
The Impact of Capital Structure on Firm Performance: Case of Listed Firms in Processing and Manufacturing Industry in Vietnam

Linh. H. Do¹, Khai. T. Luong², Anh. N. H. Mai³, Linh. A. Dam⁴, Ha. T. L. Pham⁵, Nga. T. Nguyen⁶

¹Lecturer, School of Banking and Finance, National Economics University, Vietnam

²Student, School of Advanced Educational Programs, National Economics University, Vietnam

³Student, School of Advanced Educational Programs, National Economics University, Vietnam

⁴Student, School of Advanced Educational Programs, National Economics University, Vietnam

⁵Student, School of Advanced Educational Programs, National Economics University, Vietnam

⁶Student, School of Advanced Educational Programs, National Economics University, Vietnam

doi: 10.51505/ijebmr.2022.6307

URL: <http://dx.doi.org/10.51505/ijebmr.2022.6307>

Abstract

The authors aim to examine the impact of capital structure on the performance of manufacturing and processing companies listed on the stock exchange in Vietnam during the period of 2015 - 2020. Through the FGLS model, the study found that the ratio of short-term debt to total assets (STDA) and the ratio of long-term debt to total assets (LTDA) have a negative impact on the performance expressed through ROA. In contrast, in terms of Tobin's Q, STDA has no significant relationship with firm performance but it is negatively impacted by LTDA. The two control variables GROWTH and SIZE both have a positive impact on ROA and Tobin's Q. Based on findings, some recommendations for manufacturing and processing companies to enhance their profitability in the future.

Keywords: Processing, Manufacturing, Capital Structure, Firm Performance, Vietnam

I. Introduction

Manufacturing and processing is a promising industry with great investment prospects in the Vietnamese market since it leads to socio-economic growth. The sector has always made a significant contribution to the country's economic progress, establishing itself as a core industrial group and the country's major export industry. According to the report of the General Statistics Office (2021), the manufacturing and processing industry in Vietnam has a high value-added growth rate (an average increase of 10.44 percent in the period 2011-2020), export turnover reached a good level (the growth rate of export turnover in the period 2011-2020 reached 16.2%/year); along with attracting a large number of foreign investment projects. However, despite being recognized as the driving force of economic growth, the civil service industry's current level is still modest when compared to other industrialized countries and countries in the

region, who are Malaysia, Singapore, Thailand and Indonesia (General Statistics Office of Vietnam, 2021). Therefore, it is necessary to find a solution to improve the profitability of Vietnamese manufacturing enterprises, in other words, to determine the impact of capital structure on the performance of enterprises.

Determining capital structure is a crucial decision for any business because the ideal capital structure is the basis for creating a balance between risk and return, from that, the company can design strategies to optimize stock prices while minimizing the cost of capital. Therefore, it is very necessary to question the effect of capital structure on the performance of enterprises in Vietnam at the present time.

Because of understanding the need for research on the topic, especially study based on the manufacturing industry, the research team has chosen the topic "The Impact of Capital Structure on Firm Performance: Case of Listed Firms in Processing and Manufacturing Industry in Vietnam".

II. Basic Theory and Literature Review

2.1 Basic Theory

- **Miller and Modigliani Theory**

Miller & Modigliani (1958) assume that in a perfect market, capital structure and firm value are independent of each other and that firms have no way of changing value by adjusting for capital structure. When considering corporate income tax as a determinant of capital structure, Miller & Modigliani (1963) argue that the use of debt can increase the value of the firm due to the benefit of the tax shield from debt. In addition, businesses should use debt as much as possible to maximize business value when debt capital completely replaces equity capital. Therefore, the researchers make the assumption that firm value and firm performance are affected by capital structure. M&M theory (1958) also suggests that firm size has a positive relationship with debt, because large firms often have low bankruptcy risk and low bankruptcy costs. In addition, large firms have less information asymmetry than smaller firms, have less volatile cash flows, have easier access to credit markets, and use more debt to benefit more from tax shield. Besides, larger sized companies tend to possess stronger risk resistance and better negotiation ability which can increase the company's performance.

- **Static Trade-Off Theory**

The static trade-off theory considers an optimal capital structure for firms, which is determined by the trade-off between the marginal benefit of taxes (tax shield) and the expenses associated with debt (financial distress costs and agency costs). As the firm increases its debt-to-equity ratio, the benefit of the tax shield increases. A high degree of leverage also promotes firm performance by reducing conflicts of interest between shareholders and managers regarding free cash flow (Jensen, 1986) and optimal investment strategies (Jensen, 1986).

- **Perking Order Theory**

When the financial manager decides to finance with outside capital through the issuance of shares, investors see this as a signal that the business is overvalued. As a result, investors tend to sell their shares and as a result, the stock price will fall. To avoid stock price decline, enterprises

will finance new investment needs in the following order: using internal capital first (internal funds, retained earnings), then debt (debt securities) and finally equity. According to this theory, the firm will not have an optimal capital structure. However, the use of internal capital will reduce the enterprise's dependence on the outside, increase financial autonomy and reduce internal information leakage.

Based on pecking order theory, firms that generate high returns tend to use internal capital to finance investment needs, and therefore, the more profitable the firm, the lower its debt-to-equity ratio. the lower the ownership (Fama & French, 2002). Therefore, the relationship between debt utilization and performance is said to be inverse.

2.2 Literature Review

To analyze the impact of capital structure on firm performance, many authors use common variables to clarify this relationship. First, Abor (2005) studies the relationship between capital structure and performance across 22 companies on the GSE stock exchange in the period from 1998 to 2002. The author uses common variables to clarify the relationship between capital structure and operating performance including return on equity (ROE) which represents the profitability performance of the business, while equity is expressed through short-term debt to total assets ratio (STD), long-term debt to total assets ratio (LTD) and total debt to total assets ratio (TD). The results show that there is a positive relationship between capital structure and the profitability of enterprises.

Salim and Yadav (2012) conducted a study on the relationship between capital structure and firm performance on 237 companies listed on the stock exchange in Bursa Malaysia in 6 industries: construction, plantation, manufacturing, consumer products, industrial products, property, trade and services, 1995-2011. In this study, the author uses 4 profitability measures: ROE, ROA, Tobin's Q and EPS, the independent variable is identified as capital structure including long-term debt (LTD), short-term debt (STD)) and total debt (TD). The results show that profitability, as measured by ROE, is negatively affected by TD, LTD and STD. In addition, LTD and STD have a significant negative effect on ROA in the plantation sector, but only TD has a negative effect on the consumer products industry. In general, the above studies suggest that capital structure has a negative impact on performance.

Leonard and Mwasu (2014) investigate the impact of capital structure on the corporate performance of Kenyan firms on the NSE stock exchange from 2002 to 2011. In this study, the author uses the three profitability measures, which are ROE, ROA and Tobin's Q, while capital structure is represented by debt-to-equity ratio (DE), debt-to-total assets ratio, and long-term debt-to-equity ratio. The results show no relationship between capital structure and firm performance.

When studying the impact of capital structure on performance in the Vietnamese market, Tran Thi Bich Ngoc et al (2017) in Thua Thien - Hue province investigated a study with 130 joint-stock companies in the province in the past year. period 2010 - 2014. The authors use measures for corporate performance as ROE, ROA and EPS. The total debt/total assets ratio represents the capital structure. Control variables as firm size (SIZE) (calculated in natural logarithm of total assets), revenue growth opportunity (GROWTH)(calculated by revenue growth over the previous

year) and asset structure (AST)(calculated by the ratio of fixed assets to total assets) are also included in the model. The results show that capital structure represented by the ratio of total debt to total assets has a negative impact on performance, firm size has a positive effect on ROA and EPS while GROWTH and AST have the same effect. inversely to the performance represented by ROE and ROA.

It can be seen that previous studies have given mixed results on the impact of capital structure on firm performance (positive effect, negative effect, unclear or no effect or have a connection). This can be explained by the difference in the study environment, the object and the time of the study, which will lead to contrasting impacts. Thus, the existence of inconsistency in the results of previous studies also requires further research to re-validate the influence of capital structure on firm performance in each specific context.

In foreign economies, this topic has been under the scope of the investigation for many years. However, the number of studies conducted in Vietnam has yet reached such a level of profoundness. Tobin's Q variable is one of the effective measures for firm value and has been used in studies by foreign authors (Abor, 2007; Khan, 2012; Salim & Yadav, 2012; Zeitun & Tian, 2007; Leonard & Mwasa, 2014). Meanwhile, there is no research in Vietnam using this variable or if there is, it is ineffective, because the Vietnam stock market before 2014 was only an efficient market in weak form (Vu Thi Minh Luan, 2009; Khoa Cuong Phan & Jian Zhou, 2014). Therefore, within the extent of this study conducted with the data in the period after 2014, the variable Tobin's Q will be appropriate and effective in the context that the Vietnamese stock market has witnessed a drastic reform along with a series of tightened management policies, effective restructuring and relatively stable macroeconomic environment.

The research team will also conduct separate research with the processing and manufacturing industry in Vietnam to better understand the characteristics of the impact of capital structure on the performance of firms in this industry particularly.

3. Research Methodology

3.1 Hypothesis Development

Return on assets (ROA) is considered as the most effective measure to test the profitability of the company, according to Abdel Shahid (2003). The authors also study the effect on market value to fill the research gap of previous studies in Vietnam when mentioning about the manufacturing and processing industry. After referring to related studies, based on the original theory is the modern capital structure theory of Modigliani & Miller (1958, 1963), Jensen & Meckling's capital structure trade-off theory (1976). According to the pecking order theory of Myers & Majluf (1984), the team decided to come up with a research model as follows:

- Company performance (represented by ROA and Tobin's Q) depends on the group of capital structure variables (represented by two variables, SDTA and LDTA).
- Company performance (represented by ROA and Tobin's Q) is also affected by two control variables: Enterprise size (SIZE) and Growth opportunity (GROWTH) - growth rate revenue.

It can be said that debt ratios including short-term debt and long-term debt have a significant impact on the company's performance due to the credit policy of the bank. Because the higher the short-term debt ratio, the more it affects the refinancing ability of the business, so many researchers believe that the short-term debt affects profitability. For long-term debt to total assets ratio, heavy use of long-term debt can be costly, so a high long-term debt ratio will lead to low return on assets (Zeitun & Tian, 2007; Abor, 2007; Khan, 2012). From there, we hypothesize

H1: The ratio of short-term debt to total assets has a negative effect on ROA.

H2: The ratio of long-term debt to total assets has a negative effect on ROA.

When studying the impact of capital structure on Tobin's Q, Khan (2012) said that the high cost of short-term debt might affect the income of the business, which means that the ratio of short-term debt to total assets has a negative impact on Tobin's Q. In addition, the use of long-term debt reduces the market to book value ratio of the business, from which long-term debt has a negative impact on Tobin's Q (Abor, 2007; Khan, 2012). Therefore, we have the hypothesis:

H3: The ratio of short-term debt to total assets has a negative effect on Tobin's Q.

H4: The ratio of long-term debt to total assets has a negative effect on Tobin's Q.

Besides that, the authors also include a number of control variables to control the impact of independent variables including growth rate (GROWTH) and company size (SIZE). Firms with high growth rates are more profitable as firms can generate more profits from their investment portfolios (Zeitun and Tian, 2007). Besides, the size of the company (SIZE) has a positive effect on the profitability of the company because bankruptcy costs will be reduced due to the size of the business. Therefore, we have the hypothesis:

H5: Growth rate has a positive effect on ROA.

H6: Growth rate has a positive effect on Tobin's Q.

H7: Firm size has a positive effect on ROA.

H8: Firm size has a positive effect on Tobin's Q.

3.2 Data Collection

Research data is based on enterprises in the manufacturing and processing industry listed on the Vietnam Stock Exchange. The data in the article are secondary data extracted from the audited consolidated financial statements of 85 listed processing and manufacturing enterprises in Vietnam over a 6-year period from 2015-2020, which are made public on Vietstock company. In addition, data such as amount of outstanding share and trading price of shares on the last trading day of the year are compiled from fireant.vn web. The above data has been verified by auditing companies and the State Securities Commission, consistent across all different websites and information providers. The data collected from the above 85 enterprises ensures that there are no data gaps in any year and also contain no outliers. Thus, the authors obtained a balanced panel data consisting of 510 observations.

3.3 Research Model

The obtained panel data are balanced. The authors use multiple regression analysis for panel data to determine the direction and extent of the impact of capital structure on the performance of processing and manufacturing enterprises over time.

Unlike most of the previous researches, to avoid the case that the model is missing variables that affect the accuracy of the results, the research team performed a regression analysis of a model including the ratio of short-term debt and long-term debt on; the ratio of total debt to total assets will not be included in the model to eliminate the phenomenon of autocorrelation and multicollinearity between variables. The main models of the study are presented as follows:

Main Model:

$$ROA_{i,t} = \alpha_0 + \alpha_1SDTA_{i,t} + \alpha_2LDTA_{i,t} + \alpha_3SIZE_{i,t} + \alpha_4GROWTH_{i,t} + \varepsilon_{i,t}$$

$$Tobin's\ Q_{i,t} = \beta_0 + \beta_1SDTA_{i,t} + \beta_2LDTA_{i,t} + \beta_3SIZE_{i,t} + \beta_4GROWTH_{i,t} + \mu_{i,t}$$

There,

ROA_{i,t}: income on total assets of the company *i* at year *t*;

Tobin's Q_{i,t}: coefficient *Q* at Tobin of the company *i* at year *t*;

SDTA_{i,t}: the ratio of short-term debt to total assets of the company *i* at year *t*;

LDTA_{i,t}: the ratio of long-term debt to total assets of the company *i* at year *t*;

SIZE_{i,t}: size of firm *i* at year *t*;

GROWTH_{i,t}: growth opportunity of firm *i* at year *t*;

α₀, α₁, α₂, α₃, α₄, β₀, β₁, β₂, β₃, β₄: coefficients of the regression equations;

ε_{i,t}, μ_{i,t}: error of the corresponding regression equations

Table 1: Measurement of variables

Variables	Symbol	Description
Profitability	ROA	Net profit after tax/Total assets
	Tobin's Q	(Market value + Total capital) / Total assets
Capital Structure	STDA	Short-term debt/Total assets
	LTDA	Long-term debt/Total assets
Control Variables	GROWTH	Annual revenue growth
	SIZE	Ln (Total assets)

Data are entered into STATA software to conduct regression analysis, based on the panel data regression method with the approach of all three models including: Pooled OLS model, fixed effect model (FEM), model random effects (REM). Then, the F-test and Hausman test were performed to select the most suitable model among the three models above. In case the selected model does not satisfy the tests of heteroskedasticity and autocorrelation, FGLS regression will be applied to overcome the defects of the model.

4. Empirical Result

4.1 Data Description and Summary

The research group will present descriptive statistics on data collected from listed securities companies for the period from 2015 to 2020. Companies that are under-observed in a given year in the dataset had been removed, the final result is 85 companies with full six-year data from 2015 to 2020. Thus, the dataset has a total of 510 observations. The research team will start with descriptive statistics for the aforementioned companies.

Table 2: Summary Statistic

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	510	0.073598	0.069572	-0.113805	0.7837
Tobin's Q	510	1.135363	0.541404	0.074763	4.521725
SDTA	510	0.412363	0.163361	0.026441	0.948583
LDTA	510	0.073563	0.094971	0.000019	0.69048
SIZE	510	27.71543	1.313898	24.86808	32.51012
GROWTH	510	0.116646	0.45293	-0.898613	5.86954

Source: Summary of the research team's results

From Table 2 statistics of variables, we see that the ROA of the companies are on average 7.3%, with the lowest is -11.38%, the highest is 78.37% and the standard deviation is 6.96%. Short-term debt (SDTA) has an average of 41.24%, with the lowest being 2.64%, the highest being 94.86% and the standard deviation is 16.34%. Long-term debt (LDTA) has an average of 7.36%, with the lowest being 0.0019%, the highest being 69.05%, and the standard deviation is 9.5%. From this descriptive statistics table, we see that manufacturing enterprises in Vietnam use a lot of short-term debt in their capital structure while using little long-term debt. In addition, Table 2 also shows that Tobin's Q of companies is 1,135 on average, with the lowest being 0.07, the highest being 4.52 and the standard deviation is 0.54. When Tobin's Q is low on the spectrum of 0 to 1, it means that the cost of replacing a company's assets is greater than the value of its stock. Firm size (SIZE) has a mean of 27.72, with the lowest being 24.89, the highest being 32.51, and

the standard deviation is 1.31. The growth rate (GROWTH) has an average of 11.66%, with the lowest being -89.86%, the highest being 586.95% and the standard deviation is 45.29%.

The research team examines the correlation between each relationship shown. The statistical results describing the matrix of correlation coefficients between the variables are shown in the table below:

Table 3: Matrix correlation

	ROA	Tobin's Q	SDTA	LDTA	SIZE	GROWTH
ROA	1.0000					
Tobin's Q	0.4957	1.0000				
SDTA	-0.2027	0.0387	1.0000			
LDTA	-0.2695	-0.0397	-0.1724	1.0000		
SIZE	-0.0301	0.2095	0.1194	0.3298	1.0000	
GROWTH	0.0245	0.0971	0.0807	0.1196	0.0814	1.0000

Source: Summary of the research team's results

In Table 3, it can be seen that there exists a correlation between the variables, specifically some prominent pairs of variables such as:

- Negative correlation between four pairs of variables: ROA and SDTA, ROA and LDTA, Tobin's Q and LDTA, SDTA and LDTA.
- Positive correlation between three pairs of variables: Tobin's Q and SDTA, Tobin's Q and ROA, SIZE and SDTA.

Table 4: Multicollinearity Test

Variable	VIF	1/VIF
LDTA	1.20	0.833902
SIZE	1.16	0.858605
SDTA	1.08	0.926614
GROWTH	1.03	0.974466
Mean VIF	1.12	

Source: Summary of the research team's results

Table 4 shows that the values of the variance inflation factor (VIF) are all less than 10, so the research variables in the model do not have multicollinearity with each other.

4.2 Regression Analysis Result

After performing the necessary tests, the research team selected FGLS as the most effective and unbiased regression model.

Analyzing the impact of capital structure on corporate performance by book value

Table 5: The impact of capital structure on firm performance by book value

Variables	Dependent variable: ROA
	FGLS
SDTA	-0.1133*** (-10.81)
LDTA	-0.2382*** (-14.87)
SIZE	0.00634*** (5.11)
GROWTH	0.00936** (2.66)
_cons	-0.0412 (-1.21)
Number of observations	510
R-square	0.131

Source: Summary of the group's results

Table 5 shows that all variables of short-term debt to total assets (SDTA), long-term debt to total assets (LDTA), firm size (SIZE) and growth opportunity (GROWTH) have equally significant effects on the performance at book value (ROA) of enterprises in the processing and manufacturing industry in Vietnam with the regression coefficients reaching the significance level of 1% and 5%.

From there, the regression equation for the impact of capital structure on the performance of processing and manufacturing enterprises in Vietnam is presented below:

$$\text{ROA} = -0.0412 - 0.1133 \cdot \text{SDTA} - 0.2382 \cdot \text{LDTA} + 0.00634 \cdot \text{SIZE} + 0.00936 \cdot \text{GROWTH}$$

The intercept coefficient of -0.0412 explains that the total influence of the unobserved components in the model will reduce the ROA of the enterprise by 0.0412. The coefficient of the SDTA variable is -0.1133, which has a negative effect on the dependent variable ROA. Similar to SDTA, the ratio of long-term debt to total assets negatively affects the performance of the firm at book value with a regression coefficient of -0.2382. The variable firm size (SIZE) and growth

opportunity (GROWTH) both have a positive effect on the dependent variable ROA with the regression coefficients of 0.00634 and 0.00936, respectively.

Analyze the impact of capital structure on business performance according to market value

Table 6: The impact of capital structure on firm performance by market value

Variables	Dependent variable: Tobin's Q	
	FGLS	
SDTA	0.0025	(0.04)
LDTA	-0.5605***	(-4.53)
SIZE	0.0799***	(10.65)
GROWTH	0.0829**	(2.51)
_cons	-1.1153***	(-5.64)
Number of observations	510	

Source: Summary of the group's results

Equation to estimate the regression from the impact of capital structure on the performance of processing and manufacturing enterprises in Vietnam:

$$\text{Tobin's Q} = -1.1153 + 0.0025 \cdot \text{SDTA} - 0.5605 \cdot \text{LDTA} + 0.0799 \cdot \text{SIZE} + 0.0829 \cdot \text{GROWTH}$$

With the intercept in the regression equation estimated at -1.1153, this explains that the total influence of the unobserved components in the model will reduce the Tobin's Q index of the enterprise by 1.1153 units. The coefficient of the SDTA explanatory variable is 0.0025, but the effect of the SDTA variable on Tobin's Q is inexplicable because the coefficient estimate of the short-term debt ratio variable does not reach the statistical significance level. regression is -0.5605. Unlike SDTA, the ratio of long-term debt to total assets has a negative and obvious effect on the performance of the firm in terms of market value, with each additional unit of the long-term debt ratio decreasing the market value field goes 0.5605 units. The variable enterprise size and growth opportunity have the same effect on the dependent variable Tobin's Q with the regression coefficients of 0.0799 and 0.0829, respectively.

5. Further Discussion

5.1 Impact of capital structure on firm performance at book value (ROA) Short-term debt to total assets ratio

After conducting the test, the regression coefficient obtained by the FGLS model method shows that the short-term debt to total assets (SDTA) ratio is -0.1133, which means that SDTA has a

negative impact on ROA. The results are consistent with the economic significance because the ROA variable in the study is measured by the ratio of profit after tax to total assets, so ROA is negatively affected by interest. The use of loan interest contributes to reducing the numerical element (profit after tax) but does not bring benefits to the denominator (total assets) of the ROA indicator. The negative effect of short-term debt on book value (ROA) in the study is also consistent with the pecking order theory of Myers & Majluf (1984) and is supported by results from previous studies. by Abor (2007), Ghafoor Khan (2012), Zeitun & Tian (2007), Vätavu (2015).

Long-term debt to total assets ratio

The results estimated by FGLS model show that, at the 1% significance level, the impact of long-term debt to total assets (LDTA) on a firm's ROA is inverse. Specifically, an increase of 1 unit in long-term debt will cause the company's ROA to decrease by 0.2695 units. This can be explained by the fact that in Vietnam the benefit of the debt tax shield is outweighed by the cost of using long-term debt. Therefore, when enterprises use long-term debt, they will incur costs of financial difficulties, liquidity costs, bankruptcy costs, etc., so the negative impact of long-term debt on ROA, a measure of business performance, is consistent with market realities. This result supports the previous work of Abor (2007), Zeitun & Tian (2007), Saeed et al (2013), Nguyen & Nguyen (2020).

Growth rate

Regression results obtained from Pooled OLS show the positive impact of growth rate index measured by growth rate of revenue (GROWTH) on book value (ROA) of industrial companies. processing and manufacturing industry. This result is reasonable and makes economic sense because the high revenue growth rate is a sign of an enterprise on the verge of expanding the market. This will create opportunities for making high profits. Some previous studies of Abor (2007), Zeitun & Tian (2007), Nguyen & Nguyen (2020) have also tested and tested the positive impact of revenue growth on ROA.

Firm size

The results show that the enterprise size index measured by the natural base logarithm of total assets (SIZE) has a positive impact on the book value (ROA) of companies in the processing - manufacturing industry. . This shows that economies of scale increase. In the research samples, it can also be seen that the enterprises selected to extract data for research have significant diversity and differences in size, large-scale enterprises operate more efficiently than other enterprises in smaller-scale industry.

5.2 Impact of capital structure on firm performance by market value (Tobin's Q) Short-term debt to total assets ratio

The study shows that the ratio of short-term debt to total assets has no effect on Tobin's Q. This indicates that the efficiency of the firm in terms of market value is not affected by the increase or decrease in value. A common component of short-term debt of manufacturing enterprises in Vietnam is trade credit, which was found to have a positive impact on Tobin's Q in the research by Abor (2007). Short-term debt can reduce a company's costs such as transaction costs and create opportunities for tax shields (George, 2000). But it should also be noted that the

proportion of short-term debt in the total capital of listed companies in the CNC machining industry in Vietnam is quite significant (according to the results of the research team). Given that this debt is not managed and utilized effectively, the pressure and ongoing cost of interest payments will completely overwhelm the benefits of tax shields and commercial misappropriation.

Long-term debt to total assets ratio

The research team has found that the ratio of long-term debt to total assets has a negative effect on market value, and at the same time, the higher the ratio of long-term debt to total assets, will decrease Tobin's Q, similar to the study of Abor (2007), Zeitun & Tian (2007). The reason that long-term debt ratio has a negative impact on business performance can be attributed to the interest rate of long-term debt. Businesses still have to pay interest expenses whether they make a profit or not, companies will have to pay a large amount of interest if they have a lot of long-term debt, which will affect their cash inflows. enterprise. The failure of businesses to pay interest on debt on time can lead to business bankruptcy. In addition, the use of long-term debt will increase agency costs and affect corporate performance (Liem, 2019). Thereby, if the enterprise uses a lot of long-term debt, it will negatively affect the market value of the business.

Growth rate

In terms of the growth control variable, the research team believes that the growth rate has a positive effect on Tobin's Q. This result indicates that the high growth rate leads to an increase in the market value of the business, which is the reason why This makes perfect economic sense. Thanks to the gradual increase in net revenue over the years, enterprises in the processing and manufacturing industry take the opportunity to develop operational efficiency. From there, companies with high growth rates will generate more profits and expand their value in the market. Not only that, businesses with good growth will increase the liquidity of stocks in the market.

Firm size

Through the results given by the research team, firm size has a positive impact on Tobin's Q market value. This happens because large enterprise size will promote the brand and be widely known to the market. widely, in addition, it also increases the consumption of the company's products, thereby improving the company's profits. It can be said that a large firm will increase the value of the market, or a large firm will be valued in the market. Since then, the increase in the value of stocks of manufacturing companies is completely appropriate, and at the same time indicates that the Vietnamese stock market has achieved a certain level of efficiency. This result is similar to the conclusion of Bui Van Thuy & Nguyen Thi Ngoc Diep (2016) and Juan Gallegos Mardones & Gonzalo Ruiz Cuneo (2020).

6. Recommendation

6.1 Recommendations for the government

The government and state management agencies need to have appropriate policies and adjustments to help processing and manufacturing enterprises increase operational efficiency through reducing debt, increasing size and increasing the ability to grow.

Firstly, the government needs to adjust tax policies suitable for each specific business object. Making reasonable adjustments to tax policy is the optimal method to help reduce the debt ratio in processing and manufacturing enterprises. The same division, specific tax incentives and low-interest financing for export industries will also be the driving force to stimulate investment by private companies and foreign companies.

Second, the government should create favorable conditions for businesses to easily raise capital from shares on the stock market. Currently, Vietnam imposes a 20% tax on the transaction of company securities, with international companies paying a 0.1 percent sales tax. The lower securities tax will assist enhance stock liquidity by encouraging people to invest their money in the stock market. The value of the company will rise as a result, and it will be simpler for the company to raise financing.

Third, the government might create conditions for businesses to promote the effectiveness of debt financing activities by bonds. A developed market also means a better level of information transparency and the ability to monitor the activities of creditors for the company, thereby making timely adjustments in business activities and public efficiency. service.

Fourth, when businesses need loans to expand their scale, the Government and state management agencies should create conditions for businesses to easily access capital.

6.2 Recommendations for businesses and administrators

From the research results, it can be seen that the increase in debt use will cause harm to the efficiency of the enterprise, only increasing the ratio of short-term debt to total assets will not affect the value of the business. industry in the market. Based on that result, the authors have the following recommendations for businesses:

Firstly, businesses need to limit mobilizing capital through debt to improve their profitability as well as their market value. Prioritize financing for investment, production and business activities with short-term debt sources over long-term debt.

Second, business managers need to improve management capacity, regularly monitor the situation of the capital structure of the enterprise and take reasonable risk prevention measures.

Third, businesses need to avoid forms of mobilization and use of loans but do not increase total assets. This form can be mentioned as issuing more bonds, borrowing debt to restructure old debts due or to buy back corporate shares. This not only destabilizes the liquidity of the enterprise, increases the debt ratio in the total capital structure, and affects the efficiency of the enterprise; but is not compensated by the positive impact of an increase in asset size on performance (according to the team's research results).

Fourth, enterprises need to improve their management, production and business capacity to expand their market scope and boost revenue growth. Actively increasing exports and accessing foreign markets is one of the main driving forces for firms in the processing and manufacturing industries to improve income. Vietnam has been a participant in and implementer of free trade agreements, assisting in the removal of tariff barriers for Vietnamese goods exported to potential markets such as Europe, Australia, and Japan, among others. This has resulted in increased

opportunities for domestic goods to access international markets with more favorable terms, promoting revenue growth opportunities.

6.3 Recommendations for credit institutions and banks

For many businesses, capital mainly comes from borrowing from credit institutions and banks. Although the study has shown that debt has a negative impact on ROA; however, for credit institutions and banks, lending is the main source of revenue for the institution. Therefore, banks and credit institutions can still lend to businesses based on the following recommendations:

First, businesses can borrow short-term debt at a reasonable level. A reasonable level is an amount that a business can pay based on its understanding of its operating situation and knowing how to use that loan most effectively. Besides, enterprises can expand investment and production activities, increase revenue and business scale by borrowing capital.

In addition, funding agencies, credit institutions and banks need to appraise and understand the operation of the business to ensure that the capital is used well and there is no risk of bad debt.

Second, banks might have policies and strategies to ensure bond issuance at a reasonable level. This will help develop the economy in general and contribute to improving business performance. Research by Jugovic, Debelic & Loncar (2009) points to bond issuance as one of the possibilities for external financing for business activities. According to their research, compared with other forms of debt, the capital obtained from the issuance of corporate bonds has a more positive impact, which can contribute to increasing the efficiency and effectiveness of the company's operations. company, resulting in better business performance - but only in the long run.

Third, banks need to take measures to manage bad debts, as well as support businesses with financial difficulties, especially in difficult economic times such as during the recent COVID-19 period. Vietnam's economy increases the risk of bad debt due to the severe impact of COVID-19, seriously threatening the financial health of the whole system, the introduction of debt management measures Timely and effectively bad credit in the Vietnamese banking system is very important. According to Dr. DAO Thi Thanh Binh & DO Van Anh (2013), carrying a large number of inefficient loans will lead to financial institutions suffering possibly collapse. Research shows that the bad debt problem will get worse if it is not resolved quickly. The second factor that needs attention to prevent bad debt in Vietnamese banks is the interest expense ratio. The root cause that made it become a decisive factor for bad debt in the context of Vietnam at that time was the race in interest rates to mobilize capital between banks. The State Bank of Vietnam needs to strictly control the interest rate ceiling during this difficult period and support businesses to enjoy lower interest rates.

Fourth, banks should support businesses that want to export in international financial operations. The export of industrial products is an important driving force for enterprises in the processing and manufacturing industries to grow their business revenue and improve their operational efficiency. Banks can support businesses wishing to export with letters of credit, helping them to expand their business quickly into new geographical areas.

7. Conclusion and Recommendation for Further Research

In conclusion, through the data of 85 manufacturing and processing enterprises listed on the Vietnamese stock exchange from the period 2015 - 2020, the research team has investigated the impact of capital structure on performance. By using the FGLS model, the results show that there is a negative relationship between STDA, LTDA and ROA. In contrast, Tobin's Q and STDA have no significant relationship but LTDA has a negative effect on Tobin's Q variable. Besides, two control variables GROWTH and SIZE have a positive effect on ROA and Tobin's Q. The study would be useful for manufacturing and processing companies in Vietnam to effectively manage their capital structure and increase profits. In addition, the author also gives recommendations to the government, state agencies and banks to increase profits for manufacturing and processing companies in Vietnam.

In terms of the study's limitations, the variables used are limited to avoid the complexity of the study. Instead of separating short-term debt into interest-bearing and non-interest-bearing debt such as trade credits, the authors combine them into one, which increases the probability of bias in the relationship between capital structure and performance. Therefore, the following studies can break down the composition of short-term debt for a more comprehensive assessment and use total debt to total assets ratio variable to represent capital structure. Firm performance can be measured by scales such as return on equity (ROE), return on equity (EPS) or even non-financial scales including human resource management, operating time of the business, diversification of business fields, corporate social responsibility, etc. Besides, the group's research paper only studies the linear relationship. Previous authors have pointed out the existence of nonlinear relationships in some other research contexts (Berzkalne, 2015; Doan Vinh Thang, 2016). Therefore, the following studies can expand on the non-linear impact of capital structure on the efficiency of Vietnamese manufacturing and processing enterprises.

References

- Abor, J. (2005). The effect of capital structure on profitability: an empirical analysis of listed firms in Ghana. *Journal of Risk Finance*, 6(5), 438-445.
<https://doi.org/10.1108/15265940510633505>
- Abor, J. (2007). Debt policy and performance of SMEs: Evidence from Ghanaian and South African firms. *Journal of Risk Finance*, 8(4), 364-379.
<https://doi.org/10.1108/15265940710777315>
- Baltagi, B. H., & Baltagi, B. H. (2008). *Econometric analysis of panel data* (Vol. 4). Chichester: John Wiley & Sons.
- Berzkalne, I. (2015). Company's Capital Structure and Value: a Panel Threshold Regression Analysis. *Applied Economics: Systematic Research*, 9(1), 77-94.
- Bui, V. T., & Nguyen, T. N. D. (2016). Capital structure impact to operational efficiency of the company on the stock market Vietnam. *Journal of Science of Lac Hong University*, 5, 95-100.
Retrieved from https://lachong.edu.vn/Data/News/383/files/17_Van_Thuy_Ngoc_Diep.pdf

- Cole, C., Yan, Y., & Hemley, D. (2015). Does capital structure impact firm performance: An empirical study of three US sectors. *Journal of Accounting and Finance*, 15(6), 57-65. Retrieved from http://www.m.www.na-businesspress.com/JAF/ColeC_Web15_6_.pdf
- DARE, F. D., & Olorunfemi, S. (2010). Capital structure and corporate performance in Nigeria petroleum industry: psanel data analysis. *Journal of Mathematics and Statistics*, 6(2), 168-173. Retrieved from https://www.researchgate.net/publication/49590100_Capital_Structure_and_Corporate_Performance_in_Nigeria_Petroleum_Industry_Panel_Data_Analysis
- Ebaid, I. E. S. (2009). The impact of capital-structure choice on firm performance: empirical evidence from Egypt. *The Journal of Risk Finance*, 10(5), 477-487. <https://doi.org/10.1108/15265940911001385>
- Fama, E. F., & French, K. R. (2002). Testing trade-off and pecking order predictions about dividends and debt. *The Review of Financial Studies*, 15(1), 1-33. <https://doi.org/10.1093/rfs/15.1.1>
- Gallegos Mardones, J., & Ruiz Cuneo, G. (2020). Capital structure and performance in Latin American companies. *Economic research-Ekonomska istraživanja*, 33(1), 2171-2188. <https://doi.org/10.1080/1331677X.2019.1697720>
- General Statistics Office of Vietnam. (2021). Processing and Manufacturing Industry – The Driving Force of Vietnam’s Economic Growth in the Period of 2011 - 2020. *Vietnam: Dan Tri Publisher*. Retrieved from: <https://www.gso.gov.vn/default/2021/08/cong-nghiep-che-bien-che-tao-dong-luc-tang-truong-kinh-te-viet-nam-giai-doan-2011-2020/>
- Gujarati, D. N., Bernier, B., & Bernier, B. (2004). *Econométrie* (pp. 17-5). Brussels: De Boeck.
- Hadi, A. R. A. (2017). Capital Structure Theories and Firm’s Value-Evidence from Bursa Malaysia Construction Sector. *International Journal of Business and Management*, 12(9), 163-172. <https://doi.org/10.5539/ijbm.v12n9p163>
- Igbinosa, S. (2015). Another look at capital structure and corporate performance in emerging markets: the case of Nigeria. *Asian Journal of Business Management*, 7(1), 1-12. Retrieved from https://www.researchgate.net/profile/Sunday-Igbinosa-2/publication/322727699_Another_Look_at_Capital_Structure_and_Corporate_Performance_in_Emerging_Markets_The_Case_of_Nigeria/links/5eeaf5c92851ce9e7ec74fd/Another-Look-at-Capital-Structure-and-Corporate-Performance-in-Emerging-Markets-The-Case-of-Nigeria.pdf
- Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *The American Economic Review*, 76(2), 323-329. Retrieved from <https://www.jstor.org/stable/1818789>
- Jugović, A., Debelić, B., & Lončar, S. (2009). ISSUING BONDS AS AN INSTRUMENT FOR OBTAINING FINANCIAL RESOURCES SERVING THE DEVELOPMENT AND

- IMPROVEMENT NEEDS OF A COMPANY. *Pomorstvo*, 23(2), 441-458. Retrieved from <https://hrcak.srce.hr/45456>
- Khan, A. G. (2012). The relationship of capital structure decisions with firm performance: A study of the engineering sector of Pakistan. *International Journal of Accounting and Financial Reporting*, 2(1), 245.
- Luan, V. T. M. (2009). Testing the Efficiency of Vietnam's Stock Market. <https://doi.org/10.31219/osf.io/2cw7f>
- Maina, L., & Ishmail, M. (2014). Capital structure and financial performance in Kenya: Evidence from firms listed at the Nairobi Securities Exchange. *International Journal of Social Sciences and Entrepreneurship*, 1(11), 209-223. Retrieved from <http://www.ijssse.org>
- Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *The American Economic Review*, 48(3), 261-297. Retrieved from <https://www.jstor.org/stable/1809766>
- Modigliani, F., & Miller, M. H. (1963). Corporate income taxes and the cost of capital: a correction. *The American Economic Review*, 53(3), 433-443. Retrieved from <https://www.jstor.org/stable/1809167>
- Muritala, T. A. (2012). An empirical analysis of capital structure on firms' performance in Nigeria. *International Journal of Advances in Management and Economics*, 1(5), 116-124. Retrieved from <https://www.managementjournal.info/index.php/IJAME/article/view/214/207>
- Nawaz, A., Ali, R., & Naseem, M. A. (2011). Relationship between capital structure and firms performance: A case of textile sector in Pakistan. *Global Business and Management Research*, 3(3/4), 270. Retrieved from https://www.researchgate.net/publication/319980982_Relationship_between_capital_structure_and_firms_performance_a_case_of_Textile_sector_in_Pakistan
- Nguyen, H. T., & Nguyen, A. H. (2020). The impact of capital structure on firm performance: Evidence from Vietnam. *The Journal of Asian Finance, Economics and Business*, 7(4), 97-105. <https://doi.org/10.13106/jafeb.2020.vol7.no4.97>
- Nguyen, T. L. (2019). Determinants of Debt Maturity Structure: Quantile Regression and Blinder–Oaxaca Decomposition Approach. *Thesis of Doctor of Economics. University of Economics and Law, Viet Nam National University Ho Chi Minh City*. Retrieved from <https://psdh.uel.edu.vn/Resources/Docs/SubDomain/psdh/Daotao/TienSi/TT-LATS/Tai%20chinh%20-%20Ng%20C3%A2n%20h%20C3%A0ng/NCS%20Nguy%E1%BB%85n%20Thanh%20Li%20C3%A4m%202014/Tom%20tat%20luan%20an%20Liem.pdf>

- Phan, K. C., & Zhou, J. (2014). Market efficiency in emerging stock markets: A case study of the Vietnamese stock market. *IOSR Journal of Business and Management*, 16(4), 61-73. <https://doi.org/10.9790/487X-16446173>
- Plesko, G. A. (2000, January). The role of short-term debt in capital structure. In *Proceedings. Annual Conference on Taxation and Minutes of the Annual Meeting of the National Tax Association* (Vol. 93, pp. 135-140). National Tax Association. Retrieved from <http://web.mit.edu/gplesko/www/Plesko%20NTA%20Pro%202000%20Short%20Term%20Debt.pdf>
- Rajhans, R. K. (2013). Financial determinants of firm's value: evidence from Indian firms. *ZENITH International Journal of Business Economics & Management Research*, ISSN, 2249-8826, 3(5), 70-76. Retrieved from <https://ssrn.com/abstract=2305950>
- Saeed, M. M., Gull, A. A., & Rasheed, M. Y. (2013). Impact of capital structure on banking performance (A case study of Pakistan). *Interdisciplinary Journal of Contemporary Research in Business*, 4(10), 393-403. Retrieved from <https://journal-archievs28.webs.com/393-403.pdf>
- Saeedi, A., & Mahmoodi, I. (2011). Capital structure and firm performance: Evidence from Iranian companies. *International Research Journal of Finance and Economics*, 70, 20-29. Retrieved from <https://experts.umn.edu/en/publications/capital-structure-and-firm-performance-evidence-from-iranian-comp>
- Salim, M., & Yadav, R. (2012). Capital structure and firm performance: Evidence from Malaysian listed companies. *Procedia-Social and Behavioral Sciences*, 65, 156-166. <https://doi.org/10.1016/j.sbspro.2012.11.105>
- San, O. T., & Heng, T. B. (2011). Capital structure and corporate performance of Malaysian construction sector. *International Journal of Humanities and Social Science*, 1(2), 28-36. Retrieved from <http://www.ijhssnet.com/journals/Vol.1.No.2%3BFebruary2011/3.pdf>
- Tran, T. B. N. (2016). IMPACT OF CAPITAL STRUCTURE ON FIRM PERFORMANCE OF PROCESSING & MANUFACTURING LISTED FIRMS ON HO CHI MINH STOCK EXCHANGE. *The University of Danang - Journal of Science and Technology*, 2(99), 43-47.
- Vătavu, S. (2015). The impact of capital structure on financial performance in Romanian listed companies. *Procedia Economics and Finance*, 32, 1314-1322. [https://doi.org/10.1016/S2212-5671\(15\)01508-7](https://doi.org/10.1016/S2212-5671(15)01508-7)
- Zeitun, R., & Tian, G. G. (2014). Capital structure and corporate performance: evidence from Jordan. *Australasian Accounting Business & Finance Journal*, Forthcoming. <http://dx.doi.org/10.2139/ssrn.2496174>