THE INFLUENCE OF CAPITAL STRUCTURE ON FIRM PERFORMANCE OF VIETNAM'S LISTED COMPANIES

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ABSTRACT

The use of debt or retained earnings to finance the business activities of enterprises brings different firm performance. This topic, therefore, needs to be studied carefully to come up with a strategy using the most effective and efficient capital structures. This study analyzes the impact of capital structure on the firm performance of non-financial firms listed on Vietnamese stock exchanges. Based on panel data collected from 604 companies using the regression analysis technique, the study shows debt ratio (both short and long term) has a negative impact on firm performance. Besides, the results also indicate statistically significant differences between state-owned enterprises and other types of enterprises in the terms of their capital structure. Drawn on the findings, the author continues to provide some implications to improve firm performance based on using strategic capital structures.

Keywords: *capital structures, firm performance, stock exchanges*

INTRODUCTION

Under the effect of international integration with a series of large economic blocks such as CPTPP, EVFTA, AEC, FTAs, firm-level competitions are becoming more and more severe. Not only do businesses have to compete with domestic counterparts, but also face fierce competitive games from foreigners. As a result, firms need to take more considerations of the efficiency of their business operations (Nguyen Van Duy, Dao Trung Kien, Nguyen Thi Hang & Dao Thi Huong, 2014). Improving efficiency to achieve expected performances in the upcoming period requires businesses to apply appropriate capital strategies, and how to affect such a level of capital structure will be a vital corporate decision.

The capital structure which is how a company funds its overall operations and growth, one of the essential factors paid attention by economic researchers in studying the performance of enterprises. The value of a company can be increased by changing its capital structure based on the advantages of taxes and debts. Therefore, insights on capital structures, as well as its relations with other financial indicators, will help firms to find out how to use debts in a strategic way to improve business performance (Modigliani & Miller, 1963). The use of capital structure not only helps firms better orient their investment decisions but also plays an important role in the efficiency of business operations. (Nguyen Van Duy et al., 2014).

The theory of capital structure, originally proposed by Modigliani and Miller, suggests that the company should use as much debt as possible to increase the company's profitability leveraging the effect of the tax shield. (Modigliani & Miller, 1963). However, if a company uses too much debt, it increases the risk of bankruptcy when the profit is not higher than the interest rate. (Lộc & Trang, 2012). Therefore, businesses need to apply a reasonable debt strategy that makes good use of the tax shield to improve business efficiency and at the same time protect themselves from default risk as well. That being said, this issue received the attention of many scholars in the world.

Many factors are affecting the firm performance of businesses, and among those capital structure is supposed to have an important influence (Salim & Yadav, 2012). Previous studies in the world have produced many different results. The use of capital structure, especially ineffective one, will cause the reverse effect of financial leverage. Some studies have shown the negative impact of capital structure on business results (Chinaemerem & Anthony, 2012; Pathak, 2011; Salim & Yadav, 2012; Sheikh & Wang, 2013). In contrast, the effective use of debt as a tax shield, both realizing good investment opportunities and bringing other profits, is fully utilized by enterprises. Some

studies thus show the positive impact of capital structure on business results (Ghosh & Jain, 2000; Kyereboah-Coleman, 2007; Roden & Lewellen, 1995; Zeitun & Tian, 2014).

In Vietnam, there are recently many authors have researched to assess the impact of capital structure on the performance of companies listed on the stock exchange. However, research on state ownership, as a confounding factor, are limited. Extending on previous research results, this study continues to analyze the impact of capital structure on the business performance of listed companies, incorporating the ownership factor.

MODEL AND RESEARCH METHODS

Research Model and Hypotheses

Regarding previous research models which summarize the impact of capital structure on business results of non-financial enterprises, the author puts forward a hypothetical model as follows:

Regression model:

$ROE_{it} = Î ± + Î_1_{it}CL_{it} + \beta 2_{it}Growth_{it} + \beta 3_{it}Size_{it} + \beta 4_{it}Tang_{it} + u_{it}$ (1)

$ROE_{it} = Î ± + Î_1_{it}LL_{it} + \beta 2_{it}Growth_{it} + \beta 3_{it}Size_{it} + \beta 4_{it}Tang_{it} + u_{it}$ (2)

$ROE_{it} = Î ± + Î_1_{it}TL_{it} + \beta 2_{it}Growth_{it} + \beta 3_{it}Size_{it} + \beta 4_{it}Tang_{it} + u_{it}$ (3)

In which, variables are described in the Table 1

Table 1. Description of variables and Reference

Dependent variable		***Expected***
ROE_{it}	Performance (Return on equity)	
Independent variables		
SL_{it}	Current Liability/Assets	-
LL_{it}	Long- Liability/Assets	-
TL_{it}	Total-Liability/Assets	-
$SIZE_{it}$	Firm size (ln(assets))	+
$Tang_{it}$	Tangibility/Assets	+
$Growth_{it}$	$(Revenue_{it}-Revenue_{it-1})/Revenue_{it-1}$	+

Research hypotheses

Businesses are more likely to use short-term debt than long-term debt. Although raising short-term debt may be easy, it will have a significant impact on business operations when profits fall suddenly. When a sudden loss occurs in the year, it makes it more difficult to pay short-term debt and exacerbates business results (Abor, 2005; Margaritis & Psillaki, 2010; Salim & Yadav, 2012). Therefore, a hypothesis is suggested as follows:

H1: Short-term debt ratio harms firm performance.

The long-term debt ratio has a higher interest rate than short-term debt, but it can help relieve the pressure of debt repayment for enterprises. Cash flow can thus be mobilized flexibly according to the strategy set by managers. Anomalies occurring can not significantly affect the business activities of enterprises when they using large long-term debts. However, businesses with high long-term debt ratio face the risk of long-term interest payments when interest rates seem to be less volatile, and businesses must always accept this fixed interest rate even if there is no need for capital (Abor, 2005; Chinaemerem & Anthony, 2012; Pathak, 2011; Salim & Yadav, 2012). A hypothesis is suggested as follows:

H2: Long-term debt ratio harms firm performance.

Capital structure is expressed through short-term debt ratio and long-term debt ratio. Therefore, the overall effect of debt ratio (total debt/total assets) on business results is similar to the effect of the above-mentioned short-term and long-term debt ratio. Therefore, a hypothesis is suggested as follows:

H3: Debt ratio harms firm performance

Research methods

Data collection method

Panel data used for analysis was collected from non-financial enterprises listed on the Vietnam stock exchange from 2010 to 2018. The main source was to use financial statements of enterprises that have been audited and published on the stock exchange.

Data analysis method

Considering the characteristics of research data collected from 2010 to 2018 of non-financial enterprises, the analysis technique for panel data is most suitable for the research model. The author first conducted data collection on the Vietnam stock exchange with firms from the industry sector. The data was then tidied and formatted, and finally imported into STATA software for analysis. Basic models like Fixed effect and Random effect were used. Hausman test was used for model evaluation to find the appropriate model (between Fixed effect and Random effect) for real research data (Hausman, 1978). After that, the author continued to test the autocorrelation and

heteroskedasticity. In the case the model failed these assumptions, it would be modified and robust by xtscc (xtscc produced by Driscoll and Kraay (1998) standard errors for coefficients estimated by fixed-effects regression).

RESEARCH FINDINGS

Descriptive statistics

The results show the average ROE is 0.124, equivalent to 12.4%, in the period of 2010-2018. The average short-term debt ratio CL reaches 0.390 (39.0%), while the average long-term debt ratio LL is 11.6%; the overall liabilities ratio TL is 50.6%. It can be seen that short-term debt is used more by enterprises than long-term debt. The average percentage of tangible assets is 23.5; the average revenue growth is 76.9%. The percentage of state-owned enterprises is 24.6%, foreign-owned 9.9%, other ownership 65.4%. Detailed results are presented in Table 1.

Table 1. Descriptive statistics

	(1)	(2)	(3)	(4)	(5)
VARIABLES	**N**	**MEAN**	**SD**	**MIN**	**MAX**
ROE	5,616	0.124	0.161	-2.653	1.607
STATE	5,066	0.246	0.249	0	0.967
FOREIGN	5,066	0.0995	0.136	0	0.768
OTHER	5,066	0.654	0.267	0.00528	1
CL	5,611	0.390	0.219	0	0.963
LL	5,611	0.116	0.182	-0.00405	0.959
TL	5,611	0.506	0.230	0.00198	0.993
TANG	5,611	0.235	0.215	0	0.970
GROWTH	4,812	0.769	29.73	-24.16	20.38
SIZE	5,611	27.27	1.722	22.78	34.81

Source: Results from STATA

Regression analysis results

As a first step, the author ran regression analysis using the fixed-effect model (FEM) and random effect model (REM). Then, to find the more appropriate model that is consistent with the research data, the Hausman test was used. Detailed results are presented in Table 2.

Table 2. Regression results with FEM và REM for all enterprises

	(1)		(2)		(3)	
VARIABLES	FEM	REM	FEM	REM	FEM	REM
CL	-0.111*** (0.0215)	-0.0761*** (0.0156)				
LL			-0.135*** (0.0313)	-0.117*** (0.0250)		
TL					-0.174*** (0.0214)	-0.117*** (0.0152)
TANG	-0.157*** (0.0225)	-0.0714*** (0.0158)	-0.123*** (0.0231)	-0.0308* (0.0163)	-0.133*** (0.0224)	-0.0554*** (0.0154)
GROWTH	-0.000208*** (6.83e-05)	-0.000236*** (6.76e-05)	-0.000220*** (6.83e-05)	-0.000242*** (6.77e-05)	-0.000205*** (6.80e-05)	-0.000233*** (6.74e-05)
SIZE	0.0220*** (0.00523)	0.00982*** (0.00253)	0.0258*** (0.00542)	0.0127*** (0.00266)	0.0316*** (0.00539)	0.0148*** (0.00263)
Constant	-0.399*** (0.142)	-0.103 (0.0686)	-0.542*** (0.148)	-0.209*** (0.0722)	-0.625*** (0.145)	-0.214*** (0.0699)
Observations	4,812	4,812	4,812	4,812	4,812	4,812
R-squared	0.024		0.022		0.033	
Number of i	604	604	604	604	604	604
Husman test		Sig.		Sig.		Sig.
Autocorrelation	Insig.		Insig.		Insig.	
Heteroskedasticity		Sig.		Sig.		Sig.

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Based on the results obtained, the Hausman test suggested that FEM was more suitable. The author continued to conduct specification tests of autocorrelation and heteroskedasticity. The results show that autocorrelation does not exist but there is heteroskedasticity. Therefore, the author used the robust model. Detailed results are presented in Table 3.

Table 3. Robust regression analysis results for all enterprises

	(1)	(2)	(3)
VARIABLES	ROE	ROE	ROE
CL	-0.111***		
	(0.0197)		
LL		-0.135***	
		(0.0386)	
TL			-0.174***
			(0.0360)
TANG	-0.157***	-0.123***	-0.133***
	(0.0215)	(0.0198)	(0.0208)
GROWTH	-0.000208***	-0.000220***	-0.000205***
	(6.94e-05)	(6.39e-05)	(6.71e-05)
SIZE	0.0220***	0.0258***	0.0316***
	(0.00751)	(0.00820)	(0.00987)
Constant	-0.399**	-0.542**	-0.625**
	(0.197)	(0.219)	(0.251)
Observations	4,812	4,812	4,812
Number of groups	604	604	604

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: Results from STATA

The regression results show the debt ratio harms ROE (positive beta coefficient and p-value less than 0.05). All three indicators representing the debt ratio (CL, LL, and TL) have negative impacts on ROE, suggesting the strategy of using debt (in which debt ratio accounts for the majority) to utilize the advantages of tax shield should not make sense to businesses. A higher debt ratio is associated with the lower value of ROE. When profitability is not higher than the market interest rate, debt becomes a burden for businesses. In the period after the economy recovered, the favorable interest rate was not as low as in the post-crisis years. Therefore, the use of debt is no longer an effective tool as a tax shield strategy for businesses. The short-term debt ratio is much higher than that of long-term debt (nearly 3 times) leading to short-term debt repayment always being a major expense. This consequently affects business activities as enterprises have to allocate such a large amount of cash for small but frequent payments. Long-term strategies have been limited due to the focus on solving the big short-liabilities.

Tangibility also has the opposite effect on ROE, showing that a higher level of fixed assets for enterprises is associated with lower business efficiency, which implies that investment in fixed assets is not effective. Though the investment in fixed assets has been extended up to 9 years, it has not yet brought significant benefits indicating that enterprises may have invested in such a wrong direction that problems remain unsolved. Procurement of equipment or investment which is of necessity does not calculate carefully investment portfolio, and those decisions have not addressed successfully the problems of businesses. This ineffective investment may stem from the following reasons: (1) Resources used for new fixed assets do not meet the expectations of business owners; (2) Overinvestment on assets creates surplus and leads to higher operating costs of fixed assets, thus reducing profits; (3) Overconfident in estimating the break-even point raises initial investment costs as well as operating costs while efficiency does not quite match expectations.

The findings also show revenue growth harms ROE, meaning that to achieve growth, businesses apply different strategies such as advertising, promoting products/services, or diversifying business portfolios. Investment strategies to expand business operation's scope increase revenue, but the trade-off costs become larger. This consequently makes the ROE value of enterprises decrease.

On the other hand, the results indicate firm size has a positive impact on ROE (positive beta coefficient and p-value less than 0.05). The results show that the increase in corporate assets, which may be through investment to expand the business scale or raising more capital, has brought better business results in the period when firms are studied. At the same time, it can be seen that the expansion of business scale does not seem to depend on fixed asset investments (due to the negative impact of tangible assets on ROE). Investments in operations tend to focus on the depth of businesses, not solely expanding horizontally, implying that businesses are demonstrating the abilities to develop following a long-term and visionary strategy, instead of just expanding branches.

To assess the difference between state-owned enterprises and other types of ownership, the author compares the models controlling firm ownership. The results of robust models are as follows:

Table 4. Robust regression results for enterprises of state and other types of ownership

	(1)		(2)		(3)	
VARIABLES	STATE	OTHERS	STATE	OTHERS	STATE	OTHERS
CL	0.0196 (0.0241)	-0.185*** (0.0156)				
LL			-0.0729*** (0.0141)	-0.175*** (0.0523)		
TL					-0.0263 (0.0284)	-0.262*** (0.0348)
TANG	-0.0311** (0.0135)	-0.259*** (0.0256)	-0.0182 (0.0115)	-0.213*** (0.0256)	-0.0293** (0.0128)	-0.222*** (0.0228)
GROWTH	0.00867*** (0.00270)	-0.000208*** (6.65e-05)	0.00827*** (0.00270)	-0.000227*** (5.95e-05)	0.00812*** (0.00287)	-0.000206*** (6.23e-05)
SIZE	-0.00507 (0.0154)	0.0330*** (0.00541)	0.00379 (0.0155)	0.0355*** (0.00658)	0.00149 (0.0176)	0.0456*** (0.00706)
Constant	0.276 (0.424)	-0.660*** (0.140)	0.0477 (0.429)	-0.796*** (0.176)	0.119 (0.479)	-0.958*** (0.178)
Observations	1,548	3,264	1,548	3,264	1,548	3,264
Number of groups	263	506	263	506	263	506

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The results of the different tests show that there are significant discrepancies between these two types of ownership. The debt ratio harms ROE in non-state-owned enterprises. Meanwhile, the ratio of short-term debt (SL) and overall debt (TL) do not affect the ROE of state-owned enterprises; the long-term debt ratio (LL) harms the ROE of both state-owned and other types of enterprises.

Furthermore, Tangabiliy has an opposite effect on ROE of both types of businesses; Revenue growth has a positive impact on the ROE of state-owned enterprises, but it has an opposite effect on the ROE of the other enterprises. Firm size only has a positive impact on the ROE of non-state-owned enterprises without affecting the ROE of state-owned enterprises.

It can be shown that debt ratio has a limited impact on state-owned enterprises, considering the unique characteristics of this type, for which there is a different source of financing. The change in the capital structure of these enterprises is not necessarily derived from the operational aspects of enterprises but also due to other factors (social responsibility, public investment, other social investment projects .....). Such capital structure of these enterprises does not seem to meaningfully relate with the firm performance.

CONCLUSION

With regression analysis techniques for panel data collected from non-financial enterprises from 2010 to 2018, the study has shown that capital structure harms firm performance. Drawn on the results, the author provides some guidelines for the strategic use of capital structure in enterprises: (1) The ineffective debt ratio indicates that the performance of enterprises is on average at a low level of 12.4%. and the use of debt as a tax shield in case of low ROE is ineffective. Enterprises should consider financing decisions through other channels, such as retained earnings rather than using loans or credits according to the picking order theory; (2) As to the allocation of short-term and long-term debt structure: The ratio of short-term and long-term debt both negatively affect business results, and the use of either short-term or long-term debt results a reduction in operation's efficiency. However, enterprises

should consider using long-term debt policy rather than short-term to limit the pressure of debt repayment. Capital can be used more effectively and efficiently when there is time for investment.

Between state-owned and non-state-owned enterprises, there are also significant discrepancies in the investment objectives. While the capital structure has the opposite effect on the firm performance of businesses of other types, only the long-term debt ratio harms the business results of state-owned enterprises. Therefore, the latter should utilize long-term debt for business plans rather than using short-term debt.

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