THE DETERMINANTS OF CAPITAL STRUCTURE: NEW EVIDENCE FROM LISTED COMPANIES IN VIETNAM

Phuong Dung Thi Nguyen[1], Thanh Nhan Thi Do[2], Michael Joseph Dempsey[2]

[1] Foreign Trade University, 15 - D5 street, ward 25, Binh Thanh District, Ho Chi Minh City Campus, Vietnam
[2] Faculty of Finance and Banking, Ton Duc Thang University, 19 Str., Tan Phong ward, District 7, Ho Chi Minh City, Vietnam

Abstract

This study examines the factors which affect the capital structure of 608 non-financial firms in Vietnam during the period 2009–2017. Our findings indicate that companies with more tangible assets prefer longer term to shorter term debts while larger companies tend to borrow more to finance their activities. Furthermore, companies with high profit and high growth in Vietnam are able to opt for alternative options for raising capital in addition to borrowing. Overall, we recommend that capital structures in Vietnamese firms can be understood within a framework of the pecking order theory. Interestingly, audit reputation is the single considered determinant that does not appear to impact on the firms' capital structure.

Keywords: capital structure, leverage, firm size, liquidity, audit reputation

INTRODUCTION

Capital structure is formulated as a mix of debt and equity and identifies an important choice of corporate financing. Formerly, capital structure did not receive a great deal of emphasis in Vietnam on account of that it was perceived as not generating profit for the company. However, in the last few decades, this has changed. Two observations can be made. Firstly, there exists a gap between the theory and practice of capital structure. As reported by Vasiliou *et al.* (2009), financial executives will generally apply conventional techniques (the Capital Asset Pricing Model (CAPM) and Net Present Value (NPV), for example) in their decisions of capital structure as taught at business schools, rather than more recently developed capital structure theories. In consequence, the CAPM or NPV rules and risk factors are often applied incorrectly. Secondly, researchers have different opinions about capital structure. For example, Frank and Goyal (2008, 2009) and Singh and Kumar (2008) favor the tradeoff theory as the driving force of capital structure decisions, whereas Shyam-Sunder and Myers (1999), Bulan and Yan (2009, 2011) and Lemmon and Zender (2010) argue for the pecking-order theory. Graham and Leary (2011) indicate that the main problem in the field is the lack of compelling theories to comply with empirical estimations related to capital structure. There is even less literature on capital structure in emerging markets such as Vietnam. In response, the present study attempts to reduce the gap in capital structure studies, which are based broadly on developed markets.

To this end, we avail of a data set of non-financial listed companies in Ho Chi Minh City and Hanoi from the period 2009 to 2017. The paper thereby provides evidence for the application of theories

in explaining factors affecting capital structure in a transitional and emerging country such as Vietnam.

The paper is composed of 5 sections. Section 2 provides a literature review, followed by section 3 which presents the model, variables and descriptive statistics. Section 4 provides a discussion of results. The last section concludes the paper with directions for further research.

Literature Review

Capital structure remains a controversial area of finance. Arguments remain between managers defending their approaches, between researchers and practitioners, and between lecturers conducting research. Thus, it appears that capital structure is a complex area, requiring knowledge of econometrics, microecnometrics, accounting, and mathematics. Nevertheless, theories underpinning capital structure are influential both at universities and in the real business world (Modigliani and Miller, 1958; Modigliani and Miller, 1963; Jensen and Meckling, 1976; Myers and Majluf, 1984; Myers, 1984; Jensen, 1993; Myers, 1993).

The tradeoff theory, the pecking order theory and the agency theory represent the three main theoretical approaches to capital structure applied to imperfect markets. The pecking order theory of Myers (1984) and Myers and Majluf (1984) claims that high growth companies rely mostly on retained earnings to finance new projects rather than seeking outside financial sources, with the outcome that a growth company has a tendency to maintain a relatively low debt ratio. In the case that internal finance is not available, good quality firms choose debt to invest in new projects. For agency theory, there exists an optimal capital structure which derives from various funding options, including equity, debts and other securities as they determine benefits for capital suppliers and managers (Fama and Miller, 1972; Jensen and Meckling, 1976; Jensen, 1986; Harris and Raviv, 1991). Another prominent theory is the tradeoff theory. Underlying the tradeoff theory is the idea that managers tend to trade off the benefits of debt against the costs of debts to identify an optimal capital structure. The benefits of capital structure are derived from the tax shield of decreasing income due to interest payments (Modigliani and Miller, 1963; Kraus and Litzenberger, 1973; Myers, 1984).

There is no single theory that can fully explain the factors of capital structure. This is due to the fact that capital structure theories are based on assumptions that cannot fully reflect the complexity of the business world (Ardalan, 2017). Most research focuses on companies in a particular country, for which different determinants are examined in accordance with theory. The results are not surprisingly mixed due to the differing characteristics of financial markets in these countries.

Prior to the historic Doi Moi movement in 1986, there was little concern with capital structure in Vietnam since all enterprises were state owned. Emerging as a fast pace economy in Southeast Asian, Vietnam has made significant achievements following Doi Moi. With the new wave of privatisation following the Doi Moi policy reforms, Vietnam''s first steps towards globalization has commenced. The establisment of the stock market in 2000 stimulated an awareness of capital structure as companies were allowed to outreach external finance by issuing and trading shares. Nevertheless, the World Bank (2014) continues to regard Vietnam as an emerging market that lacks sophisticated financial instruments, corporate transparency and a regulatory and supervisory framework to monitor the listing of securities on its stock exchanges. For this reason, the capital structure of listed companies in Vietnam remains affected by various factors with different patterns compared to companies in more developed and stable financial markets. Such issues have stimulated new studies about capital structure in small transitional economies such as Vietnam.

Growth and capital structure

The correlation between growth and capital structure has been examined in previous studies. Nevertheless, there is no consistent pattern between the findings based on a single theory. Growth and leverage have either a significant positive or a negative correlation according to the pecking order theory. When insiders have more information about the future prospects of a company than outside investors, investors may assess the value of a company inaccurately. Therefore, companies with high information asymmetry seeking external financing will bear high equity costs. In which case, these companies prefer internal financing, followed by borrowing, rather than outside equity (Myers, 1984; Myers and Majluf, 1984; Fosu *et al.*, 2016). It follows that when a company has promising investment projects, but lacks internal cash flow, the company will tend to borrow leading to higher leverage ratios and vice versa.

Agency theory suggests a negative correlation. The idea is based on the argument that firms with high growth opportunities are likely have higher agency costs due to a higher cost of debt. When financial executives decide to invest in riskier projects, creditors will take the opportunity to increase the borrowing rate of interest. The outcome is that the firm's cash flow is restrained from investments due to high interest payments. Consequently, firms with good growth opportunities maintain a low leverage ratio with an aim to mitigate the pressures of creditors and optimize potential gains (Jensen and Meckling, 1976).

Tangibility and capital structure

Tangible assets represent the collateral that a firm can secure for its debts. Since tangibility makes debt less risky, we expect that such tangibility can influence a firm's capital structure. Jensen and

Meckling (1976) claim that bondholders are likely to suffer from overinvestment by firms, which leads to the classical conflict between bondholders and shareholders. When firms can offer existing assets as collateral, companies can enhance the guarantee of repayment to creditors. Hence, in trade off theory, a positive relationship between tangibility and capital structure can help to solve the debt-related agency problem.

From the perspective of agency costs, Grossman and Hart (1986) argue that the agency costs of managers consuming more perquisites are higher for firms with less tangible assets. Managers in highly levered companies are less likely to access perquisites because stockholders will monitor these firms closely. Hence, monitoring costs are higher for firms with less collateralisable assets. This notion implies a negative correlation between tangibility of assets and leverage under the pecking order theory.

Profitability and capital structure

According to the agency models of Jensen and Meckling (1976) and Easterbrook (1984), managers in high levered companies are forced to repay debt by using a larger fraction of pre-interest earnings. This scenario suggests a positive relationship between book leverage and profitability.

In sharp contrast, the pecking order model predicts that higher earnings should result in less leverage. Firms prefer raising capital initially from retained earnings, followed by debt, and finally from issuing new equity. This hierarchy of financing choices is due to the adverse selection costs associated with new equity issues in the presence of information asymmetries. Accordingly, a negative relationship between leverage and profitability provides support for the pecking order theory.

Firm size and capital structure

Large firms are diversified and more stable, while smaller firms have higher possibility of bankruptcy (Titman and Wessels, 1988; Warner, 1977; Ang et al., 1982). Hence, the tradeoff theory predicts a negative relationship between size and the likelihood of bankruptcy and a positive relationship between size and leverage.

However, size can also be peroxided for the information asymmetry between corporate insiders and outside investors. For example, large companies are closely observed by analysts; hence, they tend to issue informationally sensitive equity. Based on the pecking order theory, the correlation between leverage and size is negative with larger companies preferring equity rather than debt.

Liquidity and capital structure

According to the agency theory, companies with high liquidity ratios can access more external financing, leading to higher leverage ratios (Myers and Rajan, 1998). From the perspective of the pecking order theory, there exists a negative link between liquidity and financial leverage (Sbeti and Moosa, 2012).

Audit reputation and capital structure

Financial statements provide information about the company's prospects to market participants, including shareholders and potential stockholders. For this reason, investors are concerned about the quality and accuracy of information officially revealed by the companies. This suggests that audit reputation and quality can influence the financial decision. Additionally, companies with a high quality of financial reports have higher financial leverage than other firms due to their ability to build credibility resulting in greater access to external sources of financing (Behn et al., 2008; Chang et al., 2009).

Age and capital structure

The relationship between a firm's capital structure and age is mixed. The tradeoff theory and agency cost theory support a positive relationship between the firm age and leverage. A possible explanation is that companies established for a longer time in the industry have better access to borrowing since they have established relationship with creditors. In contrast, based on pecking order theory, the inverse pattern is proposed with the explanation that these firms maintain a substantial amount of retained earnings. For this reason, they do not need to seek external capital options.

MATERIALS AND METHODS

In this section, we provide a discussion on the explanatory variables relating to the capital structure of a company. We begin by introducing the independent variables and demonstrate their correlation with firm leverage. Additionally, we provide an analysis of the relationship between the variables and firm leverage based on different theories.

Model

We seek to examine the determinants of the capital structure of Vietnam's listed companies. Based on the theories of capital structure, we aim to address the question of whether, and to what degree, the capital structure practices in developing markets are different from mature ones. The determinants of capital structure applied in our model are derived from capital structure theories and resemble those of previous research. Accordingly, the firm characteristic variables presented in the paper comprise growth, tangibility, profit, liquidity, size, age and audit reputation.

We develop a dynamic model to alleviate the endogeneity. The model is as follows:

$$Lev_{it} = lev(\text{-}1)_{it} + \beta_1 Growth_{it} + \beta_2 Tang_{it} + \beta_3 Profit_{it} +$$
$$+ \beta_4 Liqd_{it} + \beta_5 Size_{it} + \beta_6 Age_{it} + \beta_7 Audit_{it} + \varepsilon_{it}, \quad (1)$$

where lev is the measure of capital structure which is proxied by long-term, short-term and total leverage ratios. We establish three separate models: one with a short-term debt-to-assets (leverage) ratio (STDTA), one with long-term debt-to-assets (leverage) ratio (LTDTA) and one with total leverage ratio (TDTA), so as to differentiate between the factors affecting short-term and long-term leverage ratios.

Control Variables

$Growth_{it}$ is the outcome of the company's capital investment. Tobin's Q is a measure of firm assets in relation to a firm's market value which is illustrated by the ratio of market value of equities to the total assets. Based on Ramli *et al.* (2018), we use Tobin's Q as the proxy for growth opportunity since it reflects investors' perception of the company's investment potential. If Tobin's Q is lower than 1, further investment in the company is not profitable.

$Tang_{it}$ as a measure of the tangibility of the firm's tangible assets can be an explanatory factor for the capital structure of a company (Charalambakis and Psychoyios, 2012). It is measured as the ratio of tangible fixed assets to total assets.

• $Profit_{it}$ is the variable for profitability, measured as ROE.
• $Liqd_{it}$ stands for the liquidity of the company. This measures the ability of a company to cover its short-term liabilities with its current assets. It is measured as current assets divided by current liabilities.

• $Size_{it}$ is a measure for firm size. It is measured as the natural logarithm of total assets at year end.
• Age_{it} is the time that a firm has been listed on the stock exchange.
• $Audit_{it}$ is a proxy for audit reputation, where high audit reputation is identified with the Big 4 auditing companies, namely Ernst & Young (E&Y), Deloitte, Klynveld Peat Marwick Goerdeler (KPMG) and PricewaterhouseCoopers (PwC). It is assumed that investors are more confident in investing in companies which are audited by the Big 4, which are assumed to have more reliable reporting quality, thereby reducing the level of information asymmetry between investors and the firm.

Data

The data covers 9 years from 2009 to 2017 with 1,471 listed companies in the HNX and HOSE stock markets. Financial organizations are not included in the data set since their financial behavior is different with different business characteristics. The accounting data are taken from balance sheets and income statements in the FiinPro platform (FiinGroup Corporation). Since the FiinPro database does not cover market capitalization in 2008, which is required to calculate Tobin's Q, the research period commences in 2009. We also omit companies that lack accounting data in three consecutive years. After reviewing the data, we have 608 listed companies in the Hanoi Stock Exchange (HNX) and the Ho Chi Minh City Stock Exchange (HOSE) in total. The Appendix provides a description of the variables.

The summary statistics of the data are presented in Tab. I. It can be seen from Tab. I that listed companies in Vietnam tend to use much more short-term debts than long-term debts although

I: *Descriptive statistics on variables*

Variable	Obs	Mean	Std. Dev.	Min	Max
Size	5383	26.9670	1.3601	24.5038	29.6350
ROA	5383	0.0639	0.0574	-0.0051	0.2031
Liqd	5383	2.0045	1.4095	0.6910	6.2018
TDTA	5383	0.5018	0.2147	0.1138	0.8361
STDTA	5383	0.3987	0.2031	0.0802	0.7551
ITDTA	5383	0.0958	0.1245	0.0000	0.4221
Tang	5383	0.1900	0.1794	0.0051	0.6332
Age	4220	5.8602	3.1173	1.0000	12.0000
Tobinsq	5466	0.4052	0.4083	0.0000	1.4406
Audit	5138	0.1985	0.3989	0.0000	1.0000

Tobinsq is firm assets in relation to a firm's market value; **Tang** is the tangibility of the firm's tangible assets; **ROA** is the return on assets; **Liqd** is the liquidity of the company; **Size** is firm size; **Age** is the time that a firm is listed on the stock exchange until now; **Audit** is a proxy for audit reputation, where high audit reputation is identified with the Big 4 auditing companies, namely Ernst & Young (E&Y), Deloitte, Klynveld Peat Marwick Goerdeler (KPMG) and PricewaterhouseCoopers (PwC); **STDTA** is a short-term debt-to-assets (leverage) ratio; **LTDTA** is a long-term debt-to-assets (leverage) ratio; **TDTA** is total leverage ratio.

II: *Correlation Coefficients between variables*

	tdta.	stdta	ltdta	size	roa	liqd	tang	age	tobinsq	audit	firm
TDTA	1										
STDTA	0.7833	1									
LTDTA	0.3994	-0.2411	1								
Size	0.3304	0.0915	0.3914	1							
ROA	-0.4579	-0.3188	-0.2441	-0.1170	1						
Liqd	-0.6694	-0.6557	-0.1156	-0.1926	0.3105	1					
Tang	-0.0495	-0.2519	0.3106	0.0126	0.0839	-0.1653	1				
Age	-0.0380	-0.0052	-0.0514	0.1251	-0.0975	0.0337	0.0098	1			
Tobinsq	-0.4537	-0.3635	-0.1677	-0.0110	0.5269	0.3106	0.0445	-0.0092	1		
Audit	0.0245	-0.0085	0.0588	0.4228	0.0322	-0.0115	0.0041	0.0955	0.1541	1	
Firm	0.0645	0.0708	-0.0010	0.0522	-0.0287	-0.0687	0.0069	0.0594	-0.0486	0.1003	1

Tobinsq is firm assets in relation to a firm's market value; **Tang** is the tangibility of the firm's tangible assets; **ROA** is the return on assets; **Liqd** is the liquidity of the company; **Size** is firm size; **Age** is the time that a firm is listed on the stock exchange until now; **Audit** is a proxy for audit reputation, where high audit reputation is identified with the Big 4 auditing companies, namely Ernst & Young (E&Y), Deloitte, Klynveld Peat Marwick Goerdeler (KPMG) and PricewaterhouseCoopers (PwC); **STDTA** is a short-term debt-to-assets (leverage) ratio; **LTDTA** is a long-term debt-to-assets (leverage) ratio; **TDTA** is total leverage ratio.

short-term debt is more difficult to issue and has higher costs. The mean age is 5.91 years, suggesting that listed firms in Vietnam are still young. This finding suggests that firms in Vietnam have limited industry reputations and also suggests that these firms are subject to information asymmetry, leading to an increased demand in collateral for lending (Cassar, 2004; Botha, 2012).

RESULTS

Tab. II provides information regarding the correlation coefficients of variables for the data sample. The correlation coefficients between independent variables are generally below 0.5, which indicates that multicollinearity should not be a problem. The coefficient between short-term debts and total debts are more than 0.5 which indicates a significant percentage of short term debt in total debts. This result is consistent with an explanation of companies' favorable usage of short-term debt financing.

Tab. III illustrates the GMM regression results of factors affecting capital structure. Capital structure is measured by three proxies, namely, long-term, short-term and total leverage measures.

The Tab. III is generated based on the model as follows:

$$Lev_{it} = lev(-1)_{it} + \beta_1 Growth_{it} + \beta_2 Tang_{it} + \beta_3 Profit_{it} + \quad (1)$$
$$+ \beta_4 Liqd_{it} + \beta_5 Size_{it} + \beta_6 Age_{it} + \beta_7 Audit_{it} + \varepsilon_{it},$$

The regression results highlight some interesting findings about capital structure for Vietnam's listed companies. The determinants of capital structure are different in the three models, which stimulates the need for further explanation.

The coefficients of growth are negative in all regressions. However, they are significant only in the regressions for total and short-term leverage, and not for the regression for long-term debt. In this model, Tobin'q is used to measure the average return on a firm's capital as estimated by the market. It is an indicator of a company's growth opportunities and reflects the firm's investment strategies.

With negative coefficients between growth and leverage, the implication is that higher growth companies tend to have a smaller debt ratio. The result is consistent with the pecking order theory in which companies prefer internal finance. Accordingly, low growth companies tend to carry more debts since they do not wish to allocate their cash flows to unprofitable investment opportunities to avoid underinvestment (Myers, 1984). The negative correlation can be explained additionally from the agency theory based on the perspective that companies with low growth companies opt for more debts to finance their business activities.

Firms with high growth opportunities are likely to have higher agency costs. Smith and Watts (1992) argue that agency problems are associated with greater information asymmetry. Consequently, the Board of Directors plays a significant role only in high value companies. The same correlation is found by Berens and Cuny (1995) and Gaver and Gaver (1993), namely that higher growth companies are associated with less leverage.

A notable result is that long-term leverage is not statistically significant. This result highlights the fact that high growth companies in Vietnam seek

III: *GMM Regression results*

	(1) TDTA	(2) STDTA	(3) LTDTA
L.TDTA	0.554*** (6.11)		
L.STDTA		0.462*** (5.64)	
L.LTDTA			0.760*** (9.83)
ROA	-0.536*** (-6.04)	-0.356*** (-4.02)	-0.153*** (-3.66)
Size	0.135*** -9.55	0.0708*** -4.71	0.0594*** -3.8
Liqd	-0.0183*** (-8.64)	-0.0247*** (-9.43)	0.00609*** -3.71
Tang	-0.0297 (-0.96)	-0.134*** (-3.19)	0.0909 -1.26
Age	-0.00799*** (-5.88)	-0.00225 (-1.53)	-0.00576*** (-3.58)
Tobinsq	-0.0272** (-2.47)	-0.0238** (-2.27)	-0.00232 (-0.38)
Audit	-0.0141 (-1.49)	-0.00495 (-0.53)	-0.0115 (-1.02)
_cons	-3.294*** (-8.57)	-1.572*** (-3.87)	-1.567*** (-3.69)
N	2762	2762	2762
AR(1)	0.0000	0.0000	0.0000
AR(2)	0.7252	0.3071	0.2152

Tobinsq is firm assets in relation to a firm's market value; **Tang** is the tangibility of the firm's tangible assets; **ROA** is the return on assets; **Liqd** is the liquidity of the company; **Size** is firm size; **Age** is the time that a firm is listed on the stock exchange until now; **Audit** is a proxy for audit reputation, where high audit reputation is identified with the Big 4 auditing companies, namely Ernst & Young (E&Y), Deloitte, Klynveld Peat Marwick Goerdeler (KPMG) and PricewaterhouseCoopers (PwC); **STDTA** is a short-term debt-to-assets (leverage) ratio; **LTDTA** is a long-term debt-to-assets (leverage) ratio; **TDTA** total leverage ratio.

short term financial sources from banks, for which collateral is not necessary. This finding accords well with the findings of Berens and Cuny (1995) and Booth *et al.* (2001).

The regression coefficients for tangibility are statistically significant for short term leverage. The coefficients are negative for short-term and total leverage and positive for long term, which implies that firms with more tangible assets have a tendency to borrow longer term. Tangible assets are clearly more important than intangible assets as a measure of collateral (Charalambakis and Psychoyios, 2012). Additionally, when a company faces bankruptcy, tangible assets can be quickly sold. This finding reinforces the agency theory of capital structure in which tangible assets used as collateral for debt can mitigate agency costs. This outcome can be understood from the perspective that directors opt for riskier projects and a higher

rate of return and the gains are transferred from creditors to shareholders (Rajan and Zingales, 1995; Jensen and Meckling, 1976). Our results are similar to those of Marsh (1982) and Long and Malitz (1985) who report that the higher ratio of tangible asset maintained, the higher the leverage.

In relation to profitability, the coefficient between profitability and the three proxies for leverage are all negative and significant. It therefore appears that more profitable companies are likely to borrow less. These high profile companies usually have high a level of internal founders so they prefer internal finance first and then issue debt only when internal finance is exhausted. The fundamental driver of this finding is the pecking order theory in the presence of information asymmetric as modified by Myers (Myers, 1984). Myers proposed that profitable companies have more retained earnings and do not need to exploit external financial sources. This

result is consistent with the empirical studies of Bevan and Danbolt (2002), Daskalakis and Psillaki (2008), Vasiliou *et al.* (2009), and Khrawish and Khraiwesh (2010).

In terms of liquidity, coefficients are significant and negative for total and short term leverage. The coefficient of long term leverage is positive but not significant. A high liquidity ratio is an indicator that companies fail to meet current liabilities. Consequently, companies with liquidity problems are hindered from generating short term bank loans (Mills and Yamamura, 1998).

We find that the coefficients of size are positive and statistically significant with leverage ratios. Thus, we interpret that larger companies are likely to have more debts irrespective of short term or long term. Large firms are less likely to file for bankruptcy since they are at higher levels of diversification than small ones with greater access to capital markets. With lower risk of insolvency, these companies are able to carry more debts (Ang *et al.*, 1982). Hence, they mitigate the possibility of information asymmetries as well as attracting financial resources more easily (Padron *et al.*, 2005). The result concurs with earlier findings of Marsh (1982), Rajan and Zingales (1995) and Booth *et al.* (2001).

The findings reveal that age is significantly negatively associated with leverage ratios, which supports the pecking order theory, consistent with Petersen and Rajan (1994) and Michaelas *et al.* (1999).

Our analysis finds no evidence that audit reputation is associated with financial leverage, either for long term or short term debt (the coefficients between audit variable and proxies for leverage are not statistically significant). Therefore, in Vietnam, even when a company has financial statements audited by the Big 4, creditors do not consider this as a key factor. This finding contradicts previous studies which assert a significant role of auditors in assuring the quality of financial statements as well as reducing information asymmetry. In consequence, companies audited by the Big 4 are able to reduce both debt and equity (Caramanis and Lennox, 2008; Chang *et al.*, 2009; Causholli and Knechel, 2012)

CONCLUSION

The paper studies the determinants of capital structure in listed companies in Vietnam for the period 2009–2017. To this end, we formulated three dynamic panel models for total, long term and short term leverage, to which we applied a GMM analysis with firm attribute variables including growth, tangibility, profit, firm size, age, liquidity and audit. Our findings indicate that Vietnamese companies with more tangible assets prefer longer term to shorter term debts while larger companies tend to borrow more to finance their activities. In addition, we find that growth, liquidity, ROA, and age are negatively related to leverage. Furthermore, companies with high profit and high growth have options for raising capital in addition to borrowing. Overall, we are able to recommend that capital structures in Vietnamese firms can be understood within a framework of the pecking order theory, whereby high growth companies rely mostly on retained earnings to finance new projects rather than seeking outside financial sources. Interestingly, audit reputation is the single considered determinant that does not appear to impact on the firms' capital structure.

REFERENCES

ANG, J. S., JESS, H. C. and MCCONNELL J. J. 1982. The Administrative Cost of Corporate Bankruptcy: A Note. *Journal of Finance*, 37(1): 219–216.

ARDALAN, K. 2017. Capital structure theory: Reconsidered. *Research in International Business and Finance,* 29: 696–710.

BERENS, J. and CUNY, C. 1995. The capital structure puzzle revisited. *Review of Financial Studies*, 8(4): 1185–1208.

BEVAN, A. and DANBOLT, J. 2002. Capital structure and its determinants in the UK – A decompositional analysis. *Applied Financial Economics,* 12(3): 159–170.

BOOTH, L., AIVAZIAN, V., DEMIRGUC-KUNT, A. and MAKSIMOVIC, V. 2001. Capital structure in developing countries. *The Journal of Finance,* 56(1): 87–130.

BEHN, K. B., CHOI, J. H. and KANG, T. 2008. Audit quality and properties of analyst earnings forecasts. *The Accounting Review,* 83(2): 327–349.

BULAN, L. and YAN, Z. 2009. The pecking order theory and the firm's life cycle. *Banking and Finance Letters*, 1(3): 129–140.

BULAN, L. and YAN, Z. 2011. Firm maturity and the pecking order theory. *International Journal of Business and Economics*, 9(3): 179–200.

CASSAR, G. 2004. The financing of business start-up. *Journal of Business Venturing,* 19(2): 261–283.

CAUSHOLLI, M. and KNECHEL, W. R. 2012. An examination of the credence attributes of an audit. *Accounting Horizons,* 26(4): 631–656.

CHANG, X., DASGUPTA, S. and HILARY, G. 2009. The effect of auditor quality on financing decisions. *Accounting Review,* 84(4): 1085–1117.

CHARALAMBAKIS, E. C. and PSYCHOYIOS, D. 2012. What do we know about capital structure? Revisiting the impact of debt ratios on some firm-specific factors. *Applied Financial Economics,* 22(19/21): 1727–1742.

CARAMANIS, V. C. and LENNOX, C. 2008. Audit effort and earnings management. *Journal of Accounting and Economics,* 45(1): 116–138.

DASKALAKIS, N. and PSILLAKI, M. 2008. Do country of firm factors explain capital structure? Evidence from SMEs in France and Greece. *Applied Financial Economics,* 18(2): 87–97.

EASTERBROOK, F. H. 1984. Two agency-cost rxplanations of dividends. *American Economic Review,* 74(4): 650–659.

FAMA, E. F. and MILLER, M. H. 1972. *The Theory of Finance.* New York: Holt Rinehart and Winston.

FOSU, S., DANSO, A., AHMAD, W. and COFFIE, W. 2016. Information asymmetry, leverage and firm value: Do crisis and growth matter? *International Review of Financial Analysis,* 46: 140–150.

GAVER, J. J. and GAVER, K. M. 1993. Additional evidence on the association between the investment opportunity set and corporate financing, dividend and compensation policies. *Journal of Accounting and Economics,* 16(1–3): 125–160.

GRAHAM, R. J. and LEARY, T. M. 2011. A Review of Empirical Capital Structure Research and Directions for the Future. *Annual Review of Financial Economics,* 3(1): 309–345.

GROSSMAN, S. J. and HART, O. D. 1986. The costs and benefits of ownership: A theory of vertical and lateral intergration. *Journal of Political Economy,* 94(4): 691–719.

HARRIS, M. and RAVIV, A. 1991. The Theory of Capital Structure. *Journal of Finance* 46(1): 297–355.

KHRAWISH, H. A., HUSNI, A., KHRAIWESH, A. and JEDDAH, S. 2010. The determinants of the capital structure: Evidence from Jordanian industrial companies. *Journal of King Abdulaziz University: Economics and Administration,* 24(1): 173–196.

JENSEN, M. and MECKLING, W. 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics,* 3(4): 305–360.

JENSEN, M. C. 1986. Agency costs of free cash flow, corporate Finance, and takeovers. *The American Economic Review,* 76(2): 323–329.

JENSEN, M. C. 1993. The Modern industrial revolution, exit and the failure of internal control systems. *Journal of Finance,* 48(3): 831–880.

KRAUS, A. and LITZENBERGER, R. H. 1973. A State-Reference model of optimal financial leverage. *The Journal of Finance,* 28(4): 911–922.

LEMMON, M. L. and ZENDER, F. J. 2010. Debt Capacity and Tests of Capital Structure Theories. *The Journal of Financial and Quantitative Analysis,* 45(5): 1161–1187.

LONG, M. and MALITZ, I. 1985. The Investment-Financing Nexus: Some empirical evidence. *Midland Corporate Finance Journal* 3(3): 53–59.

MARSH, P. 1982. The Choice between Equity and Debt: An Empirical Study. *The Journal of Finance,* 37(1): 121–144.

MICHAELAS, N., CHITTENDEN, F. and POUTZIOURIS, P. 1999. Financial policy and capital structure choice in U.K. SMEs: Empirical evidence from company panel data. *Small Business Economics,* 12(2): 113–130.

MODIGLIANI, F. and MILLER, M. H. 1958. The cost of capital, corporation finance and the theory of investment. *The American Economic Review,* 48(4): 261–297.

MODIGLIANI, F. and MILLER, M. H. 1963. Corporate income taxes and the cost of capital: A correction. *The American Economic Review,* 53(3): 433–443.

MYERS, S. C. and MAJLUF, N. S. 1984. Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics,* 13: 187–221.

MYERS, S. and RAJAN, R. 1998. The paradox of liquidity. *The Quarterly Journal of Economics,* 113(3): 733–771.

MYERS, S. C. 1984. The capital structure puzzle. *The Journal of Finance,* 39(3): 575–592.

MYERS, S. C. 1993. Still searching for optimal capital structure. *Journal of Applied Corporate Finance,* 6(1): 4–14.

PADRON, Y. G., APOLINARIO, R. M. C., SANTANA, O. M., MARLEL, V. C. M. and SALES, L. J. 2005. Determinant factors of leverage: An empirical analysis of Spanish corporations. *Journal of Risk Management,* 6: 60–68.

PETERSEN, A. M. and RAJAN, G. R. 1994. The Benefits of Lending Relationships: Evidence from Small Business Data, *The Journal of Finance,* 49(1): 3–37.

RAJAN, R. G. and ZINGALES, L. 1995. What Do We Know About Capital Structure? Some Evidence from International Data. *Journal of Finance*, 50(5): 1421–1460.

SBETI, W. and MOOSA, I. 2012. Firm specific fctors as determinants of capital structure in the absence of taxes. *Applied Financial Economics*, 22(3): 209–213.

SHYAM-SUNDER, L. and MYERS, S. C. 1999. Testing Static Tradeoff against Pecking Order Models of Capital Structure. *Journal of Financial Economics*, 51: 219–244.

SMITH, C. W. and WATTS, R. 1992. The investment opportunity set and corporate financing, dividend, and compensation policies. *Journal of Financial Economics,* 32(3): 263–292.

TITMAN, S. and WESSELS, R. 1988. The determinants of capital structure choice. *The Journal of Finance,* 43(1): 1–19.

VASILIOU, D., ERIOTIS, N. and DASKALAKIS, N. 2009. Testing the pecking order theory: The importance of methodology. *Qualitative Research in Financial*, 1(2): 85–96.

WARNER, J. B. 1977. Bankruptcy Costs: Some evidence. *The Journal of Finance,* 32(2): 337–347.

WORLD BANK. 2014. *Vietnam Development Report 2014*. Report Brief. [Online]. Available at: http://pubdocs.worldbank.org/en/981291474945431360/VDR2016-brief-EN.pdf [Accessed: 2019, September 15].

APPENDIXES

All data are taken from balance sheets and income statements from FiinPro platform (FiinGroup Corporation).

Appendix I: *Control variables used in this study*

Variables	Description
Growth$_{it}$	the outcome of the company's capital investment
Tobin's Q	firm assets in relation to a firm's market value
Tang$_{it}$	the tangibility of the firm's tangible assets
Profit$_{it}$	Profitability, measured as ROE
Liqd$_{it}$	the liquidity of the company
Size$_{it}$	firm size
Age$_{it}$	the time that a firm is listed on the stock exchange until now
Audit$_{it}$	a proxy for audit reputation, where high audit reputation is identified with the Big 4 auditing companies, namely Ernst & Young (E&Y), Deloitte, Klynveld Peat Marwick Goerdeler (KPMG) and PricewaterhouseCoopers (PwC)
STDTA	a short-term debt-to-assets (leverage) ratio
LTDTA	long-term debt-to-assets (leverage) ratio
TDTA	total leverage ratio

Contact information

Do Thi Thanh Nhan: dothithanhnhan@tdtu.edu.vn