

Ownership Concentration, Family Ownership and Leverage: Evidence from Malaysia

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Abstract: This is the first study that empirically examines the impact of ownership concentration as a main independent variable on leverage decision for Malaysian firms. Multiple regression models with balanced panel data are employed to examine the impact of ownership concentration on a firm's leverage decision. We also make the first attempt to test the moderating effect of family ownership on the relationship of ownership concentration and leverage decision. We conclude that (1) the higher the shareholdings by the top shareholders, the lower the leverage; (2) family companies have lower leverage than non-family companies; (3) the negative effect of ownership concentration on leverage is smaller in family companies than in non-family companies. The research implications are risk aversion pushes firms towards lower debt but the risk of losing control of family members would lead them to employ high debt. Practically, we suggest that risk averse investors could invest in firms with a higher degree of family ownership when there is a higher degree of concentrated ownership.

Keywords: Family ownership, leverage, Malaysia, moderating effect, ownership concentration

JEL classification: G32, L25

1. Introduction

Effects of corporate governance on leverage are theoretically complex and empirically ambiguous. The recent global financial crisis has turned the spotlight again on the relationship between corporate governance and leverage, leading to debate among researchers as well as policymakers. Noting that ownership structure is a crucial factor in corporate governance which is closely associated with external financing, this paper, however, is exploring the impact of ownership structure, particularly ownership concentration on leverage.

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Ownership concentration is the amount of stock owned by individual investors and large-block shareholders. Demsetz and Lehn (1985) define concentrated ownership as a shareholder holding a large fraction of shares and he/she is a member in the board. Higher ownership concentration suggests a stronger monitoring power from investors. Owners with a significant amount of shares may take aggressive actions over managerial decisions. As such, ownership concentration can be an internal governance mechanism that helps to reduce the likelihood of managerial opportunism. Shleifer and Vishny (1986) document that concentrated ownership may improve performance by increasing monitoring and alleviating free-rider problem in takeovers.

Traditionally, concentrated ownership provides better monitoring and has superior performance (Leech and Leahy 1991). On the other hand, Maher and Anderson (1999) argue that ownership concentration might also lead to extraction of private benefits by controlling shareholders at the expenses of minority shareholders.

Generally, firms in Asia have more concentrated ownership than the UK and the US. Lim (1981) found that the 100 largest Malaysian firms were highly concentrated in their ownership of shareholding and wealth in the 1960s. Mitton (2002) reported the mean shareholding of a single largest shareholder and the sum of ownership concentration was 29.6 per cent and 49.4 per cent respectively during the 1997-1998 period. Furthermore, the average concentrated ownership by the largest shareholder and the five largest shareholders of Malaysian public listed companies increased to 31 per cent and 62 per cent respectively in year 2000 (Haniffa and Hudaib 2006). Up to date, we find that the concentrated ownership by the largest and the five largest shareholders increased to 50 per cent and 70 per cent respectively for the period 2002-2011.

As shown in Chong and de Silanes (2007), larger information asymmetries and underdeveloped financial markets make the issuance of equity less likely in Asia. Claessens *et al.* (2000) support the observation that debt had been widely used by firms in Malaysia in the 1990s. Malan *et al.* (2012) report that Malaysian firms with high concentrated ownership prefer issuing debt than equity. Therefore, the key issue here is: 'do large shareholders dominate and control the firm?' Do they play a significant role in making firm's strategic decisions, specifically the financing decision?

Most of the previous studies (Mishra and McConaughy 1999; Kim 2006; Driffield *et al.* 2007; Céspedes *et al.* 2010) on concentrated ownership-leverage relationships are limited to developed countries and large emerging countries. Malaysia is understudied in the literature. This paper adds further to the literature by adding an ownership structure, which is ownership identity in the model. Gürsoy and Aydoğan (1998) state that ownership identity is related to the presence of certain groups such as family, government and foreign shareholders who hold a certain number of shares in a company. Difference in ownership produces an impact on the company's financing decision and performance. A company may be owned and managed by different parties; this causes the division or diffusion of ownership and control.

The role of family in the agency-debt relationship is a recent research topic. Theoretically, control mechanisms in family firms are more efficient than other firms (Barth *et al.* 2005) because family firms ease the monitoring task (Shleifer and Vishny 1986). Furthermore, Anderson *et al.* (2003) document that family ownership firms may mitigate the risk-shifting problem because they care more for firm survival than other shareholders. Hence, family firms may have a lower cost of debt financing (Barth *et al.* 2005). This family nature will benefit the firm because it has a lower financial risk and cost of capital.

Demsetz and Lehn (1985) emphasise that the concentrated equity position and control of management, including the family's historical presence, give the family an advantageous position in monitoring the firm. On one hand, Wiwattanakantang (1999) concludes that family ownership helps in reducing the agency cost of debt. On the other, Anderson *et al.* (2003) explain that the relation between founding-family holdings and debt costs is non-monotonic.

Nevertheless, Jaggi *et al.* (2009) contend that the prevalence of family control is likely to moderate the monitoring effectiveness of independent boards. This would enable the family members to maintain their responsibility in monitoring and controlling managerial activities, including the financial decision. Moreover, the nature of family ownership firms that have big concerns in maintaining long-lasting performance provides a positive impression on the investors as the firm implements a stricter monitoring system (Chu 2009). Overall, family ownership has been verified to play a significant monitoring role in firms.

Despite the vital role that family businesses plays in the economy, little is known about how family ownership affects firm behaviour and firm decision. Numerous studies have been carried out to identify the unique characteristics of family firms and how they enhance firm performance and firm decisions (Tagiuri and Davis 1996; Olson *et al.* 2003; Lee 2006). However, the empirical significance of these studies remains largely unknown especially in terms of moderating the relation between concentrated ownership and leverage decision. This paper seeks to fill the gap.

The objective of this paper is to investigate the relationship of ownership structure and firm's leverage decision in Malaysia. This paper also explores the moderating effect of family ownership on the leverage decision of a firm in relation to a firm's concentrated ownership. Many studies discuss ownership concentration and family ownership on leverage decisions separately. However, to the best of our knowledge, there is a noticeable absence of ownership concentration, family ownership and a firm's leverage decision in one study.

This paper contributes to the debate on corporate governance from several dimensions. First, this is the first study that empirically examines the impact of ownership concentration as a main independent variable on leverage decision for Malaysian firms. Second, our attempt to test the moderating effect of family ownership on the ownership concentration-leverage nexus is a first. Third, two measures of leverage are employed in this study to examine the impact of ownership concentration. It is hoped that the findings of this study could serve as an indicator in assessing the impact of ownership concentration on leverage decisions for public listed companies in Malaysia.

The rest of this paper is organised as follows. Section 2 reviews the literature. Section 3 explains the data and methodology used in the study while Section 4 provides the empirical findings with the discussion. Finally, conclusion and recommendation are presented in Section 5.

2. Literature Review

2.1 Ownership Concentration and Leverage

Empirical studies on the ownership concentration-leverage relationship show mixed results. Anderson *et al.* (2003) agree that firms with high ownership concentration have higher leverage level. Controlling shareholders prefer debt to equity financing, since they tend to maintain their level of voting control for a given level of equity. Lundstrum

(2009) also revealed that large shareholders favour debt to equity issue. This allows for maintaining controlling power and monitoring corporate governance in the concentrated ownership firm. Lee and Kuo (2014) agree that the presence of controlling shareholders helps alleviate managerial entrenchment and plays a role in monitoring the relation between debt and manager ownership.

On the other hand, Jensen and Meckling (1976) argue that shareholders of a firm with more concentrated ownership prefer less debt if the debt acts as an effective mechanism to monitor management activities. In other words, firms with high concentrated ownership are more likely to choose less debt than firms with low ownership concentration. Mishra and McConaughy (1999) support the negative impact of ownership concentration on firm leverage. They explain this negative phenomena as due to the controlling shareholders' wish to reduce control risk exposure. Hence, they choose less debt financing to avoid the risk of financial distress and bankruptcy. Nonetheless, Brailsford *et al.* (2002) suggest that the impact of ownership on leverage is non-linear, varying across the level of managerial share ownership. de La Bruslerie and Latrous (2012) support an inverted U-shape relationship between ownership and leverage.

Deesomsak *et al.* (2004) and Driffield *et al.* (2007) conducted studies on the Asia Pacific region where Malaysia is included as one of the sample countries. Deesomsak *et al.* (2004) found a significantly negative relationship between ownership concentration and leverage in the Asia Pacific region before the Asia financial crisis. However, after the crisis, the relationship changed to positive. The study used an index of creditor's rights as a measurement of ownership concentration. Besides, the study focused only on the firm and country-specific factors of capital structure in the Asian Pacific region.

Driffield *et al.* (2007) examined the effects of ownership structure on capital structure and firm valuation for East Asian countries including Malaysia. They concluded that the effects of both high concentration and cash flow control rights on leverage are positive. The study categorised the sample into family firms and non-family firms. However, the paper only identified the difference in the effects of ownership on leverage between these two groups and offered no further discussion on the interaction effect between ownership structure and family ownership to leverage decision. To fill this gap, we thus aim to enrich extant capital structure literature focusing on ownership concentration and family ownership in the Malaysia context.

In the case of Malaysia as a single country study, what we have found are studies that examined the relationship of concentrated ownership to performance only (Dogan and Smyth 2002; Mitton 2002; Suto 2003; Leng 2004; Haniffa and Hudaib 2006; Tam and Tan 2007). No study has been conducted to investigate the direct impact of ownership concentration as a main independent variable on leverage decision for companies in Malaysia. The only similar study is that of Suto (2003) which examined the linkage of corporate governance mechanisms with the role of banks and company structure. Taking ownership concentration as a control variable, Suto (2003) found the top ten shareholders to be negatively related to the debt ratio.

2.2 Family Ownership and Leverage

While there is much evidence confirming that ownership concentration is associated with leverage decision, recent studies have also documented that family ownership plays an important role in firm's leverage decision. Kim and Sorensen (1986) explain that family involvement in ownership contributes to higher firm debt due to the aversion of losing

control. Anderson *et al.* (2003) and Wu *et al.* (2007) agree that family firms have higher leverage than non-family firms.

However, Friend and Lang (1988) found debt ratio and management's shareholding to be negatively related. The argument is in line with that of Fama and Jensen (1983) who explain that when a family is involved in management, they tend to lose their efficiency in decision processes because of their risk aversion. Bertrand and Schoar (2006) further argue that a family's goals are not always aligned with the long term well-being of other investors, especially if the family is excessively risk averse which could lead to lower debt level of the firm. Furthermore, Bobillo *et al.* (2013) argue that each generation from family firms is less risk averse than the preceding one in obtaining debt as their source of finance. While there is ample evidence supporting the relationship between family ownership and leverage decision, little attempt have been made to examine empirically the moderating effect of family ownership in the relationship of leverage decision and ownership concentration.

Although studies on the relationship of leverage decision and ownership concentration are rich, the results are mixed and do not show a consistent pattern. In other words, there is no clear prediction about the overall effect of ownership concentration on the leverage decision of firm. In addition, very little is known about the possible effect of ownership concentration and family ownership and their effects on financing decision. Therefore, we attempt to further investigate this relationship in Malaysia with updated data and improved methodology. It is hoped that the study findings help bridge the gap and shed some light on the literature, specifically in the Malaysian context.

3. Data and Methodology

3.1 Sources of Data

For the sample, we first selected all 831 companies that were listed in the Main Board of Bursa Malaysia¹ (Stock Exchange of Malaysia) as of 30 September 2012. After excluding finance, insurance and unit trust companies due to differences in regulatory requirements, 793 companies were selected. Data on the selected companies were screened using the following criteria: (1) the firm was listed in Bursa Malaysia before 2002; (2) complete firm data for the 10-year period from 2002 to 2011; (3) complete information on 30 largest shareholders' as listed in the annual reports; and (4) firm compliance with family ownership criteria (family members are the shareholders in the 30 largest shareholders list of the company) to test for the moderating effect. On completion of screening based on these four criteria, the sample consisted of 310 companies with available data in order to avoid survivorship bias. We further excluded companies that lacked data relating to market value, intangible assets etc. based on DataStream. Finally, 201 public listed companies with full data available over the 10-year period constituted our sample. The data used in this study are drawn from two separate databases, company annual reports and DataStream.

3.2 Variables and Measurements

The dependent variable, independent variable, moderating variable and control variables are explained in this section.

1 Formerly known as Kuala Lumpur Stock Exchange. It is an exchange listing holding companies that offer a complete range of exchange-related services.

Dependent variable: Leverage (LEV) is the ratio of total debts to total equities. This indicator captures the characteristics of firm indebtedness (Rajan and Zingales 2012). Independent variable: Ownership concentration. Demsetz and Lehn (1985) and Ehikioya (2009) used the fraction of shares held by the five largest shareholders as a measure of concentration in ownership structure. Our study too accepted the same measurement and classified it as ownership concentration 5 (OC5). OC5 is measured by dividing the sum of shares held by the largest five shareholders with the shares of the top 30 shareholders (Zeitun and Tian 2007). However, as this study is robust to using alternative measures of ownership concentration, the proxy was enlarged to include the three largest shareholders, following Omran *et al.* (2008) which measured ownership concentration as the percentage of shares owned by the largest three shareholders in a firm. Therefore, ownership concentration 3 (OC3) is the sum of shares owned by the largest three shareholders divided by the top 30 shareholders shares.

Moderating variable: Family ownership (FMO) was identified following Jaggi *et al.* (2009). Bursa Malaysia requires all public listed companies to disclose the profile of all directors and senior management and their relationships in the annual report. Further, directors must also disclose their shareholding information including their personal interest, family interest, corporate and other interests. On identifying family members (parent, spouse, children, in laws, sibling, nieces and nephew), total shareholding of family members was calculated from the 30 largest shareholder list. FMO was measured by dividing the sum of percentage of shares held by the family shareholders by the top 30 shareholders listed in the company (Margaritis and Psillaki 2010).

Control variables: Government ownership (GVO) is defined as the percentage of ownership by government institutions, agencies and GLCs. For purposes of this paper, percentage of government ownership indicated the degree of government involvement in a company. GVO is measured by dividing the sum of percentage of shares held by the government or government agency and financial institutions by the top 30 shareholders (Zeitun and Tian 2007; Margaritis and Psillaki 2010). Foreign ownership (FRO) is defined as the percentage of total shares held by foreign shareholders in the company. The study followed Jeon *et al.* (2011) to measure FRO by taking the ratio of the number of shares held by foreign investors to the number of shares held by the top 30 shareholders. Foreign investors and foreign institutions such as foreign banks, securities companies and insurance companies were included as foreign ownership (Abor and Biekpe 2007; Uwuigbe and Olunsanmi 2012). Return on Assets (ROA) assesses firm's profitability; this study used the value of the ratio of earnings before interest and taxes to total assets. More profitable firms not only have lower cost of bankruptcy and financial distress, but also seem to have efficient management (Cao *et al.* 2004). Firm Size (SIZE) is measured by the log of sales. The relationship between leverage and size is expected to be positive, and is supported by previous studies (Rajan and Zingales 2012).

Following Jeon *et al.* (2011), this paper added time effect variable ($\Sigma\alpha_t$ Year_{*t*}) to control for time-specific factors. This study also controlled for industry-specific factors that influence leverage decision by adding dummy variables of industry ($\Sigma\alpha_t$ Industry_{*t*}) in the model. Thus, to examine the impact of concentrated ownership on leverage decision, Equation 1 was drawn up as follows:

$$LEV_{it} = \alpha_0 + \alpha_1 OC5_{it} + \alpha_2 FMO_{it} + \alpha_3 GVO_{it} + \alpha_4 FRO_{it} + \alpha_5 ROA_{it} + \alpha_6 SIZE_{it} + \sum \alpha_i Year_i + \sum \alpha_i Industry_i + \varepsilon_{it} \quad (1)$$

where subscript i and t represent the firm and time, respectively. α_p , $i = 1$ to 6, are coefficients of the respective independent and control variables and ε_{it} is error term. We tested the model with pooled OLS regressions.

Equation 2 was established for robustness check by considering another measure of ownership concentration, i.e. OC3 to replace OC5

$$LEV_{it} = \beta_0 + \beta_1 OC3_{it} + \beta_2 FMO_{it} + \beta_3 GVO_{it} + \beta_4 FRO_{it} + \beta_5 ROA_{it} + \beta_6 SIZE_{it} + \sum \beta_i Year_i + \sum \beta_i Industry_i + \varepsilon_{it} \quad (2)$$

where β_i , $i = 1$ to 6, are coefficients of the respective independent and control variables.

In order to examine the moderating effect of family ownership on the relationship, we added an interactive term in Equation 1 and Equation 2 respectively. Hence, Equation 3 and Equation 4 were designed as given below to evaluate the moderating effect of ownership concentration and family ownership on firm's leverage.

$$LEV_{it} = \lambda_0 + \lambda_1 OC5_{it} + \lambda_2 FMO_{it} + \lambda_3 (FMO_{it} \times OC5_{it}) + \lambda_4 GVO_{it} + \lambda_5 FRO_{it} + \lambda_6 ROA_{it} + \lambda_7 SIZE_{it} + \sum \lambda_i Year_i + \sum \lambda_i Industry_i + \varepsilon_{it} \quad (3)$$

$$LEV_{it} = \mu_0 + \mu_1 OC3_{it} + \mu_2 FMO_{it} + \mu_3 (FMO_{it} \times OC3_{it}) + \mu_4 GVO_{it} + \mu_5 FRO_{it} + \mu_6 ROA_{it} + \mu_7 SIZE_{it} + \sum \mu_i Year_i + \sum \mu_i Industry_i + \varepsilon_{it} \quad (4)$$

where λ_i and μ_i , $i = 1$ to 7, are coefficients of the respective independent, moderating and control variables. We tested the model using pooled OLS regressions.

4. Results and Discussion

4.1 Descriptive Statistics

Table 1 presents the descriptive statistics of variables used in the analysis. The mean of total debts to total equities for our sample companies is 0.311 which implies that almost

Table 1. Descriptive statistics

	Mean	Std. Dev.	Min.	Median	Max.
LEV	0.311	0.313	0.000	0.280	5.415
OC5	0.700	0.155	0.000	0.717	0.997
OC3	0.596	0.180	0.000	0.605	0.996
FMO	0.261	0.264	0.000	0.164	0.990
GVO	0.437	0.287	0.000	0.395	1.000
FRO	0.092	0.156	0.000	0.023	0.944
ROA	0.050	0.117	-1.387	0.053	0.723
SIZE	12.384	1.499	2.398	12.303	17.288

Table 2. Descriptive statistics of mean leverage for three ownership types

	FMO	GVO	FRO	F-statistics (<i>p</i> -value)
LEV	0.245	0.352	0.242	28.380 (0.000)
LEV2	0.375	0.477	0.558	31.490 (0.000)
	FMO	non-FMO		<i>t</i> -statistics (<i>p</i> -value)
LEV	0.245	0.341		6.381 (0.000)
LEV2	0.375	0.485		7.369 (0.000)

Note: Non-FMO = GVO + FRO.

31 per cent of the sample firms' equity is covered by liability. The mean for OC5 reveals that 70 per cent of shares are held by the five largest shareholders, consistent with Yeh and Woidtke (2005). The mean for OC3 indicates that the three largest shareholders are holding 60 per cent of the company's shares on average. While family ownership is approximately 26 per cent on average, institutional ownership and foreign ownership sum up to about 44 per cent and 9 per cent respectively. The mean ROA of 0.05 indicates that 5 per cent of profit is generated from total assets. Firm size of 0.13 shows that sales of firm is RM1.3 million on average.

Table 2 shows the mean leverage of three ownership types (i.e. FMO, GVO, and FRO) respectively. Family companies appear to have the lowest level of leverage as compared to the non-family companies. This phenomenon is particularly obvious for LEV2 (the ratio of total debt to total assets). We also conducted F-tests and *t*-tests to verify the significant difference in leverage among the ownership types. Our results show that there are significant differences on leverage between the family companies and non-family companies.

The multicollinearity test was conducted to check for correlation among the regressors. We found the variance inflation factors values to be less than two which infers that there are no multicollinearity problems for the following regression analyses.

4.2 Regression Analysis

Simple pooled OLS regression cannot adjust for firm-specific and time-specific effects. Therefore, we first checked whether panel data estimation was suitable because panel data regression was able to overcome the problem. Hence, the Breusch and Pagan (1980) Lagrange Multiplier (LM) test² for cross-sectional dependence was conducted. We next checked heteroscedasticity³ for the residuals of our models.

Table 3 reports the pooled OLS regression results of using LEV as dependent variable. The F-statistic indicates overall significance of the models at 1 per cent significance level. The empirical evidence of Model 1 depicts a significantly negative relationship between ownership concentration (OC5) and leverage. This finding is consistent with Jensen and Meckling (1976) and Cao *et al.* (2004) indicating that companies with higher ownership

² The LM statistic suggests that pooled OLS regression outperforms panel data regression. To conserve space, we do not report the results of panel data regression which shows insignificant results.

³ White(1980) test statistic indicates that heteroscedastic errors exist. The problem is then corrected using White (1980)'s test consistent estimator.

Table 3. Regression analysis – main effect

Variable	Model 1		Model 2	
	Coefficient	p-value	Coefficient	p-value
Intercept	0.154**	0.029	0.145**	0.041
OC5	-0.155***	0.001		
OC3			-0.151***	0.000
FMO	-0.091***	0.010	-0.099***	0.006
GVO	0.080**	0.042	0.077**	0.050
FRO	-0.110**	0.014	-0.111**	0.013
ROA	-0.480***	0.007	-0.474***	0.008
SIZE	0.019***	0.003	0.019***	0.003
Year dummy	Yes		Yes	
Industry dummy	Yes		Yes	
Adj. R2	0.069		0.071	
F-statistic	8.135***		8.299***	

Note: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

concentration are associated with a lower level of leverage. In other words, when there is greater monitoring in a company, the level of debt will be lower. In addition, the same finding in Model 2 (with OC3) confirms that our result is robust with a different proxy for ownership concentration.

As for ownership identity, consistent with previous results (Fama and Jensen 1983; Friend and Lang 1988; Bertrand and Schoar 2006; González *et al.* 2013), we found that firms with higher family ownership had lower debt level. Our finding also showed that firms with government intervention tended to have a higher debt. The result is consistent with Ting and Lean (2011) who argue that due to a close relationship with the government, the firm easily accesses funds and engages in high debts. On the other hand, we found a significantly negative relationship between foreign ownership and leverage decision. In other words, foreign investors prefer equity financing to debt financing as their sources of funding.

The results of Model 3 and Model 4 are presented in Table 4. We found the coefficients of OC5 and OC3 to be significantly negative. This result infers that higher ownership concentration firms tend to choose lower debt to avoid financial distress risk. The result also implies that financial distress risk outweighs control risk in the high concentrated ownership firms. Hence, firms prefer less debt financing and more equity financing. However, at the same time, a firm will be exposed to high control risk due to high equity financing. This is an interesting finding. The moderating effect of family ownership on the association between ownership concentration and leverage decision proved to be significantly positive at the 10 per cent level. This finding noticeably infers that family ownership moderates the negative association between ownership concentration and leverage. In other words, controlling families will moderate the firm's leverage decision by choosing debt as their financial needs. It could be explained as the family ownership

Table 4. Regression analysis – moderating effect

Variable	Model 3		Model 4	
	Coefficient	p-value	Coefficient	p-value
Intercept	0.187***	0.008	0.170**	0.011
OC5	-0.187***	0.000		
OC3			-0.195***	0.001
FMO	-0.093***	0.005	-0.100***	0.003
FMO*OC5	0.189*	0.074		
FMO*OC3			0.167*	0.054
GVO	0.080**	0.022	0.077**	0.026
FRO	-0.106**	0.011	-0.107***	0.009
ROA	-0.483***	0.004	-0.476***	0.004
SIZE	0.019***	0.002	0.019***	0.002
Year dummy	Yes		Yes	
Industry dummy	Yes		Yes	
Adj. R ²	0.069		0.071	
F-statistic	7.814***		7.979***	

Note: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

firms mitigate the control risk and use more debt because the management of the firm is concerned about losing of control with high equity. The finding also implies that the moderating effect in family companies is more effective than in the non-family companies.

4.3 Robustness Tests and Endogeneity Concerns

In the previous section, we asserted that “the moderating effect in family companies is more effective than the non-family companies”. This claim calls for a question on the relationship between the other two types of ownerships (i.e. GVO and FRO) and leverage. We hence addressed the query by including interactions terms GVO*OC5 (or GVO*OC3) and FRO*OC5 (or FRO*OC3) in Model 3 (or 4)⁴.

The results of the regression analysis are presented in Table 5. The coefficients of the interaction terms are generally significant, supporting our claim that the moderating effect in family companies is more effective than the non-family companies. We also conducted *t*-tests to examine the differences between the coefficients of FMO*OC5/3 and GVO*OC5/3 as well as FMO*OC5/3 and FRO*OC5/3. Significant differences were found between the interaction terms of FMO and GVO. This finding also sheds light on why non-family companies have higher leverage than family firms. Interestingly, we found no statistical evidence that family ownership surpasses the foreign ownership in moderating the negative association between ownership concentration and leverage.

For another robustness check, we replaced LEV with the ratio of total debt to total assets (LEV2). As LEV2 is bounded between zero and one, Tobit regression could be a better alternative. Tobit model solved the censoring problem, i.e. observations at zero. Note that zeros indicate that firms do not use debt. For analysis involving leverage as the

⁴ We are indebted to an anonymous reviewer for this suggestion.

Table 5. Regression analysis – a further test on the moderating effect

Variable	Coefficient	p-value	Coefficient	p-value
Intercept	0.433***	0.003	0.398***	0.001
OC5	-0.078	0.339		
OC3			-0.034	0.409
FMO	-0.314*	0.057	-0.118	0.205
FMO*OC5	0.428**	0.048		
FMO*OC3			0.174	0.198
GVO	0.320**	0.037	0.239**	0.034
GVO*OC5	-0.372*	0.051		
GVO*OC3			-0.298*	0.053
FRO	-0.303	0.165	-0.157	0.245
FRO*OC5	0.590*	0.065		
FRO*OC3			0.442*	0.079
ROA	-0.817***	0.000	-0.811	0.000
SIZE	0.012***	0.009	0.012	0.008
Year dummy	Yes		Yes	
Industry dummy	Yes		Yes	
Adj. R ²	0.133		0.130	
F-statistic	13.841***		13.495***	

Note: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. t-statistic (FMO*OC5 and GVO*OC5) = 4.161***; t-statistic (FMO*OC3 and GVO*OC3) = 2.918***; t-statistic (FMO*OC5 and FRO*OC5) = -0.465; t-statistic (FMO*OC3 and FRO*OC3) = -0.942

Table 6. Regression analysis – Main effect (LEV2 as dependent variable)

Variable	OLS		Tobit	
	Coefficient	Coefficient	Coefficient	Coefficient
Intercept	0.350***	0.337***	0.335***	0.323***
OC5	-0.137***		-0.135***	
OC3		-0.127***	-0.126***	
FMO	-0.093***	-0.100***	-0.092***	-0.098***
GVO	0.045*	0.043	0.046	0.044
FRO	0.217*	0.217*	0.216***	0.216***
ROA	-0.801***	-0.796***	-0.804***	-0.799***
SIZE	0.016*	0.015***	0.017***	0.016***
Year dummy	Yes	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes	Yes
Adj. R ²	0.108	0.109		
F-statistic	10.700***	11.039***		
Log-likelihood			-431.836	-431.061

Note: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 7. Regression analysis – moderating effect (LEV2 as dependent variable)

Variable	OLS		Tobit	
	Coefficient	Coefficient	Coefficient	Coefficient
Intercept	0.434***	0.374***	0.419***	0.359***
OC5	-0.240***		-0.236***	
OC3		-0.179***		-0.177***
FMO	-0.098***	-0.101***	-0.096***	-0.099***
FMO*OC5	0.487***		0.480***	
FMO*OC3		0.236**		0.232*
GVO	0.046**	0.043*	0.046*	0.043*
FRO	0.229**	0.223**	0.228***	0.222***
ROA	-0.807***	-0.799***	-0.810***	-0.802***
SIZE	0.015**	0.015**	0.016***	0.016***
Year dummy	Yes	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes	Yes
Adj. R ²	0.111	0.109		
Wald F-statistic	10.424***	10.508***		
Log-likelihood			-429.814	-429.814

Note: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

dependent variable, only positive values were observed. Therefore, following Bharath *et al.* (2009), we re-estimated the models with Tobit regression. The estimation results with both pooled OLS and Tobit regressions in Tables 6 and 7 remain qualitatively the same.

Besides checking whether our results were sensitive to the alternative measure of leverage, we decomposed our sample companies into two sub samples based on the degree of ownership concentration. Following Driffield *et al.* (2007), the two sub samples were companies with ownership concentration of less than 50 per cent (Group I) and companies with ownership concentration more or equal to 50 per cent (Group II).

Columns I of Tables 8 and 9 report results obtained by using companies with ownership concentration less than 50 per cent (Group I), while Column II contains the regression results for the equal to and above 50 per cent grouping (Group II). On the one hand, the results in Tables 8 show that the main effects of ownership concentration and family ownership on leverage, particularly in Group II are identical to those reported earlier. For Group I, the estimated coefficients on the two main variables are not significant. This implies that lower degree of ownership concentration does not contribute to leverage decision. In other words, shareholders with less than 50 per cent shareholdings play minimum role in controlling the financing decision. On the other hand, the moderating effects of family ownership in Table 9 are essentially the same for the two groups. As a result, the main conclusion to draw from Tables 8 and 9 is that a higher degree of ownership concentration and family ownership would result in lower leverage, whereas the moderating effect between them does not significantly differ across the two groups.

Previous empirical analyses considered concentrated ownership as exogenous when testing the influence of ownership concentration on leverage decision. However, de La

Table 8. Analysis based on ownership concentration – main effect

Variable	I: OC < 50%		II: OC ≥ 50%	
	Model 1	Model 2	Model 1	Model 2
Intercept	0.092	0.104	0.249***	0.213**
OC5	-0.092	-	-0.287***	-
OC3	-	-0.122	-	-0.262***
FMO	0.049	0.041	-0.119***	-0.123***
GVO	0.324***	0.320***	0.030	0.029
FRO	0.083	0.087	-0.129***	-0.129***
ROA	-0.155	-0.157	-0.565***	-0.554**
SIZE	0.008	0.007	0.023***	0.022***
Year dummy	Yes	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes	Yes
Adj. R ²	0.089	0.089	0.072	0.074
Wald F-statistic	5.230***	5.175***	6.887***	7.169***

Note: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 9. Analysis based on ownership concentration – moderating effect

Variable	I: OC < 50%		II: OC ≥ 50%	
	Model 3	Model 4	Model 3	Model 4
Intercept	0.185*	0.151	0.275**	0.235**
OC5	-0.250**	-	-0.318***	-
OC3	-	-0.276**	-	-0.289***
FMO	0.159**	0.192	-0.131**	-0.136***
FMO*OC5	0.611*	-	0.147	-
FMO*OC3	-	0.653	-	0.143
GVO	0.338***	0.331***	0.029	0.029
FRO	0.103	0.088	-0.127***	-0.128***
ROA	-0.152	-0.153	-0.566***	-0.554**
SIZE	0.006	0.007	0.023***	0.022***
Year dummy	Yes	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes	Yes
Adj. R ²	0.092	0.091	0.071	0.073
Wald F-statistic	5.354***	5.235***	6.594***	6.895***

Note: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Bruslerie and Latrous (2012) found ownership structure to be an endogenous variable for leverage decision. To avoid the simultaneity bias, we proceeded with a test to identify the potential inverse causality effect of leverage on ownership concentration. We modeled ownership concentration and leverage as simultaneously determined. A system of simultaneous equations that explains the interaction between concentrated ownership and leverage was established as follows:

$$OC5_{it} = \omega_0 + \omega_1 LEV_{it} + \omega_2 FMO_{it} + \omega_3 ROA_{it} + \omega_4 SIZE_{it} + \omega_5 TANG_{it} + \omega_6 BI_{it} + \omega_7 BSIZE_{it} + \sum \omega_i Year_t + \sum \omega_i Industry_t + \varepsilon_{it} \quad (5a)$$

$$LEV_{it} = \phi_0 + \phi_1 OC5_{it} + \phi_2 FMO_{it} + \phi_3 GVO_{it} + \phi_4 FRO_{it} + \phi_5 ROA_{it} + \phi_6 SIZE_{it} + \sum \phi_i Year_t + \sum \phi_i Industry_t + \varepsilon_{it} \quad (5b)$$

Similarly, an extended model with the interaction term of FMO and OC5 is as follows:

$$OC5_{it} = \delta_0 + \delta_1 LEV_{it} + \delta_2 FMO_{it} + \delta_3 (FMO_{it} \times LEV_{it}) + \delta_4 GVO_{it} + \delta_5 FRO_{it} + \delta_6 ROA_{it} + \delta_7 SIZE_{it} + \sum \delta_i Year_t + \sum \delta_i Industry_t + \varepsilon_{it} \quad (6a)$$

$$LEV_{it} = \eta_0 + \eta_1 OC5_{it} + \eta_2 FMO_{it} + \eta_3 (FMO_{it} \times OC5_{it}) + \eta_4 GVO_{it} + \eta_5 FRO_{it} + \eta_6 ROA_{it} + \eta_7 SIZE_{it} + \sum \eta_i Year_t + \sum \eta_i Industry_t + \varepsilon_{it} \quad (6b)$$

where subscript i and t represent the firm and time respectively. ω_i , ϕ_i , δ_i and η_i , $i = 1$ to 8 , are coefficients of the respective independent and instrumental variables; ε_{it} is error term. Following Lefort and Urzúa (2008), de La Bruslerie and Latrous (2012) and Lee and Kuo (2014), tangibility (TANG), board independence (BI) and board size (BSIZE) were added as instrumental variables in the system. The untabulated results of two-stage OLS were consistent with our prior pooled OLS and Tobit regression results.

5. Conclusions

This study examined the impact of ownership concentration on leverage as well as the moderating effect of family ownership on the association between ownership concentration and leverage. The three findings of this study are: first, the higher the shareholding, the lower the leverage; second, family companies have a lower level of leverage than non-family companies; and third, the negative effect of ownership concentration on leverage is smaller in family companies compared to non-family companies. These results are robust after controlling for other shareholdings such as institutional ownership and foreign ownership, using Tobit regression, and using a different proxy for leverage. In comparison to other studies that show concentrated ownership has a negative impact on leverage decision, our results imply that a higher degree of concentrated ownership is likely to have less debt. Moreover, firms with higher degree of family ownership prefer lower debt level. The finding is consistent with those of Fama and Jensen (1983), Friend and Lang (1988), Bertrand and Schoar (2006) and González *et al.* (2013).

This study offers a new interesting finding. Family ownership in the firm will reduce the negative effect of concentrated ownership on leverage decision. This finding implies that the moderating effect of family companies is more effective than non-family companies. Risk aversion pushes firms towards lower debt, but the risk of losing control of family members would lead them to employ high debt. With respect to investors, we suggest that risk averse investors could invest in firms with a higher degree of family ownership when there is a higher degree of concentrated ownership. This is due to the fact that large family ownership weakens the negative relationship between ownership concentration and leverage decision. In other words, it would balance up shareholders' control rights especially in financing decision, thus reducing default risk of investors in the firm. Like most studies, this study is subject to some limitations. First, the sample size is limited to only public listed companies in Malaysia. Further studies in other countries are open to debate. Second, future research may study real "familiness". Third, this study focuses on the moderating effect of family ownership to investigate its impact on the relationship between ownership concentration and leverage decision. Other aspects such as non-monotonic relationship of family ownership could be considered in future studies with different objectives.

References

- Abor, J. and N. Biekpe. 2007. Corporate governance, ownership structure and performance of SMEs in Ghana: implications for financing opportunities. *Corporate Governance* **7(3)**: 288-300.
- Anderson, R.C., S.A. Mansi and D.M. Reeb. 2003. Founding family ownership and the agency cost of debt. *Journal of Financial Economics* **68(2)**: 263-285.
- Barth, E., T. Gulbrandsen and P. Schønea. 2005. Family ownership and productivity: the role of owner-management. *Journal of Corporate Finance* **11(1)**: 107-127.
- Bertrand, M. and A. Schoar. 2006. The role of family in family firms. *The Journal of Economic Perspectives* **20(2)**: 73-96.
- Bharath, S.T., P. Pasquariello and G. Wu. 2009. Does asymmetric information drive capital structure decisions? *Review of Financial Studies* **22(8)**: 3211-3243.
- Bobillo, A.M., J.A. Rodríguez-Sanz and F. Tejerina-Gaite. 2013. Shareholder activism and internationalization in the family firm. *Journal of Business Economics and Management* **14(5)**: 867-885.
- Brailsford, T.J., B.R. Oliver and S.L. Pua. 2002. On the relation between ownership structure and capital structure. *Accounting & Finance* **42(1)**: 1-26.
- Breusch, T.S. and A.R. Pagan. 1980. The Lagrange multiplier test and its applications to model specification in econometrics. *The Review of Economic Studies* **47(1)**: 239-253.
- Cao, T., W. Sun and J. Yu. 2004. Capital structure, ownership structure, growth opportunities and firm performance. *Nankai Business Review* **1**: 57-63.
- Céspedes, J., M. González and C.A. Molina. 2010. Ownership and capital structure in Latin America. *Journal of Business Research* **63(3)**: 248-254.
- Chong, A. and F. de Silanes. 2007. *Investor Protection and Corporate Governance: Firm-level Evidence across Latin America*. Chicago: Stanford University Press.
- Chu, W. 2009. The influence of family ownership on SME performance: evidence from public firms in Taiwan. *Small Business Economics* **33(3)**: 353-373.
- Claessens, S., S. Djankov and L.H. Lang. 2000. The separation of ownership and control in East Asian corporations. *Journal of Financial Economics* **58(1)**: 81-112.
- de La Bruslerie, H. and I. Latrous. 2012. Ownership structure and debt leverage: Empirical test of a trade-off hypothesis on French firms. *Journal of Multinational Financial Management* **22(4)**: 111-130.
- Deesomsak, R., K. Paudyal and G. Pescetto. 2004. The determinants of capital structure: evidence from the Asia Pacific region. *Journal of Multinational Financial Management* **14(4)**: 387-405.

- Demsetz, H. and K. Lehn. 1985. The structure of corporate ownership: Causes and consequences *Journal of Political Economy* **93(6)**: 1155-1177.
- Dogan, E. and R. Smyth. 2002. Board remuneration, company performance, and ownership concentration: Evidence from publicly listed Malaysian companies. *ASEAN Economic Bulletin* **19(3)**: 319-347.
- Driffield, N., V. Mahambare and S. Pal. 2007. How does ownership structure affect capital structure and firm value? Recent evidence from East Asia. *Economics of Transition* **15(3)**: 535-573.
- Ehikioya, B.I. 2009. Corporate governance structure and firm performance in developing economies: evidence from Nigeria. *Corporate Governance* **9(3)**: 231-243.
- Fama, E.F. and M.C. Jensen. 1983. Separation of ownership and control. *Journal of Law and Economics* **26(2)**: 301-325.
- Friend, I. and L. Lang. 1988. An empirical test of the impact of managerial self-interest on corporate capital structure. *Journal of Finance* **43(2)**: 271-281.
- González, M., A. Guzmán, C. Pombo and M.-A. Trujillo. 2013. Family firms and debt: Risk aversion versus risk of losing control. *Journal of Business Research* **66(11)**: 2308-2320.
- Gürsoy, G. and K. Aydoğan. 1998. Equity ownership structure, risk-taking and performance: an empirical investigation in Turkish companies. *Emerging Markets Finance and Trade* **38(6)**: 6-25.
- Haniffa, R. and M. Hudaib. 2006. Corporate governance structure and performance of Malaysian listed companies. *Journal of Business Finance & Accounting* **33(7-8)**: 1034-1062.
- Jaggi, B., S. Leung and F. Gul. 2009. Family control, board independence and earnings management: Evidence based on Hong Kong firms. *Journal of Accounting and Public Policy* **28(4)**: 281-300.
- Jensen, M.C. and W.H. Meckling. 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics* **3(4)**: 305-360.
- Jeon, J.Q., C. Lee and C.M. Moffett. 2011. Effects of foreign ownership on payout policy: Evidence from the Korean market. *Journal of Financial Markets* **14(2)**: 344-375.
- Kim, E. 2006. The impact of family ownership and capital structures on productivity performance of Korean manufacturing firms: Corporate governance and the "chaebol problem". *Journal of the Japanese and International Economies* **20(2)**: 209-233.
- Kim, W.S. and E.H. Sorensen. 1986. Evidence on the impact of the agency costs of debt on corporate debt policy. *Journal of Financial and Quantitative Analysis* **21(2)**: 131-144.
- Lee, C.-F. and N.-T. Kuo. 2014. Effects of ultimate ownership structure and corporate tax on capital structures: Evidence from Taiwan. *International Review of Economics & Finance* **29**: 409-425.
- Lee, J. 2006. Family firm performance: Further evidence. *Family Business Review* **19(2)**: 103-114.
- Leech, D. and J. Leahy. 1991. Ownership structure, control type classifications and the performance of large British companies. *The Economic Journal* **101(409)**: 1418-1437.
- Lefort, F. and F. Urzúa. 2008. Board independence, firm performance and ownership concentration: Evidence from Chile. *Journal of Business Research* **61(6)**: 615-622.
- Leng, A.C.A. 2004. The impact of corporate governance practices on firms' financial performance: Evidence from Malaysian companies. *ASEAN Economic Bulletin* **21(3)**: 308-318.
- Lim, M.H. 1981. *Ownership and control of the one hundred largest corporations in Malaysia*. Kuala Lumpur: Oxford University Press.
- Lundstrum, L.L. 2009. Entrenched management, capital structure changes and firm value. *Journal of Economics and Finance* **33(2)**: 161-175.
- Maher, M. and T. Anderson. 1999. Corporate governance: Effects on firm performance and economic growth. <http://www.oecd.org/sti/ind/2090569.pdf>
- Malan, I.N.B., N. Salamudin and N. Ahmad. 2012. The nature and determinants of pyramid structure: A theoretical and empirical exposition. *Nature* **2(6)**: 29-45.
- Margaritis, D. and M. Psillaki. 2010. Capital structure, equity ownership and firm performance. *Journal of Banking & Finance* **34(3)**: 621-632.
- Mishra, C.S. and D.L. McConaughy. 1999. Founding family control and capital structure: The risk of loss of control and the aversion to debt. *Entrepreneurship Theory and Practice* **23(4)**: 53-64.

- Mitton, T. 2002. A cross-firm analysis of the impact of corporate governance on the East Asian financial crisis. *Journal of Financial Economics* **64**(2): 215-241.
- Olson, P.D., V.S. Zuiker, S.M. Danes, K. Stafford, R.K. Heck and K.A. Duncan. 2003. The impact of the family and the business on family business sustainability. *Journal of Business Venturing* **18**(5): 639-666.
- Omran, M.M., A. Bolbol and A. Fatheldin. 2008. Corporate governance and firm performance in Arab equity markets: Does ownership concentration matter? *International Review of Law and Economics* **28**(1): 32-45.
- Rajan, R.G. and L. Zingales. 2012. What do we know about capital structure? Some evidence from international data. *The Journal of Finance* **50**(5): 1421-1460.
- Shleifer, A. and R.W. Vishny. 1986. Large shareholders and corporate control. *The Journal of Political Economy* **94**(3): 461-488.
- Suto, M. 2003. Capital structure and investment behaviour of Malaysian firms in the 1990s: a study of corporate governance before the crisis. *Corporate Governance: An International Review* **11**(1): 25-39.
- Tagiuri, R. and J. Davis. 1996. Bivalent attributes of the family firm. *Family Business Review* **9**(2): 199-208.
- Tam, O.K. and M.G.S. Tan. 2007. Ownership, governance and firm performance in Malaysia. *Corporate Governance: An International Review* **15**(2): 208-222.
- Ting, I.W.K. and H.H. Lean. 2011. Capital structure of government linked companies in Malaysia. *Asian Academy of Management Journal of Accounting and Finance* **7**(2): 137-156.
- Uwuigbe, U. and O. Olunsanmi. 2012. An empirical examination of the relationship between ownership structure and the performance of firms in Nigeria. *International Business Research* **5**(1): 123-136.
- White, H. 1980. Using least squares to approximate unknown regression functions. *International Economic Review* **21**(1): 149-170.
- Wiwattanakantang, Y. 1999. An empirical study on the determinants of the capital structure of Thai firms. *Pacific-Basin Finance Journal* **7**(3): 371-403.
- Wu, Z., J.H. Chua and J.J. Chrisman. 2007. Effects of family ownership and management on small business equity financing. *Journal of Business Venturing* **22**(6): 875-895.
- Zeitun, R. and G.G. Tian. 2007. Does ownership affect a firm's performance and default risk in Jordan? *Corporate Governance* **7**(1): 66-82.
- Yeh, Y. and T. Woidtke. 2005. Commitment or entrenchment?: Controlling shareholders and board composition. *Journal of Banking & Finance* **29**(7): 1857-1885.