

The Impact of Capital Structure on Business Performance of Vietnamese Enterprises During the Covid 19 Pandemic

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Abstract. This paper investigates the impact of capital structure on business performance of Vietnamese enterprises during the Covid-19 pandemic. The study focuses on key performance indicators such as return on total assets (ROA), return on equity (ROE), and earnings per share (EPS). The analysis employs the table data regression method using a dataset comprising 5747 enterprise observations for the period of 2019 to 2022. The findings indicate that capital structure has a significant negative influence on the business performance of Vietnamese enterprises. Moreover, the study highlights the substantial effect of capital structure on business performance when considering different aspects and debt structures, particularly within the framework of the Covid-19 pandemic. Based on these research findings, the article recommends that business administrators carefully consider the optimal capital structure to enhance business efficiency, especially given the unpredictable nature of the Covid-19 pandemic.

Keyword: Business performance; Covid-19 pandemic; Capital structure

1. Introduction

Business performance is an essential objective of business operation; if business activities are efficient, they will bring benefits to employees, shareholders, and society. Therefore, enhancing business management is a concern of investors, state management agencies, and the entire society, as it is a crucial aspect of business that ensures stable and sustainable growth. By observing their practice and looking at problems, it can be concluded that building an optimal financial health through capital structure is essential for businesses. In addition, Jensen and Meckling (1976) demonstrated that a funding decision to establish an inherent structure impacts the business performance by incurring representation costs. Using a reasonable capital structure not only minimizes risks but also brings optimal value to businesses. If a business does not use debt, it shows that it has good financial capacity. However, it also means that this business does not know how to take advantage of financial leverage to amplify profits. If a company uses too much debt, it will readily fall into financial distress, at which point the use of debt is no longer advantageous and the company faces a high risk of bankruptcy. This demonstrates that capital structure plays a crucial role in determining the business's viability. The optimal capital structure is characterized by the highest enterprise value and the lowest average cost of capital.

From the end of 2019 to the present, the Covid-19 pandemic was first detected in China before spreading to the rest of the globe. The Covid-19 epidemic has had a significant impact on every aspect of social life in Vietnam. What effect has the epidemic had on the commercial performance of companies? The research to answer this question is crucial and necessary for understanding the effects on business executives in the present day. What policies are required to guarantee the stable growth of businesses and what solutions are required to assist businesses in overcoming obstacles during the Covid-19 pandemic? How did the capital structure of Vietnam's businesses evolve throughout the Covid-19 period? What distinguishes this study from previous ones? Our study seeks to examine the impact of capital structure on the business performance of Vietnamese enterprises during the economic period impacted by the Covid-19 pandemic by analyzing data from companies listed on the Vietnam Stock Exchange in 2019-2022. The research objective of the article is to consider how has the capital structure of enterprises changed in the context of the Covid-19 pandemic? Does capital structure influence business performance?

2. Literature Review

2.1. Theoretical basis

Modigliani and Miller's theory of corporate capital structure

Modigliani & Miller (1958) examines the capital structure of a business and establishes the premise for later theories based on this research. According to them, it was assumed that in a perfectly competitive market, capital structure does not affect enterprise value, or that all combinations of equity and liabilities produce the same result. In other words, in a world without corporate income tax, the value of a company with debt is identical to the value of a company without debt. Miller and Modigliani (1961) added the element of corporate income tax to the model and demonstrated that, in terms of corporate income tax, the value of a company that uses debt is equal to the value of a company that does not use debt plus the value of the profit from using debt. Interest is a reasonable expense that is deducted from expenses when computing corporate income tax, so debt-using businesses will benefit from the interest expense deduction. Profits are increased by deducting interest expense, which increases the value of the company. Therefore, according to Miller and Modigliani (1961), assuming corporate income tax, the use of debt increases the value of a company.

Capital structure trade-off theory

Capital structure trade-off theory is a theory developed by Kraus and Litzenberger (1973) in the discipline of corporate finance. It seeks to achieve an optimal capital structure, which explains why

businesses are frequently financed in part with debt and in part with equity. The current price of the tax shield benefits the use of debt, but the excessive use of debt incurs costs such as the cost of financial distress. This is a major reason why businesses cannot finance their entire operations with debt alone. When the benefit price from the tax shield is no longer sufficient to counterbalance the current cost of financial distress, the excessive use of debt financing no longer benefits the business, but rather decreases its value through interest payments that reduce profits. In order to maximize corporate value, companies rely on this offsetting principle to determine what proportion of debt and equity to finance in order to establish an optimal capital structure. Thus, this theory suggests that there exists an optimal capital structure for the business. The optimal capital structure is determined when the price of the tax shield equals the current cost of financial distress for each additional quantity of debt.

Representation cost theory

The representation cost incurs when an organization experiences disagreements about the purpose of owners and administrators and the problem of asymmetric information. It can also be said that the representation cost is the damage when the manager does not try to maximize the value of the business. Representation costs include the owner's payment for monitoring the representative's activities, the representative's payment of binding costs to ensure that he or she does not cause harm to the owner, and any additional loss costs or losses resulting from conflicts between the representative and shareholders. Conflicts of interest between shareholders and managers, creditors and shareholders, managers and employees, and shareholder groups necessitate incurring representation expenses. The representation cost is indicative of its development on a large scale and the level of its professional executive management. However, the existence of representation cost also implies that business management cost will rise if the benefits from representation contracts are insufficient to counterbalance the cost of representation, thereby reducing profits and affecting the performance of the company. Because if the incurring representation cost, businesses must decide between using debt to increase capital and issuing more shares to increase capital. Jensen & Meckling (1976) determined that a company's capital structure is optimal if it strikes a balance between the benefits of using debt and the cost of representation, since the cost of representation reduces the company's value through decreased profitability.

2.2. Research overview

(Chadha & Sharma, 2016) conducted a study on the relationship between capital structure and business performance through financial leverage with table data of 422 manufacturing companies in India between 2003 and 2013. Variables that represent a company's financial performance are return on total assets (ROA), return on equity (ROE), and Tobin's Q. The variable represents the capital structure as financial leverage; and other independent variables such as: enterprise size, revenue growth, tangible fixed assets, operating time, asset structure, and ownership structure. The results show that financial leverage has an inverse effect on return on equity, but is not statistically significant for return on total assets and Tobin's Q.

(Salim & Yadav, 2012) studies the relationship between capital structure and company performance. The paper was conducted using table data with a sample of 237 companies listed on Malaysia's Bursa Stock Exchange between 1995 and 2011. The study used four dependent variables including: return on equity (ROE), return on assets (ROA), Tobin's Q, earnings per share (EPS). The five independent variables include long-term debt, short-term debt, total debt, the business growth rate, and the business size. The research data covers six areas: construction, manufacturing, industry, agriculture, real estate, trade and services. Research results indicate that a company's operating performance as measured by return on assets (ROA), return on equity (ROE), and earnings per share (EPS) have an inverse relationship with short term debt (STD), long-term debt (LTD), and total debt (TD). Moreover, there is a reciprocal relationship between business growth and performance for all sectors. Tobin's Q has a synergistic relationship with short-term debt (STD) and long-term debt (LTD). However, total debt (TD) has an inverse relationship with the company's performance. (Ahmad, Abdullah, & Roslan, 2012)

examines the relationship between capital structure and corporate performance in the industrial and consumer sectors using data of 58 companies in Malaysia between 2005 and 2010. Dependent variables in the model include return on total assets and return on equity. The independent variable is financial leverage consisting of short-term liabilities on total assets, long-term liabilities on total assets, and total liabilities on total assets. Control variables include the size of the business, the ratio of revenue to total assets, and asset growth. Research results show that financial leverage has an inverse effect on return on equity; Long-term liabilities to total assets and total liabilities have an inverse effect on the rate of return on total assets.

(San & Heng, 2011), this paper examines the relationship of capital structure and company performance before and during the crisis (2007). The focus of the study was on construction companies listed on Bursa Malaysia's stock exchange between 2005 and 2008, with a sample of all 49 construction companies categorized by capital size as large, medium, or minor. The study's findings demonstrate a correlation between capital structure and business performance. Return on capital (ROC) and debt to market capital (DEMV) are negatively correlated for large businesses, while earnings per share (EPS) and long-term debt to capital (LDC) are in the same direction and earnings per share (EPS) and total debt to capital (DC) are inversely correlated. For medium-sized businesses, the relationship between operating margin (OM) and debt to ordinary equity (LDCE) is reciprocal. EPS and DC have a negative correlation for small-scale businesses. In the study by (Saeedi & Mahmoodi, 2011), between 2002 and 2009, a sample of 320 companies listed on the Tehra Stock Exchange were analyzed using table data. The study employed four dependent variables, including ROA, ROE, EPS, and Tobin's Q, as well as three independent variables, including current debt ratio (STD), long-term debt ratio (LTD), and total debt ratio (TD). The study reveals a positive correlation between enterprise performance as measured by EPS and Tobin's Q and variables representing capital structure. In addition, the research results demonstrate a negative correlation between ROA and capital structure.

Recent studies on the impact of factors on business performance include (Hung, Ngoc, & Le, 2022), (Nguyen & Dang, 2022), and studies that examine the impact of the COVID19 pandemic on business performance include (Yusuf & Ichsan, 2021), (Disemadi & Shaleh, 2020), and (Dang Ngoc, Vu Thi Thuy, & Le Van, 2021). However, without taking into account how capital structure influences business performance in the context of the covid19 pandemic.

3. Research Methodology

3.1. Research model and hypothesis

Based on theory and research overview, the authors propose the following research model:

$$\text{Model 1: Business efficiency}_{it} = \beta_0 + \beta_1 \text{Debt structure}_{it} + \sum \text{Control Variable}_{it} + \varepsilon_{it}$$

The variables in the study model are detailed in Table 1.

Table 1: Variables in the study model

Variable name	Variable type	Variable code	How to measure it	Hypot hesis	Expe cted sign
Business efficiency	Dependent	ROA	Profit after tax/Total assets		
	Dependent	ROE	Profit after tax/Equity		
	Dependent	EPS	Earnings per shares		
Debt structure	Independent	STD	Short term debt / Total assets	H1	-
	Independent	LTD	Long-term debt /Total assets	H2	-
	Independent	TD	Total debt / Total assets	H3	-
Enterprise Size	Control	SIZE	Log (Total revenue)		+

Variable name	Variable type	Variable code	How to measure it	Hypot heasis	Expe cted sign
Growth rate	Control	GROWTH	$(Revenue_t - Revenue_{t-1}) / Revenue_t$		+
Asset turnover	Control	TURN	Revenue / Total assets		-
Fixed asset investment	Control	AGO	Residual value of fixed assets / Total assets		-
Solvency	Control	CP	Current assets / Current liabilities		+
Business age	Control	TIME	Years of business establishment		+

Source: Author's compilation

Because the Covid-19 pandemic is a novel event, there is no theoretical basis and only a few models to analyze the bank performance during this period. Consequently, studies on the impact of Covid-19 on the bank efficiency are very limited. Yusuf and Ichsan (2021) examine the performance of Indonesian banks based on the risk factors of credit loans and the consumer solvency. (Disemadi & Shaleh, 2020) and (Dang Ngoc, Vu Thi Thuy, & Le Van, 2021) analyzed the bank's business performance from the perspective of credit management.

$$Model\ 2: Business\ efficiency_{it} = \beta_0 + \beta_1 Debt\ structure_{it} + \beta_2 Debt\ structure_{it} * Covid19_{it} + \beta_3 Control\ Variable_{it} + \epsilon_{it}$$

To assess the influence of factors during Covid19, we built model 2, adding variables to the model. The Covid19 variable is a false variable (Covid = 1: Covid 19 period from 2020-2022; Covid=0: 2019).

3.2. Data and methodology

Research data is secondary data collected from financial statements of enterprises listed on the Vietnamese stock market in the period 2019 – 2022 with a total sample of 5747 observations. The data is collected on <https://finance.vietstock.vn>, so the data ensures the reliability of all listed companies in Vietnam. Data also include 8 business lines (excluding finance, banking, insurance, and securities, because they have their own specific criteria). The number of enterprises in the manufacturing sector accounted for the highest proportion of 37.4%, followed by the construction and real estate industry accounted for 20.8% (Table 2).

Table 2: Summary of business performance by business lines

Industry	2019	2020	2021	2022	Total	Percentage
Technology and information	47	47	46	41	181	3.1%
Mining	56	56	53	51	216	3.8%
Convenience	134	134	134	131	533	9.3%
Transportation and warehousing	132	132	130	127	521	9.1%
Construction and Real Estate	301	303	305	288	1,197	20.8%
Services	96	98	98	96	388	6.8%
Trade	144	141	143	134	562	9.8%
Production	539	541	544	525	2,149	37.4%
Total	1,449	1,452	1,453	1,393	5,747	100%

Source: Figures in financial statements, author's calculation by Stata 16.0

The regression methods used in the study are the FEM fixed-impact method (fixed year and industry when making estimates), because it is suitable for table data.

4. Results and discussion

In the period 2019-2022, business performance as measured by profit after tax on total assets (ROA) has not changed greatly, with the sharpest decline in 2020, when it began to be affected by the covid 19 pandemic. Results measured by return after tax on equity (ROE) and underlying earnings per share are similar when measured by ROA (Figure 1).

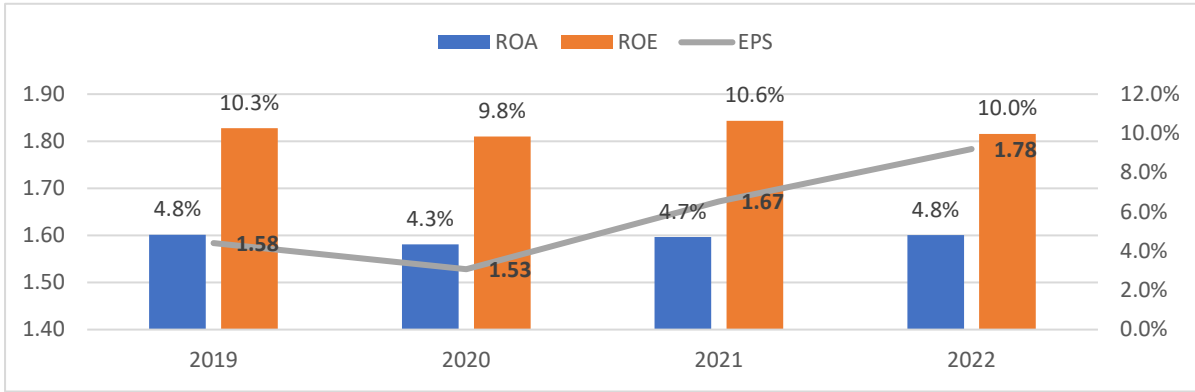


Fig.1: Business performance in the period 2019-2022

For production and business industries, in the period of 2019-2022, the business performance of industries with high levels is Technology and information, utilities and manufacturing, whereas those with low business performance are Construction and Real Estate, service industry (Figure 2).

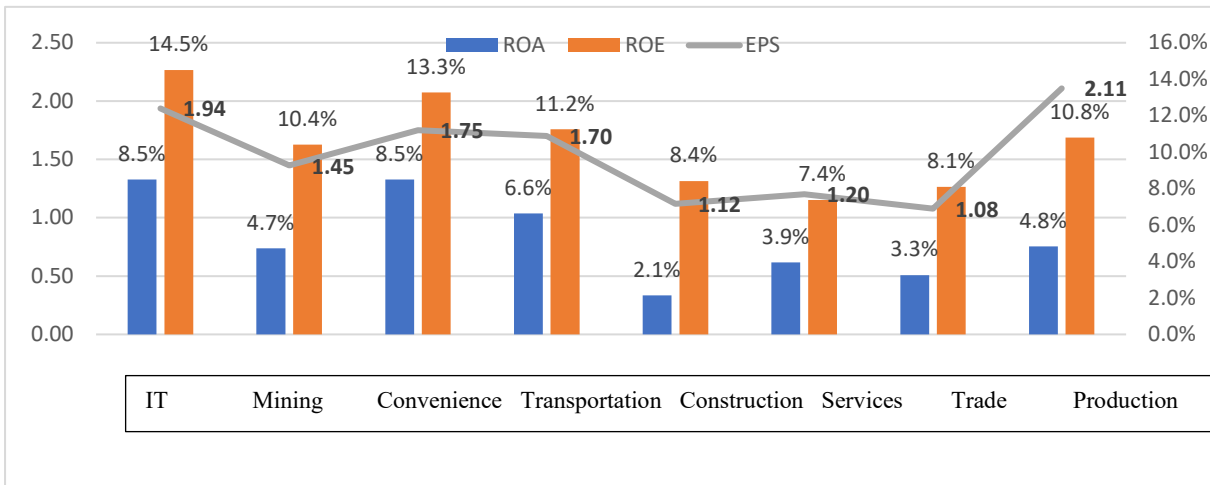


Fig.2: Business performance by industry

Figure 3, analysis of the capital structure of enterprises in the period 2019-2022. Shows that the structure of debt tends to increase. Short term debt (STD) has increased from 48.5% in 2019 to 55.0% in 2022, making total debt (TD) also trending upward from 52.4% to 65%. Meanwhile, long-term debt tends to stabilize around 10%.

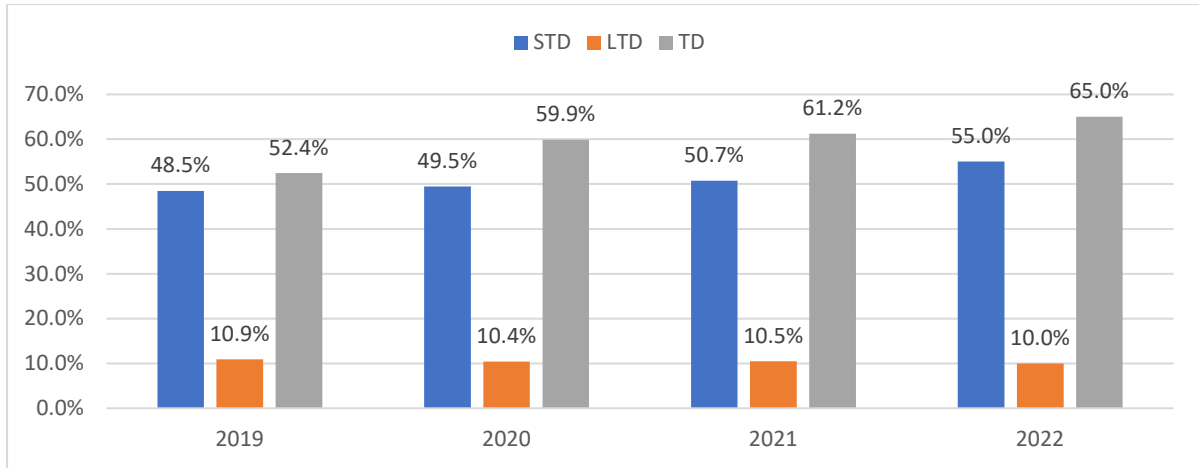


Fig.3: Debt structure of enterprises in the period 2019-2022

In Figure 4, the industries with high ratios of total liabilities and short-term liabilities are manufacturing, trade, followed by construction and real estate, whereas industry with low ratios of liabilities is convenience.

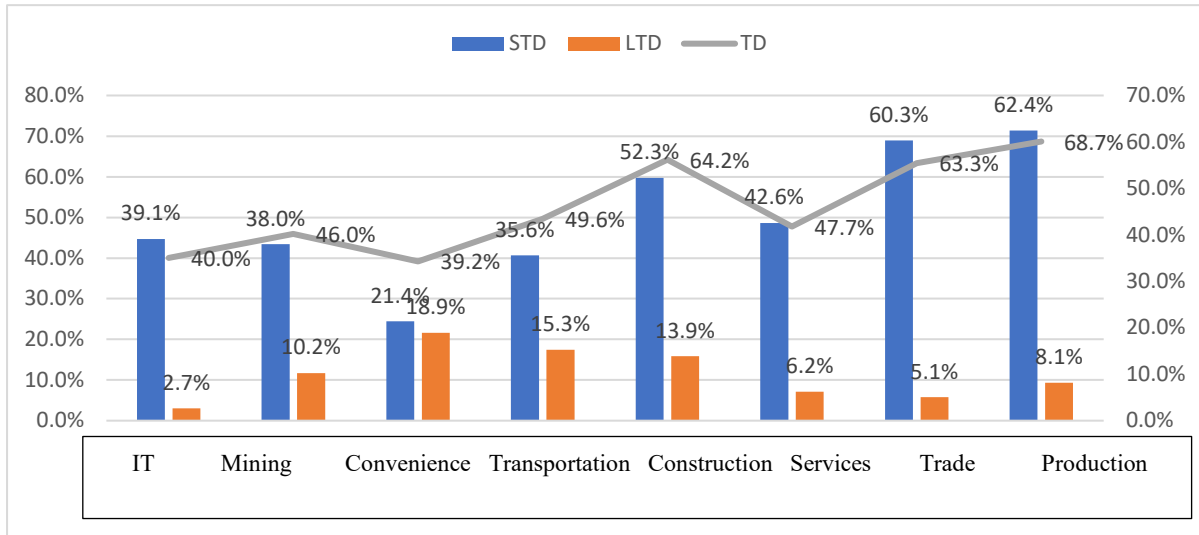


Fig.4: Debt structure of enterprises by industry

Statistical data (table 2) shows that the average business performance when measured by ROA, ROE, EPS is 5%, 10% and VND 1,640 per share, respectively. In term of capital structure, the ratio of short-term debt/Total assets accounts for 51%, the ratio of long-term debt/Total assets accounts for 10% and the ratio of total debt/Total assets accounts for 60%. The average short-term solvency of enterprises is 2.81, the ratio of fixed asset investment (residual value of fixed assets/Total assets) accounts for 25%, the revenue growth rate of enterprises is 38.25% and the average age of enterprises is 30.21 years.

Table 2: Descriptive statistics between variables in the model

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	5,747	0.05	0.15	-5.35	1.31
ROE	5,747	0.10	0.15	-0.79	0.80
EPS	5,747	1.64	3.94	-36.32	191.44
STD	5,747	0.51	1.80	0.00	79.21
LTD	5,747	0.10	0.24	0.00	7.17
TD	5,747	0.60	1.84	0.00	79.28

SIZE	5,747	27.09	1.66	16.72	33.99
GROWTH	5,747	38.25	571.73	-323.63	27635.73
TURN	5,747	1.14	2.75	0.00	185.73
AGO	5,747	0.25	0.23	0.00	0.99
CP	5,747	2.81	8.84	0.00	408.73
TIME	5,747	30.21	17.92	1.00	162.00

Source: Figures in financial statements, author's calculation by Stata 16.0

Before executing the regression model, the purpose of Table 3, which yields the correlation coefficient between variables, is to examine the strong correlation between independent and dependent variables in order to eliminate factors that can contribute to linear multi-additive. No pair of correlation coefficients between independent variables in the model exceeds 0.80, so linear multiplication between independent variables is less likely when using a regression model. Except that the correlation between the pair of total debt (TD) and short-term debt (STD) variables is highly correlated, so linear multi-addition will occur if regression is conducted to include the same model. Therefore, we will separate into two models with distinct capital structure variables when conducting regression

Table 3: Self-correlation matrix results

	ROA	ROE	EPS	STD	LTD	TD	SIZE	GROWTH	TURN	AGO	CP	TIME
ROA	1											
ROE	0.408	1										
EPS	0.4093	0.4809	1									
STD	-0.6801	-0.0211	-0.0947	1								
LTD	-0.1104	-0.0299	-0.0512	0.0916	1							
TD	-0.6788	-0.0201	-0.0982	0.9902	0.2165	1						
SIZE	0.122	0.1652	0.148	-0.1249	0.1329	-0.1043	1					
GROWTH	0.0032	-0.002	0.0023	-0.0087	-0.0029	-0.0084	-0.0288	1				
TURN	-0.081	0.0786	0.0424	0.1544	-0.0726	0.1416	-0.1422	0.0439	1			
AGO	-0.0111	-0.02	-0.0276	0.003	0.2463	0.0337	0.0155	-0.0124	-0.039	1		
CP	0.0356	-0.017	-0.0045	-0.0531	-0.0496	-0.0569	-0.0764	0.0157	-0.0262	-0.1083	1	
TIME	-0.0048	0.0401	0.0296	0.007	0.0095	0.0085	-0.0297	-0.0242	0.0018	0.0375	-0.0333	1

Source: Figures in financial statements, author's calculation by Stata 16.0

The results of the regression model provide answers to the specific hypotheses stated below. According to the first hypothesis, there is an inverse relationship between an enterprise's short-term debt and its business performance. According to Table 4, short-term debt has a negative impact on ROA, ROE, and EPS, which is statistically significant at 1% for ROA and 10% for EPS, and at 1% for ROE. This result is consistent with the findings of (Salim & Yadav, 2012), who also contend that financial leverage has a negative impact on business performance as measured by ROA, ROE, and EPS. The author argues that when using short-term debt more frequently, the number of times the loan matures is increased, and that when loans mature, businesses typically find methods to immediately repay old loans and obtain new ones. For each new loan, businesses will incur additional expenses, such as application and valuation fees, which will contribute to a decline in profits. Consequently, based on the model's regression results, we adopt hypothesis 1 when business performance is measured by ROA, ROE, and EPS.

Table 4: Model 1 regression results

	ROA	ROE	EPS	ROA	ROE	EPS
STD	-0.0563*** [-26.98]	-0.00019 [-0.62]	-0.174* [-2.66]			
LTD	-0.0282 [-1.95]	-0.0237* [-2.92]	-0.726** [-4.65]			
TD				-0.0552*** [-38.31]	-0.000548 [-1.43]	-0.189** [-3.19]
SIZE	0.00541** [3.98]	0.0179*** [25.54]	0.398*** [16.72]	0.00602** [4.77]	0.0175*** [26.14]	0.389*** [16.34]
GROWTH	0.000000339 [0.33]	0.000000934 [1.14]	0.0000436** [3.77]	0.00000052 [0.45]	0.000000889 [1.17]	0.0000425** [3.85]
TURN	0.00106 [0.46]	0.00552 [1.36]	0.0973 [1.60]	0.000904 [0.40]	0.0056 [1.39]	0.0999 [1.63]
AGO	-0.0372** [-3.92]	-0.0532** [-3.71]	-1.063*** [-13.86]	-0.0311* [-2.93]	-0.0594** [-4.16]	-1.209*** [-11.22]
CP	-0.0000538 [-0.79]	-0.000134 [-1.49]	-0.000182 [-0.14]	-0.0000342 [-0.38]	-0.000131 [-1.41]	-0.000128 [-0.09]
TIME	-0.0000387 [-0.44]	0.000357*** [8.07]	0.00484* [3.01]	-0.0000298 [-0.35]	0.000352*** [8.03]	0.00474* [3.05]
_cons	-0.0589 [-1.56]	-0.384*** [-22.34]	-8.981*** [-12.87]	-0.0757 [-2.16]	-0.375*** [-21.84]	-8.746*** [-12.53]
N	5747	5747	5747	5747	5747	5747
R-sq	0.481	0.063	0.054	0.478	0.062	0.053
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes

Source: Figures in financial statements, author's calculation by Stata 16.0

Long-term debt has an inverse relationship with a company's performance, according to hypothesis 2. According to Table 4, long-term debt has a negative impact on business performance as measured by ROA, ROE, and EPS, but this influence is only statistically significant if the significance level for ROE and EPS is greater than 10%. This result is consistent with the findings of descriptive statistical analysis and is similar to the findings of (Salim & Yadav, 2012), in which the authors also discovered that long-term debt has a negative correlation with ROA, ROE, and EPS.

The total debt of a company is inversely proportional to its performance, according to hypothesis 3. According to Table 4, total debt has a negative effect on business performance, as measured by ROA and EPS, but is not statistically significant at a meaningful level of 10% for ROE. This result indicates that the majority of real estate businesses in Vietnam utilize debt when they have not yet achieved

profitability. Similar to the findings of (Salim & Yadav, 2012), (Saeedi & Mahmood, 2011), (Tran & Dang, 2021), and (Dang & Vu, 2022), this study demonstrates that the ratio of total debt to total assets is negatively correlated with ROA. Therefore, we adopt hypothesis 3 when the performance of a business is measured by the variables ROA, ROE, and EPS.

In summary, the results indicate that short term debt (STD), long term debt (LTD), and total debt (TD) have an inverse relationship with business performance that is statistically significant but not uniform when measured by ROA, ROE, and EPS. In addition, the model's control variables indicate that the enterprise's size, age, and growth rate are directly related to its statistically significant business performance. This study's findings are also consistent with previous research (Hung, Ngoc, and Le, 2022; Nguyen and Dang, 2022). In addition, there is an inverse relationship between the fixed asset investment factor and business performance.

In the context of the Covid-19 pandemic, we examine business performance and capital structure for both the pre-Covid-19 and post-Covid-19 periods (Tables 5 and 6). The results indicate that business performance in the Covid-19 period has decreased marginally compared to the Covid-19 period when measured by ROA and ROE. However, when EPS is used to measure business performance, the average value increases while the median value decreases. The results of the inspection revealed no difference in business performance between the pre-Covid-19 and Covid-19 periods.

Table 5: Business performance before and during the Covid-19 pandemic

		Observations	ROA	ROE	EPS
Before Covid-19	Average	1449	4.8%	10.3%	1.58
	Median		4.4%	9.2%	1.04
Covid-19	Average	4298	4.6%	10.2%	1.66
	Median		4.0%	9.2%	0.98
Differential Inspection		Pr	0.6372	0.8098	0.5269

For capital structure, the ratio of short-term debt and total debt in the Covid-19 period has increased significantly. Especially, total debt increased from 52.4% in the pre-Covid-19 period to 62% during Covid-19 (there is a difference with a significant level of 10%). Meanwhile, the long-term debt ratio in the Covid-19 period decreased slightly compared to the pre-Covid-19 period.

Table 6: Debt structure of enterprises before and during the Covid19 pandemic

		Observations	STD	LTD	TD
Before Covid-19	Average	1449	48.5%	10.9%	52.4%
	Median		36.6%	2.8%	44.0%
Covid-19	Average	4298	51.7%	10.3%	62.0%
	Median		35.8%	2.4%	47.5%
Differential Inspection		Pr	0.5533	0.4021	0.087

The results of this study are fully consistent with the theory of economic shock and the practical situation in Vietnam. When the Covid-19 pandemic occurred at the end of 2019, it had a significant impact on economic activity, so businesses were unable to avoid losses. Businesses were paralyzed in production, unemployed individuals had reduced incomes, and there was social distancing. Consequently, service provision activities impacted the business performance of Vietnamese enterprises. However, there was no significant decline in business performance during the pandemic compared to before it.

Table 7: Model 2 regression results

	ROA	ROE	EPS	ROA	ROE	EPS
STD	-0.0667*** [-104.32]	0.0016 [2.08]	-0.445*** [-45.02]			
LTD	-0.00970* [-2.47]	-0.0101** [-3.40]	-0.338*** [-5.90]			
STD_COVID	0.0118*** [11.31]	-0.00197* [-2.37]	0.306*** [8.38]			
LTD_COVID	-0.0259 [-1.34]	-0.0193** [-3.49]	-0.541** [-5.17]			
TD				-0.0624*** [-121.04]	0.00396** [5.74]	-0.411*** [-35.37]
TD_COVID				0.00823*** [20.92]	-0.00509*** [-6.39]	0.252*** [6.43]
SIZE	0.00534** [3.98]	0.0180*** [27.35]	0.396*** [16.30]	0.00595** [4.80]	0.0176*** [27.23]	0.387*** [15.98]
GROWTH	3.09E-07 [0.31]	9.9E-07 [1.13]	0.0000425** [3.89]	4.58E-07 [0.43]	9.27E-07 [1.16]	0.0000406** [4.11]
TURN	0.000918 [0.42]	0.00553 [1.37]	0.0936 [1.56]	0.000809 [0.36]	0.00566 [1.40]	0.097 [1.60]
AGO	-0.0357** [-3.42]	-0.0534** [-3.80]	-1.024*** [-11.76]	-0.0297* [-2.55]	-0.0603** [-4.42]	-1.167*** [-8.88]
CP	-6.79E-05 [-1.22]	-0.000131 [-1.42]	-0.000552 [-0.46]	-4.25E-05 [-0.51]	-0.000126 [-1.31]	-0.00038 [-0.29]
TIME	-3.96E-05 [-0.44]	0.000360*** [8.66]	0.00480* [2.97]	-3.33E-05 [-0.38]	0.000355*** [8.36]	0.00463* [2.87]
cons	-0.0562	-0.386***	-8.905***	-0.0735	-0.376***	-8.680***
N	5747	5747	5747	5747	5747	5747
R-sq	0.484	0.063	0.056	5747	5747	5747
Industry	Yes	Yes	Yes	0.479	0.062	0.055
Year	Yes	Yes	Yes	Yes	Yes	Yes

t statistics in brackets * p<0.1, ** p<0.05, *** p<0.01

Source: Source: Figures in financial statements, author's calculation by Stata 16.0

When contemplating the impact of capital structure on business performance in the context of the Covid-19 pandemic, there are disparate outcomes. Under Covid-19 conditions, short-term debt is positively and statistically significantly related to business performance as measured by ROA and EPS, whereas inversely and statistically significantly related to business performance as measured by ROE. On another hand, long-term debt has a negative impact on business performance in the pre-Covid-19 and during Covid-19 period. The total debt has a negative impact on business performance as measured by ROA and EPS in the pre-Covid-19 period, but has a positive relationship with business performance during the Covid-19 period. In contrast, when measuring business performance by ROE, the results are inverse, indicating that total debt is positively related to business performance in the pre-Covid-19 period and has negative relationships with business performance during the Covid-19 period.

5. Conclusions and Recommendations

This study seeks to examine the relationship between capital structure and business performance using 5747 observations of enterprises listed on the Vietnam stock exchange between 2019 and 2022. According to research findings, short-term debt, long-term debt, and total debt have a negative impact on ROA, EPS, and ROE. The finding is in line with the theory by (Modigliani & Miller, 1963). Because strong foreign investment flows into the Vietnamese market are still difficult, Vietnamese enterprises thirsty for capital are compelled to use more loans to access investment projects and bear numerous

costs associated with borrowing. The addition of debt should diminish business performance. The proportion of fixed assets (FA) has a statistically significant and negative impact on business performance. This demonstrates that businesses should not invest heavily in fixed assets if the need is not urgent. The study's findings also revealed a relationship between control variables and business performance. The business growth rate has a negative effect on business performance as measured by ROA, ROE, and EPS.

For businesses

The author recommends that enterprises listed on the stock exchange in Vietnam construct an optimal capital structure to maximize business value based on the presented research results and the distinctive characteristics of each enterprise. In addition, businesses should not incur debt before reaching the break-even point, as doing so will exacerbate losses to their detriment. If an enterprise has reached a tolerable level of borrowed debt but is still in need of capital, it should not borrow more at all costs but instead restructure capital sources to ensure long-term operations. In other words, enterprises in Vietnam should pursue a structure that requires both debt and equity. Likewise, businesses should not invest heavily in fixed assets if there is little demand for them, as fixed assets do not improve business performance. Businesses should invest in market segments in which they have competitive advantages in order to maintain both business results and operating cash flows in order to maintain a healthy financial structure.

For investors

Based on the results of the regression model, investors can quantify the model to determine whether or not to invest in a business and how much to invest. In addition, despite the fact that the risk appetite of each investor varies, resulting in various investment theses, the author of the research paper recommends that investors avoid investing in businesses that use excessive debt without crossing the break-even point. Likewise, investors should not invest in enterprises with a high proportion of fixed assets, as doing so will not benefit the business performance.

The results of this study should be noted for some limitations. This study focuses on the impact of Covid-19 on micro-factors inside businesses. Later studies may explore the impact of Covid-19 at a macro perspective, thereby forming a more complete theoretical framework for the impact of Covid-19. Furthermore, this paper covers only 4 years of research, including 1 year before the covid pandemic and 3 years during the covid-19 pandemic. Future research can expand the research model by looking at a longer time, and after the Covid-19 pandemic, how capital structure will affect business performance so that more general conclusions can be drawn.

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