative relationship between separation of cash flow rights and voting rights with firm performance in East Asian countries. Ultimate owner may acquire low performance firms and place them at the lower layer of pyramid structure to be utilised for rent extraction by taking risky investment and in case of failure, the negative impact towards the ultimate owner is limited by the cash flow right (Attig *et al.*, 2003). Some previous studies by Claessens *et al.* (2006) and Khanna and Palepu (2000) claim that pyramid firms with greater use of internal capital may lead to higher performance rather than non pyramid firms. Therefore, this research seeks the result between the firm performance and pyramid structure. The other variable such as stock liquidity (Liquidity) is also seen as an essential determinant for firm affiliation to pyramid structure. Stock liquidity displays negative correlation with the probability of firm affiliation to pyramid structure. Given that small investors are alert to dilution and they care about their portfolio's turnover, they will avoid stocks of firms where the risk of private benefit extraction is large. According to Bebchuk *et al.*

(1999), firms with less liquid stock give the owner larger private benefits of control and as a result, small investors tend to choose liquid stock. Investors will avoid stocks in which the probability of private benefit is large. Therefore, they will choose liquid stock as they are easily disposed of whenever they sense that the particular firm is in chaos (Attig *et al.*, 2002). While based on Anderson and Fraser (2000), they state that stock-trading frequency is a proxy for the speed with which information is captured in stock prices. Meanwhile, Easley *et al.* (1996) argue that stock liquidity should be an indicator of disagreement among shareholders, as less active stocks face a greater risk of informed trading. Thus, stock liquidity might be useful for small shareholders as a signal providing protection against eventual expropriation. In this circumstance, this research identifies whether the stock liquidity either posit a positive or negative relationship with pyramid affiliated firm.

The final variables which need to be taken into consideration are duality function (Duality) and financial institution as second largest shareholders (FIH). For duality variable, it is defined as combined CEO / chairman functions where the CEO is also the chairman of the board. Duality is expected to have positive relationship with firm affiliation to pyramid structure. As reported by La Porta *et al.* (1999), duality has a positive relationship with pyramid firm. Based on Ghazali and Weetman (2006), an independent director will be better as he will be able to give unbiased views over issues concerning the firms. To summarize, it is essential to observe whether the presence of duality bring about positive or negative relationship with firm affiliation to pyramid structure. Meanwhile, elements of control from financial institution as the second largest shareholder will limit expropriation activities, thus it is negatively related with firm affiliation to pyramid structure. Financial institution as the second largest shareholder in a firm may effectively act as monitoring agent Lichtenberg and Pushner (1992). Moreover, identifying the second largest shareholder is important to reduce the possibility of expropriation in the pyramid firm (Attig *et al.*, 2008). Therefore, the authors concern with whether the existence of second largest shareholder either gives negative or positive relation with pyramid firm. So, the foregoing review of literature forms a basis for examining the determinants of firm affiliation to pyramid structure specifically in Malaysia. All the firms can be cataloged to these 10 factors which trigger the emergence of pyramid structure. The significance of this research provides clear-cut determinants that contribute to firm affiliation to pyramid structure, so that this issue could be addressed effectively. The result could possibly prevent the phenomenon of the discrepancy between the ultimate owner's cash flow rights and control rights in pyramid firms due to high ownership concentration. Thus, it is interesting to examine the antecedents that cause the probability of firm affiliation to pyramid structure in Malaysian public listed firms from a micro perspective.

Overview of Malaysian Pyramid Structure and Separation of Actual Ownership and Control Issue

The phenomenon of Malaysian pyramid structure and the issue of separation of ownership (cash flow right) and control (control right) can be illustrated as in Figure 2. The ultimate owner owns 35% of company A, making him the majority shareholder of the company. At the same time,

company A owns 34% of company B. Thus, company A becomes the controlling shareholder of company B. The fact that the ultimate owner controls company A which in turn is a major shareholder of company B gives him the right to control company B also.

Figure-2. Pyramid Structure and Separation of Actual Ownership and Control
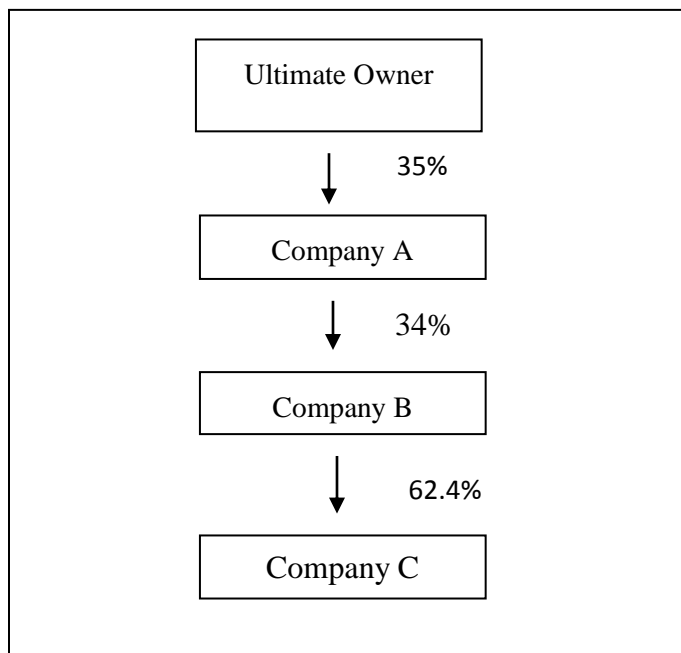
In this pyramid group, the ultimate owner has a direct ownership of company A only. For the rest of the firms, the ownership comes indirectly. For instance, ultimate owner's ownership in company B comes through company A. For company C, the ultimate owner's ownership arises from his share in company A and company B. Resulting from this particular arrangement, the ultimate owner's actual ownership (CFR) in company C is 7.43%, determined in the following manner:

$$\text{Actual ownership (CFR) in company C} = 35\% \times 34\% \times 62.4\%$$
$$= 0.07426 \sim 7.43\%$$

Theoretically, ownership arises from one's investments. If the amount of ultimate owner's ownership in company C is 7.43%, then his investment in company C is also 7.43%. Assuming that company C is worth RM10, 000,000, an investment worth RM 743,000 (7.43% x RM10, 000,000) enables the ultimate owner to control a company worth RM10, 000,000.

Ultimate owner's indirect control of company C is proxied by the control right (CR). The control arises from his controlling share in company A which then controls company B, and finally the control of company C by company B. Claessens *et al.* (2000b) and La Porta *et al.* (1999) define the weakest link in the line of control as the control ratio (CR). Based on this definition, the control ratio (CR) that ultimate owner has over company C is 34% (i.e., the weakest link in the chain of ownership).

The structure provides the ultimate owner the rights to influence (indirectly through company A and company B) matters such as firm policy and board of director (BOD) appointments in company C. Evidently, because of the pyramid structure, with 7.43% ownership or RM 743,000 worth of investment, ultimate owner has 34% control ratio (CR) in a firm (company C) worth RM10,000,000. This significant separation of ownership (CFR) and control (CR) clearly deviates from the traditional idea of one share-one vote (Grossman and Hart, 1988). Crucially, the incentives to expropriate other shareholders may also arise from this separation (Claessens *et al.*, 2000b).

As in Claessens *et al.* (2000b) and La Porta *et al.* (1999), the separation can be measured by looking at both the ratio of cash flow right (CFR) to control right (CR) and the difference between cash flow right (CFR) and control right (CR). The following illustrates how such separation can be measured using ownership data in Figure 1.

The separation of cash flow right (CFR) and control right (CR) in company C can be measured in two forms:

> I.   Using the ratio of cash flow right (CFR) to control right (CR):
> = Cash flow right (CFR) / Control right (CR)
> = 7.43% / 34%
> = 0.2185

> II.   Using the difference between cash flow right (CFR) and control right (CR):
> = Control right (CR) – Cash flow right (CFR)
> = 34% - 7.43%
> = 26.57%

Based on these techniques of computation, the smaller the ratio of cash flow right (CFR) to control right (CR) indicates wider separation between actual ownership (CFR) and control (CR) in the hand of the ultimate owner. In a similar manner, the larger difference between cash flow right (CFR) and control right (CR) also indicates the same phenomenon. The wider the separation shows the greater the possibility of expropriation which is known as an agency problem. Such separation also can be detrimental to the well being of shareholders interest. The following example illustrates such an effect. Assume, ultimate owner at the apex of the pyramid has ordered company C to venture in a highly risky business for the reason of creating private benefits (empire building) for the ultimate owner. Due to some unfortunate events, the business venture failed, leading to a 1 million RM decrease in the value of company C. Since company B has 62.4% ownership in company C, this 1 million RM decrease in value of company C translates into a RM624,000 decrease in the value of company B, a RM212,160 decrease (34% of RM624,000) in the value of

company A, and finally a RM74,256 (35% of RM 212,160) decrease in the ultimate owner's total wealth. In other words, a million RM reduction in value of company C translates into a decrease of RM74,256 in the ultimate owner's wealth at the apex of the pyramid. This relatively small portion of the total loss is the result of the ultimate owner's control of company C real financial stake of only 7.43%.

Who actually bears the remaining financial losses experienced by company C? The party that bears most of the rest of the financial losses would be the other shareholders of company C. The other shareholders incur considerably more of the total loss because of their direct holdings in the firm. As a matter of fact, the separation of cash flow right and control right somewhat insulates ultimate owner from any negative consequences as a result of his misconduct. With such minimal losses, the ultimate owner is encouraged to venture into more risky investments, using the assets of firms located at the lower tiers of the pyramid (Morck and Yeung, 2004).

In another example, assume that, as a result of a business project which is ventured by company C, an asset created from this project rises in value by RM 1 million. Based on the present successive chain of ownership, only RM74, 256 of this gain ultimately accrues to ultimate owner at the pyramid apex. The rest is diverted to one level after another of the firms in the pyramid structure. However, because ultimate owner controls company C's board of management, ultimate owner might order company C to sell the particular assets value at RM 1 million to a firm in a higher tier of the pyramid structure at minimal cost. For example, if company C sells the asset (the one that is worth RM 1 million) to company A at a minimal cost, the additional million RM shows up in the Company A balance sheet instead. Since there is only one layer separating company A and the ultimate owner, a RM 1-million increase in company A value causes ultimate owner's wealth to rise by RM350,000 (35% of RM1,000,000), instead of only RM74,256. Such inter-corporate transfer of wealth among pyramid firms to the advantage of the ultimate owner is known as tunneling (Johnson *et al.*, 2000; Cheung *et al.*, 2006; Cheung *et al.*, 2009).

By allowing cash flow right (CFR) and control right (CR) to diverge, pyramid firm permits the same divergence of interest problem as well as agency problems in dispersed firms (Jensen and Meckling, 1976). For instance such as the case of company A and company B in earlier example, where company B bails out its financial ailing parent company (company A) through purchase of 34% of company A at a premium. Much of the attention is focused on ultimate owner personal shareholding, CEO and the controlling shareholders of company A. So, in this case, ultimate owner's action over the matter is typical given Malaysian corporate scenario. However, it is the action of company B's board of directors that is being questioned. The incident provides two important evidences on Malaysian corporate governance scenario. Firstly, majority shareholders have the absolute uncontested power to make decision to safeguard their interest at the expense of minority shareholders. Secondly, non-owner executives are powerless to protect the best interest of the firm and other shareholders. Such incident suggests that most Malaysian firms attempt to emulate the developed market firms emphasizing interest alignments and issuing corporate policy

which can provide incentives for firms' managers or an executive to enhance firm's performance, so that the interest of owners is well taken care of.

Previous study by Claessens *et al.* (2002), Lemmon and Lins (2003) and (Lins, 2003) empirically show that the ultimate owner gives no regard to the interests of other shareholders in companies when there is separation of actual ownership and control. So, this research is a useful contribution to the literature, in which the phenomenon of pyramid structure as well as separation of cash flow right and control right among Malaysian pyramid firms is explored thoroughly to indicate any indirect expropriation potential within such structures and thus provides additional insights into corporate finance and also governance. Even if the idea is proven otherwise, this study still represent one of the pioneering efforts to examine the prevalence of firm affiliation to pyramid structure emergence specifically in Malaysian public listed firms.

METHODOLOGY

This research examines the determinants of Malaysian firm affiliation to pyramid structure. The sample consists of 136 pyramid firms listed on the Main Market of Bursa Malaysia Berhad (BMB) for the period of 1990 to 2010. All data are collected from annual accounting information from the firms' audited annual financial statements. Since the collected financial data are from audited accounts, the consistency, reliability and accuracy of the information is controlled. The firm ownership data are also obtained directly from annual reports. Other corporate information is gathered from OSIRIS database and Datastream International, a financial database provider. To analyze a pyramid firm, it is crucial that the ownership structure remain stable over the test period to allow identification of the intermediate owners of each sample firm, the owners of the intermediate entity, and eventually the ultimate owner. This research follows the methodology of (Claessens *et al.*, 2000) and (La Porta *et al.*, 1999), to construct the ownership structure of a pyramid firm. The largest immediate majority shareholders for each firm are identified. In most instances, these are the individuals, corporate entities or financial institutions. Because it is almost impossible to trace the ownership link in the case when the largest immediate shareholders are individuals or non-listed firms, therefore only corporations who are the largest immediate shareholders of listed firms or listed financial institution are chosen. This is because the information on the ownership of these immediate listed entities is publicly available. This is consistent with (Claessens *et al.*, 2000) and (La Porta *et al.*, 1999) definition of firm affiliated with pyramid group. They define a pyramid firm if it has an ultimate owner. Secondly, there is at least one publicly traded firm in the chain of 10 or 20 voting rights. After the identity of the largest immediate shareholders for each of the firms have been identified, the authors then trace the largest owner of this immediate firm and the owners of those owners and so on until it reaches the ultimate shareholder (ultimate owner).

In this research, generally the tracing process takes three to four layers of corporate ownership before the possible identity of the ultimate owner can be identified. Another requirement that is

imposed to meet the requirement of pyramid affiliated firms is that in each of the sample firm, the immediate listed corporation must be the largest stakeholders in that firm. For example, individual X controls firm A with 30% control right (CR). This makes the individual the main stockholder of firm A. At the same time, firm A controls firm B with 45% control right (CR) and this makes firm A the largest stakeholder in firm B. In this case, because Firm A is the largest stakeholder in firm B and no other entity has comparable stake, this makes Firm B a pyramid affiliated firm and the ultimate owner is individual X.   This research imposes such requirement so as to ensure this ultimate owner has the supreme and undisputed control over firm B although the control comes through firm A. Such requirement is not imposed by La Porta *et al.* (1999). They apparently argue that as long as the chain of 10% or 20% is maintained, the ultimate owner will have complete control over the firm at the bottom of the pyramid. They argue 10% or 20% is sufficient to preserve one's control especially in Asian countries, because other smaller shareholders are generally so dispersed and it is difficult to get consent from them. Based on the implementation of these requirements, the final sample constitutes 136 pyramids of Malaysian public listed firms. The ownership link of these firms can be traced all the way to the ultimate owner. Thus, the true owner of the pyramid firm can be identified. Studying the separation of ownership and control requires data on both cash flow rights (CFR) and control (CR), which is calculated using the complete chain of ownership.

As illustrated previously, suppose an ultimate owner owns 10% of the stock of a publicly traded firm A, which in turn has 30% of the stock of firm B. It is then said that the ultimate owner controls 10% of firm B; the weakest link in the chain of control (La Porta *et al.*, 1999). In contrast, the ultimate owner only owns about 3% of the cash flow rights of firm B, the product of the two ownership stakes along the chain. Finally, the ratio of cash flow right to control right as well as the difference of control right to cash flow right are computed and this is done to shed light on the separation between actual ownership and control. There are several requirements that this research imposes in order to finalize this list. First, firms in which the immediate stakeholders consist of listed firms irrespective of the amount of shares it held are excluded. Secondly, this research also excludes firms in which one of the immediate major stakeholders consists of unlisted firms. Again this is done irrespective of the amount of shares held by the unlisted firm or whether or not they are the dominant stakeholders. The second requirement is imposed for the same reason as the former one, and that is to eliminate the possibility of drawing the influence of the pyramid structure on the control sample. The findings of (Claessens *et al.*, 2000) provide justification for this requirement. They indicate that firms in Asian countries sometimes are connected to a pyramid group through unlisted firms and such connection can still raises the possibility of expropriation by the ultimate owners. Considering this issue, firms with such ownership arrangement is excluded as well. This research adapts Attig Model which highlights on the expropriation hypothesis inside Canadian pyramid business groups and the evidence is consistent with ultimate owners establishing selfish strategies at the expense of minority shareholders through such structure. So, *this basic model only includes the variables which fulfill the determinants of firm affiliation to pyramid structure.* It can be conjectured that this model is consistent with systematic and anecdotal evidence on *pyramid*

structure which address the incentives for expropriation. The research design incorporates balanced panel approach and estimated the equation using pooled Generalised Least Square (GLS) method to estimate the regression. All the variables are depicted as in Table 1.

Table-1. Method of Variables Calculation

Variables	Description	Formula
Risk	Standard deviation of daily stock returns	$SD = \sqrt{1/N \ \Sigma^{n}_{i=1}(x_1 - \mu)^2}$
Performance	Show the firm's performance	(Market Value of Equity + Total Debt)/Total Assets
Debt Ratio	Measure firm's financial leverage	Total Debt/Total Assets
Cash	Cash availability within the firm	Natural log of cash
Size	Represented by the total asset	Natural log of total asset
Pyramid Firm	A business entity within a group of companies whose ownership structure displays a top-down chain of control (PAFF = 1)	Based on public listed companies in Malaysia 1 = Pyramid firm 0 = Otherwise
Duality	The same person serving as both the CEO and the chairman of the company	1 = Act as both CEO and Chairman of Board 0 = Otherwise
Financial Institution Holding	Elements of control from financial institution as the second largest shareholders that act as monitoring agent to help reduce the possibility of expropriation in the pyramid structure	1 = Status 0= Non Status
Dividend Payout Ratio	Represent how much earnings are distributed to shareholders	Cash Dividends /(Pre Tax Income - Income tax)
Stock Liquidity	Yearly average of daily bid ask spread (BASP)	BASP = (Ask-Bid)/[(Ask + Bid)/2]*100
Capital Expenditure	Measure for firm's investment	Total Fixed Assets / Total Assets
Cash Flow Rights (CFR)	Actual ownership in a company	Multiplication of ownership stake along the pyramid ownership chain
Control Rights (CR)	The control a shareholder can exercise directly or indirectly over a given company	The weakest ownership link along the pyramid ownership chain

The Empirical Model: Firm Affiliation to Pyramid Structure

The determinants of firm affiliation to pyramid structure are described in Model 1 as follows:

Model 1:

$$PAFF = \acute{y} \ \underline{\varDelta} + \eta \qquad\qquad (1)$$

(Pyramid) = f (Risk, Cash, Size, Capex, TobinQ, DebtR, DivR, Duality, FIH, Liquidity) (1a)

From Model 1, **Δ** stands for a set of variables that influence the firm affiliation to pyramid structure and **ŋ** is an error term. In this research, the interest is to know the dominant variables that influence the emergence of pyramid affiliated firm (PAFF) in Malaysia.

DISCUSSION OF RESULTS

Descriptive Statistics

Data description on concentration of cash flow rights and ultimate control for selected Malaysian pyramid firms is discussed in this section. The descriptive statistics of variables used in this research are presented in Table 2. Pyramids create discrepancies between ownership and control rights. The amount of increased control rights (CR) from cash flow rights (CFR) appears in the variable cash flow rights leverage (CFRL). Cash flow rights leverage (CFRL) represents the difference between cash flow rights (CFR) and control rights (CR). The cash flow right (CFR) and control rights (CR) basically held by each ultimate owner. To make the distinction between cash flow rights (CFR) and control rights (CR), the authors document pyramid structures for each firm. When control rights (CR) increase and become greater than cash flow rights (CFR), controlling shareholders are more likely to expropriate in such a situation. For the whole sample, the mean amount of control rights is 33% (standard deviation: 9.244), with mean cash flow rights standing at 19%. The deviation in these figures means that the ultimate owners receive 19% of the cash flow rights generated by the firms, but control a larger proportion of the firms' voting rights (33%). These averages are computed over firms where at least one owner owns at least 5% of the control rights. The average value of increased control or cash flow rights leverage (CFRL) accounted for 13%. Meanwhile, the average ratio of cash flow right (CFR) to control right (CR) is small which amounted to 0.592. To measure the concentration of corporate control in pyramid firms, cash flow rights and control rights are incorporated in this research. Cash flow rights represent the ultimate ownership stake held by the largest controlling shareholder. Meanwhile, control rights represent the percentage of voting rights controlled by the largest controlling shareholder.

Based on a description of this data, the result for all of the ownership variables have mean value of less than 1. There is evidence of divergence between cash flow rights and control rights for ultimate owners. This divergence is even larger for ultimate owners who are individuals or families, which can trigger agency problems with minority shareholders. Agency problem in Malaysia is quite serious when the pyramid firms of under developed market have concentrated shareholding. The mean of control rights reported (33%) is high compared to the results obtained in (Claessens *et al.*, 2000) and Fan and Wong (2002) studies, who report 30.7% and 28.3% respectively for Malaysian firms. It is because they economized on data collection by terminating the tracing of owners once the voting rights reached 50%. Thus, their statistics for control rights are lower than those reported in this research. Overall, the result implies that the ultimate owners tend to control the firm once their voting power exceeds their cash flow rights. The existence of excess control rights has a negative impact on firm performance. The result is also similar to those of (Attig *et al.*, 2004) and (Bozec and Laurin, 2008) studies who both document a negative impact of excess control rights on Canadian firm performance. Their results tend to create the entrenchment effect as described by Morck *et al.* (1988).

So, the result in this research is consistent with the view of Shleifer and Vishny (1997) that once "large controlling owners gain nearly full control of the firm, they prefer to generate private benefits of control that are not shared by minority shareholders". Moreover, this result is also supportive of the arguments put forward by Bebchuk *et al.* (2000) who report that incentives for expropriation are even stronger when control rights exceed cash flow rights. The result of this research is also supported as indicated in (Claessens *et al.*, 2000) studies that distinguish between cash flow rights (CFR) and control rights (CR). By means of a pyramid structure, the ultimate owners gain control rights in excess of their cash flow rights.

Table-2. Descriptive Statistics for Concentration of Cash Flow Rights and Ultimate Control for Malaysian Pyramid Firms

	Mean	Median	Maximum	Minimum	Variance	Standard Deviation
Control Rights	0.33	0.32	0.54	0.12	85.46	9.244
Cash Flow Right	0.19	19.5	0.40	0.05	62.71	7.919
Cash Flow Rights Leverage	0.13	11.5	0.31	0.04	38.17	6.178
Ratio Cash Flow Right / Control Right	0.592	0.625	0.857	0.156	0.024	0.154

Regression Analysis for Model Determinants of Firm Affiliation to Pyramid Structure

Table 3 presents the results of regression analysis of model (1) that is the determinants of firm affiliation to pyramid structure. The results suggest that size of firm is significantly positive at 1% level and it increases the likelihood of firm affiliation to pyramid structure. Meanwhile, the debt ratio is significant at 1% level which correlates with firm affiliation to pyramid structure in a positive way, in line with previous studies. For duality variable, it is significantly positive at 1% level, consistent with the view that most pyramid firms have owners who practice duality function; acting as the manager as well (La Porta *et al.*, 1999). The other variable such as stock liquidity is also considered as an important determinant for firm affiliation to pyramid structure.

In general, higher stock liquidity of the firm tends to reduce the probability of affiliation. In contrast, lower stock liquidity tends to increase the probability of affiliation to pyramid structure. The results show that stock liquidity is significant negatively related to pyramid structure affiliation at 1% level. When the stock liquidity of the firm is low, the probability of firm affiliation to pyramid structure is high. This result supports the study by Anderson and Fraser (2000) who report that information flows in pyramid firms are more distorted compared to non pyramid firms. For the rest of variables such as risk, capital expenditure and TobinQ, they are also statistically significant at 1% level. While the variable financial institution as a second largest shareholder is marginally significant at 10% level. Their coefficient results are in line with the hypothesis of the determinants of firm affiliation to pyramid structure. Only cash and dividend payout ratio variables are not significant. Maybe the pyramid firm determinants are more observable when the pyramid firms are segregated into groups of high CFR ratio and low CFR ratio firms respectively.

Table-3. Results of Regression Analysis (Model Firm Affiliation to Pyramid Structure)
(Dependent Variable: Pyramid Firm)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Risk	0.007590	0.001525	4.978115	0.0000***
Cash	0.000136	0.000248	0.054935	0.9562
Size	0.000221	0.000394	5.606909	0.0000***
CAPEX	0.000515	0.000480	10.73780	0.0000***
TobinQ	-0.000202	0.000138	-14.57363	0.0000***
Debt Ratio	0.000202	0.000138	14.66558	0.0000***
Div Ratio	0.000899	0.000118	0.761541	0.4469
Duality	0.999276	0.000108	9279.123	0.0000***
Fin. Inst	-0.000575	0.000305	-1.884856	0.0604*
Liquidity	-0.000228	0.000374	-6.104057	0.0000***

Weighted Statistics			
R-squared	0.203380	Mean dependent var	1.255244
Adjusted R-squared	0.191773	S.D. dependent var	2.138083
S.E. of regression	0.835217	Sum squared resid	224.0765
Durbin-Watson stat	1.923588		

*significant at 10%, **significant at 5%, ***significant at 1%

MULTICOLLINEARITY

The collinearity statistics can pick up on problems with multicollinearity (exists when the independent variables are highly correlated) that will influence the contribution of a good regression model. According to Pallant (2007), the value of tolerance with less than 0.1 and the variance inflation factor (VIF) values above 10 will create problem of multicollinearity. With reference to Table 4, the tolerance and variance inflation factor (VIF) value are highlighted according to model (1a) and model (1b) respectively.

Overall, model (1a) shows tolerance values more than 0.1 and variance inflation factor (VIF) values below 10. The same pattern is also presented by model (1b). These results indicate that the multicollinearity assumptions are not violated thus does not influence the regression model.

Table-4. Collinearity Statistics

Model (1a)			Model (1b)		
	Tolerance	**VIF**		**Tolerance**	**VIF**
CFR Ratio	0.958	1.032	CFRCR	0.950	1.041
Risk	0.943	1.056	Risk	0.942	1.054
Cash	0.724	1.383	Cash	0.723	1.382
Size	0.861	1.150	Size	0.853	1.173
CAPEX	0.826	1.260	CAPEX	0.824	1.258
TobinQ	0.467	2.137	TobinQ	0.466	2.134
Debt Ratio	0.723	1.577	Debt Ratio	0.722	1.578
Div Ratio	0.658	1.577	Div Ratio	0.657	1.580
Duality	0.905	1.107	Duality	0.909	1.103
Fin. Inst	0.523	1.810	Fin. Inst	0.522	1.812
Liquidity	0.524	1.820	Liquidity	0.523	1.822

Note: CFRRATIO is the proxy of separation of cash flow rights and control rights measured by ratio of cash flow rights over control rights. CFRCR is the proxy of separation of cash flow rights and control rights measured by simple difference between cash flow rights and control rights. Risk is the proxy for the firm risk taking policy and it is measured as standard deviation of daily stock returns. Cash is the availability of cash within the firm which measured by natural logarithm of cash. Size is the proxy for firm size measured by natural logarithm of total assets. CAPEX is the capital expenditure which is a proxy for firm's investment, total fixed asset divided by total asset. Tobin Q is the proxy for firm's performance which is measured by the market value of equity plus total debt divided by total assets. Debt ratio is the proxy for the total debt over total assets. Div ratio is the proxy for dividend payout ratio and represents how much earnings are distributed towards shareholders. Duality is the proxy for the combinations of CEO of the firm and the chairman of the board, measured by dummy variables (1 = act as both CEO and Chairman of Boards, 0 = Otherwise). Fin. Inst is the proxy for financial institution as second largest shareholders which measured by dummy variables (1 = Status, 0 = Non Status). Liquidity is the proxy for the stock liquidity which measured by yearly average of daily bid ask spread (BASP).

Results of Heteroskedasticity Test and Autocorrelation Test

Table 5 shows the results of White's General Heteroskedesticity test and Autocorrelation test. The results of F-test fail to reject the null hypothesis. This suggests that the error variance is constant, meaning that there is no heteroskedasticity problem. In addition, the use of Panel Generalised Least Square (GLS) estimation which simultaneously incorporate White's General Heteroskedasticity test is consistent with Standard Errors technique (Gujarati, 2003) overcoming this problem. Meanwhile, Durbin-Watson (DW) test is used to detect autocorrelation problem. The model reports that the value of the Durbin-Watson (DW) statistic is close to 2. It means that the model in this research has no serial correlation problem (Gujarati, 2003).

Table-5. White General Heteroskedasticity Test and Autocorrelation Test

Chi-Square	F-Statistics	P-Value	Durbin Watson (DW)	Reject/Accept (H_0)
16.89057	0.828063	(0.4204)	1.923588	Accept (H_0)

CONCLUSION

This research examines the determinants believed to contribute to firm affiliation to pyramid structure particularly in Malaysia using Attig Model. Findings from the research reveal that the determinants of firm affiliation to pyramid structure are more observable in Malaysia which creates large differences between cash flow rights and control rights. The result of regression analysis reveals that all the variables are statistically significant except for cash and dividend payout ratio. The model reports that the Durbin-Watson (DW) statistic is close to 2 which indicate no serial correlation. There is also no multicollinearity problem for the model regressed according to the tolerance and variance inflation factor (VIF) value. The exacerbation of agency problems may lead to the fragility of the corporation. Consequently from the fragility of the corporation, ordinary investors will be deterred from entering the capital market and channeling the badly needed fresh liquidity into it. Nothing is perfect, so this research also has its shortcomings. First, most Malaysian pyramid firms are affiliated with a pyramid group via unlisted immediate shareholders of listed firms. However, for the aim of this research, these firms are excluded. This is because of unavailability of ownership data problem that these unlisted immediate shareholders of listed firms may create. For instance, as a consequence of this unavailability of ownership data, it prohibits the research from establishing the pyramid ownership chain and ultimately tracing the ultimate owner. Through such pyramid ownership link, the ultimate owner could also establish his control on the target pyramid firm by eliminating firms that are connected through an unlisted firm. Thus, this research is likely also to underestimate the ultimate owner influence through the pyramid structure. Second, the research only focused on Malaysia context, thus the result cannot be generalized to other countries. A bigger sample could be undertaken to make the conclusion more reliable, accurate and comprehensive. The firms included in the sample are selected based upon data availability. The lack of randomness may lead to selection bias in the sample, hence limits the external validity of the conclusions and the developed model. Thus, caution should be exercised in any attempt to generalize results of this research to a different population. Third, this research also has not dealt with many other factors that might fruitfully be pursued in future research. It is interesting to see if the driving force behind the pyramid structure emergence arises from the non-dilution entrenchment motive of the ultimate owner.

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