

Relationship Between Ownership Concentration and Firm Leverage in The Case of Thai Listed Firms

Received: 15.05.2023

Revised: 12.06.2023

Accepted: 29.06.2023

Jira Yammeesri¹ and Seung Hwan Kang²

¹Department of International Business Management

²Department of Information Technology

Payap University, Super-Highway Chiang Mai-Lampang Road, Amphur Muang, Chiang Mai, 50000, Thailand

¹jira.yammeesri@gmail.com

²*Corresponding author*

Abstract

Purpose: The purpose of this research is to examine the relationship between ownership concentration and firm leverage. This study extends beyond linear analysis and explores the non-linear relationship between ownership concentration and firm leverage. **Data and Methodology:** This study utilizes data from non-financial companies listed on the Stock Exchange of Thailand for the years 2016 to 2017. Regression analysis is employed to investigate the relationship between ownership concentration and firm leverage. Additionally, the study explores the non-linear relationship between ownership concentration and firm leverage. It is important to note that the relationship between ownership concentration and firm leverage is influenced by various other factors, including independent directors, profitability, liquidity, firm size, and firm age. These factors are included in the study as control variables.

Findings: The results indicate that ownership concentration is associated with a reduction in firm leverage, although this impact is not statistically significant. Furthermore, the study reveals a significant negative relationship between firm profitability, and liquidity with firm leverage. However, independent directors, firm age is found to have a negative and insignificant association with firm leverage. In contrast, firm size exhibits a positive and significant correlation with firm leverage. The non-linear relationship between ownership concentration and leverage is not found to be significant.

Keywords: Ownership Concentration, Leverage, Independent Directors, Profitability, Liquidity, Firm Size, Firm Age



Introduction

Ownership concentration is widely examined in the field of corporate governance. It refers to the degree to which a few shareholders control a firm's ownership (Claessen and Fan, 2002). Concentrated ownership occurs when a shareholder holds a large proportion of a company's shares. Such ownership concentration can lead to more active monitoring and potentially forceful interventions by investors (Demsetz and Lehn, 1985; Shleifer and Vishny, 1986). Leverage is also significant for firms as it allows them to fund their operations and investments with debt, which offers several benefits, including increased financial flexibility (Modigliani and Miller, 1963). The correlation between ownership concentration and leverage in corporate finance literature is well-established. Several studies have suggested that ownership concentration is positively related to leverage. (Brailsford, Olier, & Pua, 2002; Margaritis and Psillaki, 2010). It is suggested that owners with concentrated controlling power may be more willing to take on debt because they can use the additional funds to invest in growth opportunities that can increase the value of their holding. On the other hand, some studies argue that ownership concentration may reduce a firm's leverage by increasing monitoring and alignment of interests among owners and managers. Shleifer and Vishny (1986) address that concentrated ownership have more incentive to ensure that management makes prudent financing decision and avoids excessive risk-taking. Overall, the influence of ownership concentration on leverage is mixed and likely depends on a range of

other factors, including the proportion of independent directors, firm age, profitability. This study examines relationship between ownership concentration and firm leverage.

Theoretical framework

Agency theory

Berle and Means (1932) define agency theory as the relationship between principals (shareholders) and agents (managers) in a modern corporation. The theory addresses that managers may have incentives that differ from those of the owners they represent, and that the divergences can lead to agency problem. One of the most significant agency problems is the managers may act in their own interests rather than in the interests of shareholders. This can lead to conflicts of interest and reduce firm performance. The agency problem can be mitigated through corporate governance mechanisms including ownership concentration.

King and Santor (2008) suggest that a firm's financial leverage will vary depending on factors such as the manager's level of risk aversion, the costs associated with bankruptcy, and the likelihood of takeovers. Pacheco (2022) suggest that agency costs play an importance role in determining the capital structure, and crucial role of corporate governance mechanisms in shaping its financial policy. Firm's leverage is referred to the extent to which a company has borrowed funds to finance its operations. High levels of leverage can increase a company's risk of financial distress or bankruptcy, particularly during economic downturns.



Pecking order theory

Pecking order theory provides insights into how companies prioritize different sources of financing (Myers, 1984). The theory suggests that companies have a pecking order of funding sources based on their cost and signaling effects. Companies prefer to use internal funds such as retained earnings, as their primary source of financing. Internal funds are considered the least costly option as they do not involve transaction costs, interest payments, or dilution of ownership. Companies will turn to debt financing when internal funds are insufficient to meet capital requirements. Debt is seen as a preferred choice over equity issuance because it has lower information asymmetry and signaling effects. In addition, debt also allows companies to benefit from the tax deductibility of interest payments, reducing the overall cost of capital. (Myers, 1984; Rajan and Zingales, 1995; Frank and Goyal, 2003).

Literature review

This section presents prior studies concerning the relationship between ownership concentration and firm leverage. Additionally, it encompasses other factors that could potentially affect leverage, such as independent directors, profitability, liquidity, firm size, and firm age. The studies related to these factors will be presented in the following sections.

Ownership concentration

Studies in the last on ownership concentration and leverage examine the impact of ownership concentration on firm leverage. The extent of

management's control within the firm also plays a role in determining those factors. Stulz (1988) argues that firms with concentrated ownership tend to have greater financial leverage due to the reduced risk of a hostile takeover. King and Santor (2008) suggest that concentrated ownership is positively related to financial leverage. Kim and Sorensen (1986) argue that firms characterized by high ownership concentration have greater levels of leverage. Lundstrum (2009) suggests that concentrated shareholders prefer debt over equity for the business. In contrast, Jensen and Meckling (1976) suggest that firms with concentrated ownership tend to favor lower levels of debt since it serves as an efficient means to monitor management activities. They argue that concentrated owners generally favor debt over equity financing, as it allows them to retain their level of voting control for a given level of equity. Kim and Sorensen (1986); Mishra and McConaughy (1999); and Anderson and Reeb (2003) suggest a negative impact of ownership concentration on firm leverage. Liu, Tian & Wang (2011) suggest that there is no significant relationship between ownership concentration and firm leverage.

H1: There is a significant positive relationship between ownership concentration and leverage.

Independent directors

Several studies in the past have examined the impact of board independent on leverage whether board independent is significantly related to firm leverage. Jensen (1986) and Abor and Biekpe (2007) suggest that there is a positive association between the proportion of



independent directors and financial leverage. They argue that of independent directors are more competent and can handle the uncertainties that may occur in the external environment.

In contrast, Wen, Rwegasira, & Bilderbeek (2002) suggests that an increase in the number of independent directors within a firm is associated with a reduction in its level of debt. Almania (2017) also suggests that there is a negative correlation between proportion of independent directors and financial leverage. The reason for this phenomenon is that independent directors tend to oversee the actions of managers, leading to a preference for lower levels of debt. This minimizes the riskiness of the firm and enhances its overall performance.

H2: There is a significant positive relationship between independent director and leverage.

Profitability

Jensen (1986) and Frank and Goyal (2007) suggest that firms that are more profitable exhibit reduced susceptibility to bankruptcy and are thereby inclined to avail themselves of the opportunity to take on debt with the aim of benefiting from corporate debt tax shields. However, some studies argue that there is a negative relationship between profitability and leverage (Titman and Wessels; 1988; Huang and Song, 2006; de Jong, Kabir & Nguyen. 2006; and Onofrei, Tusose, Durdureanu & Anton 2015). They suggest that profitable companies tend to favor self-funding over external financing options, leading to a negative correlation between profitability and leverage.

H3: There is a significant positive relationship between profitability and leverage.

Liquidity

Several studies have explored the potential influence of liquidity on firm leverage. Some studies such as Rajan and Zingales (1995); Lipson and Mortal (2009); Onofrei, Tusose, Durdureanu & Anton (2015) suggest that higher levels of liquidity are associated with lower levels of firm leverage. Lipson and Mortal (2009) indicate that firms with higher liquidity exhibit lower leverage and prefer equity financing when raising capital. Onofrei, Tusose, Durdureanu & Anton (2015), Pacheco (2022) similarly discovered a negative relationship between liquidity and leverage. In contrast, Kim Mauer, & Sherman (1998) and Booth, Sivazian, Demirgus & Marsimovic (2001) suggest that firms with more available cash and liquid assets have a greater capacity to take on debt.

H4: There is a significant positive relationship between liquidity and leverage.

Firm size

Previous research suggests that larger firms tend to have greater diversification, more stable cash flows, reduced risk of bankruptcy, and comparatively better access to credit markets (Agrawal and Nagarajan, 1990; Akhtar and Oliver, 2009). Agrawal and Nagarajan (1990); Akhtar and Oliver (2009); Faulkender and Wang (2006); and Chatterjee and Eyigungor (2023) suggest that firm size is positively and significantly related to leverage. However, Titman and Wessels (1988) finds that there is a negative



relationship between firm size and leverage. Larger firms tend to generate higher cash flow and have greater internal financing capabilities. They can raise fund through retained earnings and cash reserves, reducing their reliance on external debt. Based on the studies reviewed, this study hypothesizes that

H5: There is a significant positive relationship firm size and leverage.

Firm age

Yahaya and Tijjani (2021) and Mallinguh Wasike, & Zoltan (2020) present arguments supporting a positive and significant correlation between firm age and leverage. Older firms have had more time to accumulate retained earnings, which can provide internal funding for future investment and reduce the need for external financing. However, Ikechukwu & Cyril (2017), and Memon and Samo (2019), find a negative correlation between firm age and leverage, although it is not statistically significant for Chinese listed firms. In contrast, Hossain and Ali (2012) reveals that the age of a firm has no influence on its leverage.

H6: There is a significant positive relationship between firm age and leverage.

Research methodology

Data collection and methodology

This research analyzes non-financial firms that are listed on the Stock Exchange of Thailand (SET) between 2016 and 2017. Companies operating in the property funds and real estate investment trusts (REITs) sectors are excluded due to insufficient data. The sample consists of a total of 836 companies. The study adopts secondary data acquired from the Stock Exchange of Thailand's database and official websites of companies. This data comprises annual reports, Form 56-1, and occasionally sustainability disclosures that are published separately from the annual reports. The regression analysis is used to analysis the relationship between ownership concentration and firm leverage. The study will consider the significance of the relationship between variables at the 1%, 5%, or 10% level.

Variable measurement

The variables used in this study and their measurement are presented in Table 1 as shown below.



Table 1 Dependent, Independent and Control Variables

Dependent Variable	
Leverage (LEV)	the ratio of the total debt to total asset at the average of the year.
Independent Variables	
Ownership Concentration (OWNER)	the percentage of shares held by the top five largest shareholders.
Control Variables	
Independent Director (DIR)	the proportion of independent directors on the board.
Profitability (PROFIT)	the ratio of net profit after tax to total equity, calculated as the average throughout the year.
Liquidity (LIQ)	the ratio of current assets to current liabilities
Firm Size (SIZE)	the natural logarithm of total assets.
Firm Age (AGE)	the number of years since a firm was established.

The model used in our study is as follows:

$$LEV = \beta_0 + \beta_1 OWNER + \beta_2 DIR + \beta_3 LIQ + \beta_4 SIZE + \beta_5 AGE + \varepsilon_{it} \text{ ----(Model A)}$$

Descriptive statistics

This section presents the descriptive statistics of variables employed in this study. The descriptive statistics are used to examine distribution of variables of

presenting mean, median, standard deviation as shown in Table 2. Table 2 presents the descriptive statistics of dependent, independent and control variables.

Table 2 Descriptive Statistics of Variables

Variable	Mean	Median	Std. Deviation	Minimum	Maximum
LEV	1.29	0.74	2.71	0.231	41.35
OWNER	60.92	62.685	17.53	10.16	96.95
DIR	0.40	0.37	0.09	0.21	0.70
PROFIT	1459	183.01	7066.1941	-3744.51	135179.60
LIQ	4.29	2.40	9.07	0.02	176.01
SIZE	30559.61	5279.56	129265.66	89.55	2232331.08
AGE	20.32	23.12	10.25	7	48

From Table 2, it shows that mean of LEV is 1.29, OWNER is 60.92, DIR is 0.40, PROFIT is 1,459, LIQ is 4.29, SIZE is 30,559.61 and AGE is approximately 20.

The lowest LEV observed is 0.231, while the highest is 41.35. It is interesting that the top five shareholders of firms in the sample are as high as 60% with the



highest percentage at approximately 96%. Moreover, this study finds that the proportion of director ranges from 0.21 to 0.70, with the lowest proportion being 0.21 and the highest being 0.70.

Moreover, this study also tests for multicollinearity among the independent and control variables to ensure that they do not have a significant influence on each other. If a multicollinearity condition exists, the variances of some estimated regression coefficients may cause unstable and misleading estimates of the regression model (Ramanathan and Rajarshi, 1992; Akrouf and Othman,

2016). To detect multicollinearity is to examine the variance inflation factor (VIF) for each independent and control variable. The VIF measures the extent to which the variance of an estimated regression coefficient is increased by the presence of other independent variables in the model. If the VIF of variables is not greater than 2.0, it means that the multicollinearity condition does not exist (Akrouf and Othman, 2016). Table 3 presents the VIF values of the independent and control variables. The results of VIF shows that VIF of all independent and control variables are not greater than 2.

Table 3 Variance Inflation Factors of Independent and Control Variables

	Variance Inflation Factor (VIF)
OWNER	1.00
DIR	1.08
PROFIT	1.00
LIQ	1.00
SIZE	1.51
AGE	1.00

This study also examines the correlation between independent and control variables. Table 4 shows that there is no

significant correlation between the correlation coefficients of most independent and control variables.

Table 4 Correlation Coefficients Test of Independent Variables

	OWNER	DIR	PROFIT	LIQ	SIZE	AGE
OWNER	1.00					
DIR	-0.083	1.00				
PROFIT	0.056	0.026	1.00			
LIQ	0.008	0.013	-0.040	1.00		
SIZE	0.042	0.021	0.056	-0.034	1.00	
AGE	-0.010	-0.022	-0.021	0.016	-0.030	1.00



Multiple regression analysis

Regression analysis is applied in this study to analysis the relationship between leverage and ownership concentration of

Thai listed companies. Using regression analysis to examine the relationship between independent directors and level of environmental information disclosure, the results are shown in Table 5.

Table 5 Regression Analysis of Dependent, Independent and Control Variables

Independent and Control Variables	Coefficients LEV	p-value
OWNER	-0.008 (-0.952)	0.103
DIR	-1.817 (-2.712)	0.081
PROFIT	-0.001** (-1.262)	0.002
LIQ	-0.038*** (-4.541)	0.000
SIZE	0.0006*** (2.681)	0.000
AGE	-0.005 (-0.830)	0.089
Intercept	2.694 (4.542)	0.081
Adjusted R-squared	0.22	
F-statistic	39.196	

* Indicate significance at the 10% level.
 ** Indicate significance at the 5% level.
 *** Indicate significance at the 1% level.

From Table 5, the results show that the coefficient of OWNER is negatively related to LEV; however, the relationship is not significant. The coefficient of DIR is negatively and insignificantly related to LEV. The coefficients of PROFIT and LIQ are negative and significant at the 5% and 1% levels, respectively. Interestingly, the coefficient of SIZE is positive and significant at the 1% level in relation to LEV. On the other hand, the coefficient of AGE is negative and insignificant in relation to LEV.

This study further examines the effect of the non-linear of ownership concentration on firm leverage. Non-linear relationships

have been observed in several studies, revealing the existence of a relationship between variables. By examining these non-linear relationships, this study aims to develop more accurate models that better capture the complex interactions and patterns between ownership concentration and firm leverage. Prior studies suggest a non-linear U-shape relationship between the variables (Tamimi, Takhtaei, & Malchi, 2014; Lo, Ting, Kweh, & Yang, 2016). Therefore, this study develops a model to investigate the non-linear U-shape effect between ownership concentration and firm leverage as follows.



$$LEV = \beta_0 + \beta_1OWNER + \beta_2OWNER^2 + \beta_3DIR + \beta_4LIQ + \beta_5SIZE + \beta_6AGE + \varepsilon_{i,t} \dots (\text{Model B})$$

Table 6 Non-Linear Regression Analysis of Dependent, Independent and Control Variables

Independent and Control Variables	Coefficients LEV	p-value
OWNER	-0.094 (-0.037)	0.084
OWNER ²	0.0009 (0.267)	0.078
DIR	-1.992 (-1.750)	0.082
PROFIT	-9.681*** (-3.081)	0.000
LIQ	-0.037*** (-3.747)	0.000
SIZE	5.694*** (3.480)	0.000
AGE	-0.005 (-0.046)	0.765
Intercept	5.728	0.081
Adjusted R-squared	0.20	
F-statistic	36.196	

* Indicate significance at the 10% level.
 ** Indicate significance at the 5% level.
 *** Indicate significance at the 1% level.

Table 6 presents the results, indicating that the coefficient of OWNER is negatively and insignificantly related to LEV, while the coefficient of OWNER² is positively and insignificantly related to LEV. Similar to the findings from the regression analysis of model A, the coefficients of PROFIT, and LIQ exhibit negative and significant relationships with firm leverage at the 1% level of significance. Additionally, the coefficient of SIZE shows a positive and significant correlation with firm leverage at the 1% level. Conversely, the coefficients of DIR and AGE are found to be negative and insignificant in relation to firm leverage.

Results and discussion

This study suggests that there is no significant relationship between ownership concentration and firm leverage. Nevertheless, it is worth emphasizing that concentrated ownership can still play a role in reducing agency costs. When ownership is concentrated in the hands of a few individuals, it becomes easier for them to monitor and control the action of managers (La Porta, Lopex-de-Silanes, Shleifer, & Vishny, 2000). This reduces the need for excessive debt financing, as concentrated owners can oversee the management and ensure that their interests align with those of the firm.



Moreover, concentrated owner many have access to internal funds such as retained earnings which can be used to finance the firm's operations and investment. This reduces the need for external debt financing (Demsetz and Lehn, 1985; Holderness, 2003). This finding aligns with the research conducted by Liu, Tian & Wang (2011), which also indicates a lack of a significant relationship between ownership concentration and firm leverage.

Furthermore, it has been discovered that the proportion of independent directors exhibits a negative correlation with leverage, although the significance of this relationship is not found. The results of this study are similar to those of Wen, Rwegasira, & Bilderbeek (2022) and Almania (2017), who argue that the presence of independent directors can lead to a decrease in firm leverage. Independent directors tend to oversee managerial actions, leading to a preference for lower levels of leverage.

Moreover, this study finds that firm profitability is one of the factors that can decrease firm leverage. The findings are consistent with studies conducted by Titman and Wessls (1988), de Jong, Kabir & Nguyen (2006), and Onofrei Tudose, Durdureanu & Anton (2015), who argue that profitable firms tend to favor self-funding over external financing options.

In addition, the study findings indicate a consistent relationship between high

liquidity and lower leverage, aligning with previous studies conducted by Lipson and Mortal (2009), Onofrei Tudose, Durdureanu & Anton (2015); Opler, Pinkowitz, Stulz, & Williamson (1999); and Pacheco (2022). Their studies suggest that firms with high liquidity have greater financial flexibility, enabling them to fund their operations and investments without relying heavily on external debt. Consequently, the need to incur debt decreases, leading to lower leverage. Moreover, the result in this study indicates a significant positive relationship between firm size and leverage. The results confirm that larger firms typically have more financial flexibility and easier access to capital markets. As a result, they can take advantage of debt financing options to fund their operations and investments and this finding aligns with studies conducted by Akhtar and Oliver (2009); Faulkender and Wang (2006); and Chatterjee and Eyigungor (2023).

This study also found that firm age has a negative but insignificant relationship with firm leverage. The study suggests that older firms often have established track records and stable cash flows, which reduces their financial risk and makes them less reliant on debt financing. Nonetheless, the impact of firm age in this study is not significantly related to firm leverage. This study accepts and rejects the hypotheses as follows:



	Accept	Reject
<i>H1: There is a significant positive relationship between ownership concentration and leverage.</i>		✓
<i>H2: There is a significant positive relationship between independent director and leverage.</i>		✓
<i>H3: There is a significant positive relationship between and leverage</i>		✓
<i>H4: There is a significant positive relationship between liquidity and leverage.</i>		✓
<i>H5: There is a significant positive relationship between firm size and leverage.</i>	✓	
<i>H6: There is a significant positive relationship between firm age and leverage.</i>		✓

Furthermore, the study suggests the possibility of a non-linear relationship between ownership concentration and firm leverage, although this relationship lacks statistical significance. However, it is important to consider that when ownership is moderately concentrated, there may be a preference for lower levels of leverage due to a cautious approach towards excessive debt. This is because higher leverage increases the risk of financial distress. On the other hand, as ownership concentration reaches higher levels, it may result highly concentrated owners who have greater control over management decisions. These concentrated owners can actively monitor managerial actions, leading to improved alignment of interests and reduced agency costs. Consequently, this enhanced alignment can foster increased trust and confidence among lenders, potentially leading to a higher willingness to provide higher levels of debt financing (Morck, Shleifer & Vishny, 1988).

Summary

This research examined the relationship between ownership concentration and firm leverage. The relationship between ownership concentration is found to be statically insignificant to firm leverage in this study. Similarly, this study argue that the presence of independent directors can decrease firm leverage even though the result is not statically significant. Firm profitability is found to be a factor that can decrease firm leverage. This suggests that profitable firms tend to reply more on self-funding rather than external financing options. This study also found that firms with high liquidity have greater financial flexibility, enabling them to fund their operations and investments without heavy reliance on ternal debt. In addition, we found that larger firms typically have more financial flexibility and easier access to capital markets, allowing then to take advantage of debt financing options to support their business operations. Furthermore, the result of this study suggests that older firms often have established track records and stable cash flows, reduced their financial risk, and made them less reliant on debt financing. Nevertheless, the impact of firm age on



firm leverage was not found to be statistically significant in this study. Furthermore, this study found insignificant non-linear relationship between ownership concentration and firm leverage.

The results of this study make a valuable contribution to our understanding of the relationship between ownership concentration, including independent directors, profitability, liquidity, firm size and firm age and firm leverage, offering benefits across several aspects. This study examines how ownership concentration affects a firm's leverage. Understanding this relationship is crucial for understanding the capital structure and how the companies manage their finance. Moreover, the results of this study provide comprehensive approach contributes to understanding of how various factors, including the presence of independent directors on board, profitability, liquidity, firm size and firm age, interplay and shape a firm's capital structure decisions. In addition, the implication of this study

extends to practitioners and policy makers. The findings can assist managers and shareholders in making decisions regarding ownership structure including other selected factors and leverage. For policymakers, the study provides insights into the potential implications of ownership concentration regulations and guidelines on a firm's financing decisions.

In terms of further studies, it is important to consider the relationship between ownership concentration and firm leverage within each industry. This means that different industries may have distinct characteristics and dynamics that can influence how ownership concentration affects a firm's leverage. Also, future research can examine deeper into the specific mechanisms through which ownership concentration, independent directors, and other factors influence firm leverage. It can explore the impact of different corporate governance structures, regulatory frameworks, and cultural contexts on these relationships.

References

- Abor, J. & Biekpe, N. (2007). Corporate governance, ownership structure and performance of SMEs in Ghana: implications for financing opportunities. *Corporate Governance*, 7(3), 288-300.
- Agrawal A. & Nagarajan, N. (1990). Corporate capital structure, agency costs, and ownership control: The case of all-equity firms. *The Journal of Finance*, 45(4), 1325-1331.
- Akhtar, S. & Oliver, B. (2009). Determinants of capital structure for Japanese multinational and domestic corporations. *International Review of Finance*, 9(1-2), 1-26.
- Akrout, M. & Othman, H. (2016). Ownership structure and environmental disclosure in Mena emerging countries. *Corporate Ownership & Control*, 13(4), 381-388.
- Almania, O. (2017). Board of director independence and financial leverage in the absence of taxes. *International Journal of Economics and Finance*, 9(4), 90-94.



- Anderson, R., C. & Reeb, D. M. (2003). Founding-family ownership and firm performance: evidence from S&P 500. *The Journal of Finance*, 58(3), 1301-1328.
- Berle, A. & Means, G. (1932). *The modern corporation and private property*. Harcourt, Brace&World, Inc.
- Brailsford, T.J., Olier, B.R., & Pua, S.L. (2002). On the relation between ownership structure and capital structure. *Accounting & Finance*, 42(1), 1-26.
- Booth, L., Sivazian, V., Demirgus-Kunt, A., & Marsimovic, V. (2001). Capital structure in developing countries. *The Journal of Finance*, 56(1), 87-130.
- Chatterjee, S., & Eyigungor, B. (2023). The firm size-leverage relationship and its implications for entry and business concentration. *Review of Economics Dynamics*, 48, 132-157.
- Claessen, S., & Fan, J.P.H. (2002). Corporate governance in Asia: A survey. *International Review of Finance*, 3(2), 71-103.
- de Jong, Kabir, R., & Nguyen, T. (2006). Capital structure around the world: The roles of firm-and country-specific determinants. *Journal of Banking & Finance*, 32(9), 1954-1969.
- Demsetz, H. & Lehn, K. (1985). The structure of corporate ownership: cause and consequences. *Journal of Political Economy*, 93(6), 1155-1177.
- Faulkender, M., & Wang, R. (2006). Corporate financial policy and the value of cash. *The Journal of Finance*, 61(4), 1957-1990.
- Frank, M.Z., & Goyal, V.K. (2003). Testing the pecking order theory of capital structure. *Journal of Financial Economics*, 67, 217-248.
- Frank, M.Z., & Goyal, V.K. (2007). Capital structure decisions: which factors are reliably important? *Financial Management*, 38(1), 1-37.
- Holderness, C. G. (2003). A survey of blockholders and corporate control, *Economic Policy Review*, 9, 51-64
- Hossain, F., & Ali, A. (2012). Impact of firm specific factors on capital structure decision: An empirical study of Bangladeshi companies. *International Journal of Business Research and Management*, 3(4), 163-182.
- Huang, S.G.H., & Song, F.M. (2002). The determinants of capital structure: Evidence from China, *China Economic Review*, 17(1), 14-36.
- Ikechukwu, I.O., & Cyril, U. M. (2017). Effect of listing age on corporate financial leverage of oil and gas firms in Nigeria. *International Journal of Economics, Finance and Management Sciences*, 4(1), 1-10.
- Jensen, M. (1986). Agency cost of free cash flow, corporate finance, and takeovers. *The American Economic Review*, 76(2), 323-329.



- Jensen, M., C., & Mackling, W., H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Finance*, 3(4), 305-360.
- Kim W. S., & Sorensen, E.H. (1986). Evidence on the impact of the agency costs of debt on corporate debt policy. *The Journal of Financial and Quantitative Analysis*, 21(2), 131-144.
- Kim, C. S., Mauer, D., & Sherman, A.E. (1998). The determinants of corporate liquidity: theory and evidence. *Journal of Financial and Quantitative Analysis*, 33(3), 335-359
- King, M. and Santor, E. (2008). Family values: ownership structure, performance, and capital structure of Canadian firms. *Journal of Banking and Finance*, 32(11), 2423-2432.
- La Porta, R., Lopex-de-Silanes, F., Shleifer, A. & Vishny, R. (2000). Investor protection and corporate governance, *Journal of Financial Economics*, 58(2000), 3-27.
- Lipson, M. L., & Mortal, S. (2009). Liquidity and capital structure. *Journal of Financial Markets*, 12(4), 611-644.
- Liu, Q., Tian, G. & Wang, X. (2011). The effect of ownership structure on leverage decision: new evidence from Chinese listed firms. *Journal of the Asia Pacific Economy*, 16(2), 254-276.
- Lo, H. C., Ting, I.W.K., Kweh, Q.L., & Yang, M. J. (2016). Non-linear association between ownership concentration and leverage: the role of family control. *International Review of Financial Analysis*, 46, 113-123.
- Lundstrum, L.L. (2009). Entrenched management, capital structure changes and firm value. *Journal of Economics and Finance*, 33(2), 161-175.
- Mallinguh, E., Wasike, C., & Zoltan, Z. (2020). The business sector, firm age, and performance: the mediating role of foreign ownership and financial leverage. *International Journal of Financial Studies*, 8(4), 1-16
- Margaritis, D., & Psillaki, M. (2010). Capital structure, equity ownership and firm performance. *Journal of Banking and Finance*, 34(3), 621-632.
- Memon, Z.A. Chen, Y., Samo, A.A. (2019). Corporate governance, firm age, and leverage: Empirical evidence from China. *Research Journal of Finance and Accounting*, 10(2), 19-31.
- Mishra, C.S. and McConaughy, D.L. (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.
- Morck, R., Shleifer, A. & Vishny, R. (1988). "Management Ownership and Market Valuation: An Empirical Analysis", *Journal of Financial Economics*, 20, 293-315.



- Modigliani, F. & Miller, M.H. (1963). Corporate income taxes and the cost of capital: a correction. *American Economic Review*, 53, 433-443.
- Myers, S.C. (1984). The capital structure puzzle. *The Journal of Finance*, 39(3), 574-592.
- Onofrei, M., Tudose, M.B., Durdureanu, C., & Anton, S.G. (2015). Determinant factors of firm leverage: An empirical analysis at Iasi country level. *Procedia Economics and Finance*, 20, 460-466.
- Opler, T., Pinkowitz, L., Stulz, R., & Williamson, R. (1999). The determinants and implications of corporate cash holdings, *Journal of Financial Economics*, 52(1), 3-46
- Pacheco, L. (2022). Ownership concentration, control and capital structure in family and non-family firms, *Journal of Small Business Strategy*, 32(3), 113-127.
- Rajan, R., & Zingales, L. (1995). What do we know about capital structure? Some evidence from international data. *Journal of Finance*, 50, 1421-1460.
- Ramanathan, R.V. & Rajarshi, M.B. (1992). Rank tests for testing the randomness of autoregressive coefficients. *Statistics & Probability Letters*, 21(2), 115-120.
- Shleifer, A. & Vishny, R.W. (1986). Large shareholders and corporate control. *Journal of Political Economy*, 94, 461-488.
- Stulz, R. (1988). Managerial control of voting rights: Financing policies and the market for corporate control. *Journal of Financial Economics*, 20, 25-54.
- Tamimi, M., Takhtaei, N., & Malchi, F. (2014). Relationship between firm age and financial leverage with dividend policy. *Asian Journal of Finance & Accounting*, 6(2), 53-63.
- Titman, S. & Wessels, R. (1988). The determinants of capital structure choice. *The Journal of Finance*, XLIII (1), 1-19.
- Wen, Y., Rwegasira, K., & Bilderbeek, J. (2002). Corporate governance and capital structure decisions of the Chinese listed firms. *Corporate Governance: An International Review*, 10(2), 75-83.
- Yahaya, O.A. and Tijani, B. (2021). Size, age and leverage of Nigeria quoted oil and gas corporations. *Advanced International Journal of Banking Accounting and Finance*, 3(6), 51-60.

