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Factors Affecting Business Performance of Construction Enterprises Listed on Vietnam Stock Markets

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Abstract

Based on assessing the impact of factors on the business efficiency of construction enterprises, the research team proposes policy implications to improve the business performance of listed construction enterprises in Vietnam in the coming time. The study used secondary data collected from the audited financial statements of 25 enterprises listed on Vietnam's stock market in the period 2015–2021 to estimate the factors affecting the business performance of construction enterprises. After collecting, the data will be encrypted and checked. The article uses a quantitative research method by using a linear regression model on Eviews 10 to analyze the data and analyze the impact of factors on the business performance of construction enterprises listed on Vietnam's stock market. The research result shows that firm size and growth rate positively affect business performance while capital structure, receivable management, fixed asset investment, and economic growth have a positive impact on the business performance of construction companies listed on the Vietnamese stock market. Based on this result, the paper also makes recommendations to the Vietnamese construction companies to enhance their business performance.

Keywords: Construction Enterprises, Business Performance, Stock Market, Enterprise Size, Vietnam

JEL Classification Code: G10, G30, G32, G33, G34

1. Introduction

Since joining the World Trade Organization (WTO), Vietnam's economic situation has had many positive changes that have opened many investment opportunities, the need for building infrastructure, architecture, and urbanization... so the development of construction enterprises has become an objective necessity. However, the development of this industry is greatly influenced by quality requirements and competitive pressure in many countries around the world. Because of the high profits of this field, it has attracted other companies from other industries and encouraged them to strengthen their business and expand their operation scale.

The fierce competition of the market economy, which are stronger competitors in technology, capital, management methods, recent economic crises plus the government's policies to control inflation such as reducing public investment, monetary policies, limiting non-productive lending, the impact of the Covid-19 epidemic has caused construction enterprises many difficulties and challenges. Implementing a study about factors affecting the business performance of construction enterprises listed on the Vietnamese stock market is essential in the current context.

2. Literature Review and Hypothesis

Up to now, there have been several theories about the factors affecting the business performance of enterprises. Based on the theoretical framework, many studies have been

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conducted in different fields and research environments. Hawley's (1893) economic theory, which states that profit is the price that society pays for a firm's business risk, or the capital structure theory of Modigliani and Miller (1958, 1963) clarified how to choose and use capital having an impact on the business performance of enterprises.

2.1. Capital Structure

The theory of Modigliani and Miller (1958) assumes that when firms operate in an environment with no taxes, no transaction costs, no bankruptcy costs, and no information asymmetry, capital structure has no effect on the value of the enterprise or in other words, the enterprise cannot increase its value by changing its capital structure. This theory cannot be applied in reality because the business environment of any enterprise in any country in the world always exists asymmetric information, transaction costs, and income taxes.

The theory of Modigliani and Miller (1963), in the case of corporate income tax, capital structure is related to the value of the firm. The advantage of using debt is that it can save taxes because the cost of debt is a reasonable expense that is deducted from the pre-tax profit. Whereas the cost of equity does not have this advantage, because dividends are the after-tax cost factor. Therefore, the business value is increased due to the benefit from the tax shield. According to the optimal capital structure theory, when a firm starts to take on debt, it has a tax advantage. The low cost of debt combined with the tax advantage will cause the weighted average cost of capital to decrease as debt increases.

However, as the debt-equity ratio increases, it forces owners to increase the shareholder's required return (that is, the increased cost of equity). At the same time, at a high debt-to-equity ratio, the cost of debt also increases. If the enterprise uses borrowed capital inefficiently, the increase in the debt ratio will negatively affect the business efficiency of the company; even that can lead to bankruptcy if the company is unable to pay interest and debt on time. Thus, according to the theory of Modigliani and Miller (1963) and the theory of optimal capital structure, we can see how choosing and using capital will have an impact on the business performance of the enterprise. In other words, there is a relationship between capital structure and the business performance of enterprises.

Research by Zeitun and Tian (2007) and Pouraghajan et al. (2012) showed that the debt-to-equity ratio has a negative impact on business performance at different levels. The domestic studies of Nguyen (2013) and Doan and Dinh (2014) also concluded that debt ratio negatively impacts business performance. From there, the research expects hypothesis H1:

H1: *Capital structure has a negative impact on the business performance of construction companies listed on Vietnam's stock market.*

2.2. Enterprise Size

The construction industry is characterized by buyers choosing sellers through competitive bidding or appointment of contractors. Large-scale companies are often branded, reputable, and well known. On the other hand, when having a large scale with financial strength, assets, technology, and management capabilities, those enterprises will easily exploit the advantages of scale to minimize input costs and increase output efficiency to reduce product costs. Therefore, large-scale enterprises are more likely to win bidding or be appointed contractors than small businesses, thereby having the opportunity to increase sales, earn profits, and improve business efficiency.

Research by Xu et al. (2005), Zeitun and Tian (2007), Pouraghajan et al. (2012), Nguyen (2022), and Nguyen and Nguyen (2019) all showed positive and significant effects of firm size on business performance while research by Nguyen et al. (2021) showed negative and significant effects. However, Nguyen (2008) again concluded that asset size does not affect the business performance of enterprises. The hypothesis H2 is expected to be:

H2: *Enterprise size has a positive impact on the business performance of construction companies listed on the Vietnamese stock market.*

2.3. Growth Rate

Growth is one of the basic conditions to help enterprises achieve their goals, accumulate capital, invest in business expansion, and create a good image for customers, investors as well as suppliers. Zeitun and Tian (2007), in their study, argued that a high growth rate helps enterprises to generate a return on investment. Research by Nguyen (2013) also concludes that growth rate has a positive impact on the business performance of enterprises. However, Do (2011), and Nguyen (2022) concluded that the growth rate does not affect the enterprise's business performance. Based on the reality of listed construction companies in Vietnam, the research team expects a positive relationship between growth rate and business performance of enterprises, so hypothesis H3 is proposed:

H3: *Growth rate positively impacts on the business performance of construction companies listed on Vietnam's stock market*.

2.4. Receivables Management

Receivables of construction enterprises have a relatively high proportion of total assets, so receivables management is closely related to the future business plans of enterprises. The ability to manage receivables is assessed by the research

team through the average collection period index. The average collection period helps to determine the ability of the enterprises to convert into cash, or in other words, the ability of the business to collect debts from customers. This ratio also helps to provide information about the credit policy of the enterprises. If this ratio increases gradually or is higher than this ratio of the industry average, it shows that the credit policy of the company is easy and the receivables are not liquid. Credit easing will be necessary in case it is necessary to stimulate sales, but this also increases costs for the company. Suppose the average collection period is shortened or lower than the industry average. In that case, it shows that the business's credit policy is strict, which can make the business lose the opportunity to sign big contracts bringing high revenue.

Research by Siminica et al. (2011), and Nguyen (2013) has shown that the average collection period has a negative impact on the business performance of enterprises. The research team also expects a negative relationship, so the hypothesis H4 is proposed as:

H4: *Receivables management has a negative impact on the business performance of construction enterprises listed on the Vietnamese stock market.*

2.5. Investment in Fixed Assets

Fixed assets are a part of the means of production, the material and technical bases that play an important role in production and enterprise activities are a condition to increase social labor productivity and develop the economy. Fixed assets determine the results and efficiency of production and business of each enterprise, ensuring sustainable development and capacity. business competition in the marketplace. The characteristic of construction enterprises is that they have a relatively large proportion of fixed assets. The investment in fixed assets will help businesses reduce costs as well as save time, contributing to improving profits for enterprises.

In their research, Zeitun, and Tian (2007), and Nguyen (2013) concluded that fixed asset investment has a negative impact on the business performance of enterprises. Do (2011) believes that the proportion of fixed assets has no impact on the business performance of enterprises. However, Pouraghajan et al. (2012) affirmed that increasing the proportion of fixed assets positively impacts business performance. In this study, the research team expects that the investment in fixed assets will have positive effects on the business performance of the enterprises, so the hypothesis H5 is proposed as:

H5: *Investment in fixed assets has a positive impact on the business performance of construction enterprises listed on Vietnam's stock market.*

2.6. Liquidity

In this study, liquidity is measured through the ability to pay the short-term debt of the business. Adams et al. (2003), Gupta et al. (2011), and Nguyen and Nguyen (2019) found that liquidity has a positive impact on the business performance of firms. Liquidity is content to evaluate the quality of business performance, a very important criteria index interested by managers. If this ratio is too high, it shows that the enterprise holds too many short-term assets, an inefficient investment, which may be an indirect cause of business performance decline. Therefore, the research team expects liquidity to have negative effects on business performance; the proposed hypothesis H6 is:

H6: *Liquidity has a negative impact on the business performance of construction companies listed on Vietnam's stock market.*

2.7. Corporate Income Tax

Corporate income tax is a macro factor that affects the business performance of an enterprise. During recessions, tax breaks help ease difficulties and help businesses get through the crisis. The tax amount is also expected to have a positive relationship with the business performance of the enterprises because when the business is doing well and the return on assets ratio is high, their capital structure will be towards the maximum and the enterprises will have to pay higher tax amounts. Memon et al. (2012) have shown that corporate income tax is positively correlated with the business performance of enterprises. The hypothesis H7 proposed by the research team is:

H7: *Corporate income tax positively impacts on the business performance of construction enterprises listed on Vietnam's stock market.*

2.8. Economic Growth

GDP is included in the research model as an external factor representing the impact of the socio-economic environment on business performance. Economic growth will lead to an increase in demand for infrastructure construction, urban areas, housing, industrial parks, office buildings, and an increase in investment capital in the construction sector. High economic growth reflects good business prospects for construction companies. When the economy falls into a recession, it will lead to investment capital, the need for infrastructure construction, and civil construction decrease. This negatively affects the results and business performance of construction enterprises. Therefore, the relationship is expected to be positive. Meyer et al. (2014) have also shown that when the GDP growth rate is high, finance is booming,

the level of benefits is better, business performance of enterprises is getting better and better. However, Nguyen (2022) has shown that GDP growth has no effect on the profitability of agriculture enterprises listed on the Vietnam stock market. The hypothesis H8 proposed by the research team is:

H8: *Economic growth has a positive impact on the business performance of construction enterprises listed on Vietnam's stock market.*

2.9. Inflation

The inflation rate is measured by the consumer price index (CPI) increase. The inflation rate is included in the model to consider the impact of the socio-economic environment on the business performance of enterprises. Mundell (1963) showed a strong positive correlation between inflation rate and financial performance in his research.

When the inflation rate is high, the cost of production of goods will increase sharply, leading to an increase in the price of output products. All these factors directly affect the profitability of the business. Moreover, the increase in selling price reduces the demand for shopping, the need for products produced by enterprises, and the quantity of goods consumed decreases sharply. Therefore, the research team expects the correlation here to be negative. The proposed H9 hypothesis is:

H9: *Inflation has a negative impact on the business performance of construction companies listed on Vietnam's stock market.*

2.10. COVID-19 Pandemic

This study was conducted during the period when Vietnam was heavily affected by the Covid-19 pandemic. The Covid-19 pandemic and prolonged blockades have weakened consumption and investment, limited Vietnam's growth prospects, and caused great difficulties for businesses in general and construction enterprises in particular. Therefore, in addition to other factors, the research team has chosen to consider the variable COVID-19 disease (DIS) as a dummy variable, equal to 1 in 2020 (the year when the Covid-19 epidemic began) and 0 in the remaining years. In the context of Covid-19, most construction industry enterprises faced difficulties due to the regulation of the unit price of construction materials by the Provincial People's Committee in the localities, which was lower than the actual price in the market, causing damage to businesses for public investment projects; many public investment projects have been completed and put into use but have been disbursed and paid by investors lately. In addition, the implementation of social distancing due to the Covid-19 epidemic halted the construction of several projects, and some enterprises had to cut workers, strongly affecting the business performance of construction enterprises. The correlation here is expected by the research team to be negative. The proposed H10 hypothesis is:

H10: *The Covid-19 pandemic has had a negative impact on the business performance of construction enterprises listed on the Vietnamese stock market*.

Based on reference to domestic and foreign studies, within the scope of the research topic, the research team has selected to consider 10 basic factors affecting the business performance of listed construction enterprises on the Vietnamese stock market there are Capital Structure (TDTE), Enterprise Size (SIZE), Growth Rate (GROWTH), Receivables Management (RETURN), Fixed Asset Investment (TANG), Liquidity (LIQ), Corporate Income Tax (TAX), Economic Growth (GDP), Inflation (INF), COVID-19 Disease (DIS). The linear regression model is built as follows:

$$\begin{aligned} ROA_t = {} & \alpha_0 + \alpha_1 TDTE_t + \alpha_2 SIZE_t + \alpha_3 GROWTH_t + \\ & \alpha_4 RETURN_t + \alpha_5 TANG_t + \alpha_6 LIQ_t + \alpha_7 TAX_t \\ & + \alpha_8 GDP_t + \alpha_9 INF_t + \alpha_{10} DIS_t + u \end{aligned}$$

In addition to the internal and external factors of the business, the research team has chosen to consider many macro and external factors that are likely to affect business performance, such as Economic Growth (GDP), Inflation (INF), COVID-19 Epidemic (DIS).

3. Data and Methodology

To estimate the factors affecting the business performance of construction companies listed on the Vietnamese stock market, the study used secondary data collected from financial statements audited by 25 construction companies listed on the HSX for the period 2015–2021. Through the data on the balance sheet and income statement, the research team has calculated the data on the dependent variable ROA and the independent variables included in the research model. The collected dependent and independent variables are organized into panel data for each enterprise, distributed by year. Research data are aggregated in the form of a panel (Panel data). Panel data is a combination of both cross-section and time-series data. In panel data, a cross-sectional sample of data (industry, company, country) is surveyed over time, so we will have data aggregated in space and time. Data on Vietnam's Gross Domestic Product (GDP), and Inflation Rate (INF) are obtained from the General Statistics Office of Vietnam (GSO).

With 25 construction companies listed on the HSX, the authors have collected a time series of 175 observations, meeting the requirements in time series analysis (minimum of 30 observations). After the data is collected, it will be encrypted and checked. The article uses a quantitative research method by using a linear regression model, using Eviews 10 software to support running the data, and analyzing the influence of factors on the business performance of the construction enterprises listed on the Vietnamese stock market.

4. Research Results

4.1. Descriptive Statistics

The data set used to run the model includes 175 observations of construction firms listed on the HSX for the 6-year period, starting from 2015. The results of descriptive statistics of the variables are shown in the table as follows (Table 1).

The variables' mean, median, maximum, and minimum are shown in Table 1. This contributes to recapitulating the database and delineating a preliminary picture of the research sample's characteristics.

Table 2 shows the correlation coefficient between the independent variables in the model. The closer the correlation coefficient is to –1 and 1, the higher the correlation between the variables. The pairs of variables have low correlation coefficients (below 0.6). In other words, the variables are not closely correlated with each other. Therefore, the results are accurate because the phenomenon of non-separation that can affect the impact of the independent variables on the dependent variable does not occur in this model.

4.2. Regression Results

Running the regression model with the dependent variable ROA and 10 independent variables (TDTE, SIZE, GROWTH, RETURN, TANG, LIQ, TAX, GDP, INF, DIS) with 175 observations, the authors have synthesized in the table as follows (Table 3).

Table 3 shows that seven variables impact the dependent variable ROA. Specifically, C, TDTE, SIZE, and GDP strongly correlated with the ROA variable at a 1% significance level. GROWTH, RETURN, and TANG strongly correlated with ROA at a 5% significance. The coefficients of the independent variables imply how volatile the dependent variables are when the independent variable changes.

- The variables C, SIZE, and GROWTH positively correlate with ROA. When C, SIZE, GROWTH increase (decrease) by 1 unit, ROA will rise (drop) 3.236868, 0.007431, 0.001450 units respectively.
- The variables TDTE, RETURN, TANG, and GDP have a negative relationship with ROA. When TDTE, RETURN, TANG, GDP increase (decrease) by 1 unit, ROA witnesses a drop (rise) 0.006568, 1.82E-05, 0.036555, 0.091223 respectively.

The other independent variables (LIQ, TAX, INF, and DIS) are not statistically significant. That *R*-squared = 0.247497 demonstrates that the independent variables explain 24.75% of the change of the dependent variable. For the explanatory model, the fit of this model is acceptable. Pro (*F*-statistic) is 0.00001, less than 0.05. In other words, the regression model is statistically significant.

Table 1: Data Description

Variables	Mean	Median	Maximum	Minimum	Std. Dev.
ROA	0.031936	0.027412	0.121128	–0.227888	0.035251
TDTE	2.342630	2.013573	8.433182	0.030410	1.571026
SIZE	14.67758	14.51439	17.44489	12.21038	1.259218
GROWTH	2.200967	0.990892	44.34087	–0.843927	5.379057
RETURN	313.5415	183.3349	2338.656	8.050131	370.1469
TANG	0.186919	0.080623	0.876886	0.004678	0.208829
LIQ	1.577557	1.257847	17.83288	0.230661	1.738081
TAX	0.184229	0.203676	1.239194	–2.553420	0.351030
GDP	36.21927	36.25119	36.40371	35.97216	0.156727
INF	0.025571	0.027300	0.035400	0.006300	0.009317
DIS	0.285714	0.000000	1.000000	0.000000	0.453050

Table 2: Correlation Between the Main Variables

	ROA	TDTE	SIZE	GROWTH	RETURN	TANG	LIQ	TAX	GDP	INF	DIS
ROA	1.0000										
TDTE	–0.2485	1.0000									
SIZE	0.0261	0.1896	1.0000								
GROWTH	0.1139	0.0441	–0.1119	1.0000							
RETURN	–0.1726	–0.0015	0.4245	–0.3226	1.0000						
TANG	–0.1034	0.0881	0.1116	0.5724	–0.1248	1.0000					
LIQ	0.0877	–0.0916	–0.1771	–0.0558	–0.0579	–0.2019	1.0000				
TAX	0.0400	–0.0139	–0.054	–0.047	0.0060	–0.2636	0.0357	1.0000			
GDP	–0.2745	–0.0322	0.1793	0.0045	0.1907	0.1244	–0.0268	–0.1013	1.0000		
INF	–0.0691	–0.0156	0.1061	–0.0125	0.0658	0.0587	–0.0476	0.0258	0.3935	1.0000	
DIS	–0.1568	–0.023	0.1298	0.0253	0.1728	0.0884	0.0027	–0.2142	0.6949	–0.1036	1.0000

Table 3: The Result of the Regression Model

Dependent variable: ROA	Coefficient
C	3.236868***
TDTE	–0.006568***
SIZE	0.007431***
GROWTH	0.001450**
RETURN	–1.82E-05**
TANG	–0.036555**
LIQ	0.001208
TAX	–0.001144
GDP	–0.091223***
INF	0.390888
DIS	0.010781
R-squared	0.247497
Adjust *R*-squared	0.201613
Prob. (*F*-Statistic)	0.000001
Durbin-Watson Statistic	1.011026

Note: **p-value < 0.05; ***p-value < 0.001. Significant at the 0.05 level.

4.3. Testing Omitting Variables

At a 5% significance level, the model has four independent variables (LIQ, TAX, INF, and DIS) that have no statistical significance because the P-values of these variables are higher than 0.05. The Wald test is utilized to test for redundancy. The results in Table 4 shows that

Table 4: Regression Model Results after Removing LIQ, TAX, INF, and DIS

Dependent variable: ROA	Coefficient
C	2.132144***
TDTE	–0.006661***
SIZE	0.007298***
GROWTH	0.001482**
RETURN	–1.79E-05**
TANG	–0.038128***
GDP	–0.060251***
R-squared	0.235639
Adjust *R*-squared	0.208340
Prob. (*F*-Statistic)	0.000000
Durbin-Watson Statistic	1.041130

Note: **p-value < 0.05; ***p-value < 0.001. Significant at the 0.05 level.

P-value = 0.6304 > 0.05. In other words, these variables can be removed from the model without changing the result.

4.4. Testing the Model's Defects

Normal distribution test: The residual distribution graph shows that the residuals are normally distributed, with a mean value of 1.25E-15 and a standard deviation value of 0.971.

Test for multicollinearity: Variance Inflation Factors (VIF) are used to test for multicollinearity. The result in Appendix – Table A1 demonstrates that the VIFs of the

Table 5: Determinants of Business Performance of Construction Enterprises Listed on Vietnam's Stock Market

No.	Acronym	Variables	Expectation	The Test Result	
				With ROA	With the Business Performance
1	TDTE	Capital structure	–	–	–
2	SIZE	Firm size	+	+	+
3	GROWTH	The growth rate	+	+	+
4	RETURN	Receivables management	–	–	–
5	TANG	Investment in fixed assets	+	–	–
6	LIQ	Liquidity	–	No impact	No impact
7	TAX	Corporate Income Tax	+	No impact	No impact
8	GDP	Economic growth	+	–	–
9	INF	Inflation	–	No impact	No impact
10	DIS	Covid-19 Disease	–	No impact	No impact

Note: (+) Positive, (-) Negative.

dependent variables are lower than 2, which implies that multicollinearity is not an issue in this model.

Test for heteroscedasticity: The White test is used to test the heteroscedasticity error in the Fixed-effect model. The result shows that Prob. (*F*-statistic) = 0.1407, which is higher than 0.05. Therefore, the model has no heteroscedasticity problem.

Test for autocorrelation: We use Durbin-Watson to test autocorrelation. Durbin Watson's statistic of the model is 1.011026, which is within a range from 1 to 3. Therefore, autocorrelation is not a problem with this model.

Thus, normal distribution, multicollinearity, heteroscedasticity, and autocorrelation are not the model's defects. In other words, the model after removing LIQ, TAX, INF, and DIS variables is the Best Linear Unbiased Estimator, as shown in Table 4. The research result shows that Pro. (*F*-Statistic) = 0.000000 < 0.05, which means that the regression model has statistical significance. *R*-squared = 0.235639, so the model explains 23.56% of the change of the dependent variable. *P*-value of C, TDTE, SIZE, GDP, and TANG are all less than 0.01, so the above variables are significant with 99% confidence. The *P*-value of GROWTH and RETURN is less than 0.05, so these variables are significant with 95% confidence. The level of impact of factors on the dependent variable is as follows (Table 5).

- The variables C, SIZE, and GROWTH positively impact ROA. When C, SIZE, GROWTH increase (decrease) by 1 unit, ROA will rise (drop) 2.132144, 0.007298, 0.001482 units respectively.
- The variables TDTE, RETURN, TANG, and GDP have a negative relationship with ROA. When TDTE, RETURN, TANG, GDP increase (decrease) by 1 unit, ROA witnesses a drop (rise) 0.006661, 1.79E-05, 0.038128, 0.060251 respectively.

5. Discussion

The research results showed that out of ten independent variables included in the proposed research model, there are six independent variables impacting the business performance of the Vietnamese construction enterprises listed on the market. There are four independent variables as Liquidity (LIQ), Corporate Income Tax (TAX), Inflation (INF), and Covid19 Disease (DIS) have no relationship with the Vietnamese construction enterprise's business performance within the selected sample size. This can be explained as follows:

- Liquidity (LIQ): In this study, LIQ is measured by the company's ability to pay the short-term debt. The solvency of an enterprise is an index to evaluate the quality of business performance, which is of interest to managers. The research results show that liquidity (LIQ) does not affect business performance, which is inconsistent with the authors' expectations. This can be explained through the difference between the business's solvency and profitability. Because ROA is calculated through the after-tax profit determined according to the accounting books but does not show the actual amount of cash that the business is holding (to ensure the ability to pay).
- Corporate Income Tax (TAX): Tax is a macro factor that can affect the business performance of

any enterprise. However, the test result does not demonstrate this impact. It can be explained that during this study period, the corporate income tax rate policy in Vietnam did not have a significant change in tax rates and application scope. Therefore, the research results have shown that Corporate Income Tax has no impact on the business performance of construction enterprises listed on Vietnam's stock market.

- Inflation (INF): Inflation is measured by the increase in the consumer price index (CPI). Research results show that Inflation has no impact on the business performance of construction companies listed on Vietnam's stock market. In recent years, the Vietnamese government has taken many measures to control inflation. During the research period, Vietnam's inflation was relatively stable at a low level. Therefore, inflation does not impact the business performance of construction enterprises listed on Vietnam's stock market.
- Covid-19 Disease (DIS): The Covid-19 pandemic and prolonged blockades have weakened consumption and investment, which leads to difficulties for businesses. Therefore, the authors examine the impact of COVID-19 disease on business performance. Inconsistent with the authors' expectations, the research result indicates that the COVID-19 epidemic has no impact on the business performance of listed construction enterprises listed on the Vietnamese stock market. Covid-19 has strongly exerted on Vietnam from the fourth quarter of 2020. Therefore, the impact period is short compared to the research scope of 2015–2021. On the other hand, the business of construction businesses often has a certain lag of 12 to 24 months compared to other sectors in the economy. The construction enterprise often carries out long-term projects with a lag in revenue. Their products are mainly contracted for a long time, so revenue and profit are quite stable according to the contract previously determined. The fact shows that output product prices (real estate) do not decrease during the Covid19 epidemic (from 9/2020 to 12/2021), even tend to increase. Therefore, Covid19 had no significant impact on the ROA of the construction firms.

Based on the research results, the authors give some more specific discussions about the factors that affect the business performance of construction enterprises listed on the Vietnam stock market. The test result shows that Capital Structure (TDTE), Receivables Management (RETURN), Fixed Asset Investment (TANG), and Economic Growth (GDP) have negative effects while the enterprise's Size (SIZE) and Growth Rate (GROWTH) have a positive impact on the business performance of construction enterprises listed on the Vietnamese stock market.

Capital Structure Negatively Impacts the Business Performance of Construction Enterprises Listed on the Vietnam Stock Market

The research result pointed out that the capital structure calculated by the total debt to equity ratio exerts negatively business performance, which is consistent with Zeitun and Tian (2007), Do (2011), Pouraghajan et al. (2012), Nguyen (2013), Doan and Dinh (2014). According to the theory of optimal capital structure, when a business taking on debt has a tax advantage. The low cost of debt combined with the tax advantage will cause the weighted average cost of capital. At the same time, the higher the debt-to-equity ratio is high, the higher the cost of debt. If the enterprise uses loans inefficiently, the increase in debt ratio will negatively affect the enterprise's business efficiency. It possibly leads to bankruptcy if the enterprise is unable to pay interest and loans at maturity.

Firm Size Positively Impacts the Business Performance of Construction Companies Listed on Vietnam's Stock Market

Xu (2005), Zeitun and Tian (2007), and Pouraghajan et al. (2012) demonstrated a positive and significant effect of firm size on business performance. Inconsistent with these researches, Do (2011) and Nguyen (2013) concluded that the enterprise's size does not affect the business performance.

The peculiarity of the construction industry is meeting supply and demand through bidding or appointment of contractors. The more the firm size is, the more reputable and well-known this enterprise brand is. On the other hand, when having a large scale with financial strength, technology, and management capabilities, enterprises will easily exploit the scale advantages to minimize input costs and increase output efficiency to reduce production costs. Therefore, large-scale enterprises are more likely to win or be appointed contractors than small-scale businesses, which brings the opportunity to increase sales, earn profits, and improve business efficiency.

The Growth Rate Positively Influences the Business Performance of Construction Companies Listed on Vietnam's Stock Market

Zeitun and Tian (2007) and Nguyen (2013) argued that high growth rates make it possible for firms to generate returns on investment. However, Do (2011) concluded that the growth rate does not affect the enterprise's business performance. The authors assumed that growth

plays a fundamental role in achieving the business goals, accumulating capital, investing in business expansion, and at the same time creating a good image for customers. Therefore, the higher the growth rate, the higher the business performance of listed construction companies.

Receivables Management has a Negative Impact on the Business Performance of Construction Companies Listed on the Vietnamese Stock Market

Siminica et al. (2011) and Nguyen (2013) affirmed that the average collection period negatively exerts the enterprise's business performance. Receivables of construction enterprises account for a relatively high proportion of total assets. Therefore, receivables management is closely related to the enterprise's future business plans. The ability to manage receivables is assessed through the average collection period index. This index supports examining the ability to convert receivables into cash, or in other words, the ability of the business' debt collection. This ratio plays an important role in providing information about the business's credit policy. That the average collection period increases gradually or is higher than the industry average demonstrates the loose credit policy and the receivables' low liquidity. Credit easing will be necessary in case it is necessary to stimulate sales, but this also increases costs for businesses. That the average collection period is shortened or lower than the industry average implies the business's strict credit policy. It can make these enterprises lose the opportunity to sign contracts with great value and high revenue. The research results demonstrated a negative relationship between the average collection period and the business's performance.

Investment in Fixed Assets and the Business Performance of the Construction Enterprise Listed on Vietnam's Stock Market Have a Negative Relationship

Fixed assets are one crucial part of the means of production. It plays an important role in production and business activities and is a condition to increase social labor productivity and develop the economy. Fixed asset determines the results and efficiency of production and business of each enterprise, ensuring sustainable development and business competition capacity in the market. The characteristic of construction enterprises is that they have a relatively large proportion of fixed assets. The investment in fixed assets supports businesses by reducing costs as well as saving time, which contributes to improving the business's profit.

Zeitun and Tian (2007) and Nguyen (2013) concluded that fixed-asset investment exerts negatively on the enterprise's business performance. In another way, Do (2011) implied no relationship between the two variables. Contrary to those opinions, Pouraghajan et al. (2012) affirmed that increasing the proportion of fixed assets positively impacts business performance. Consistent with Zeitun and Tian (2007) and Nguyen (2013), the test result shows that the higher investment in fixed assets, the lower the listed construction enterprises' business performance. It can be explained by the increase in the proportion of fixed assets leading to the rise of depreciation expense while the enterprise has not taken full advantage of the asset's capacity, the management level, and the labor level of the enterprise which corresponds to the asset size as well as the business cost.

Economic Growth Has a Negative Influence on the Business Performance of Construction Companies Listed on Vietnam's Stock Market

The research result shows the impact of the external environment on the construction company's business performance. Economic growth leads to an increase in demand for infrastructure construction and investment capital in this sector. Meyer et al. (2014) showed that when the GDP growth rate is high, the business's performance is getting better and better. And vice versa, when the economy falls into a recession, it will lead to a drop in investment capital. It decreases the demand for infrastructure construction, which negatively directly affects the construction enterprises' production efficiency. However, when studying in Vietnam, the research results show that economic growth negatively impacts construction enterprises' performance. This can be explained by the typical lag of the construction industry in Vietnam. Business activities of the Vietnamese construction company often have a long lag of 12 to 18 months compared to other sectors in the economy.

6. Conclusion and Policy Implications

Based on the research results, the authors would like to propose some policy implications and solutions to improve the business efficiency of the Vietnamese listed construction companies.

Firstly, Vietnamese construction enterprises need to build a reasonable capital structure. The research result demonstrates that capital structure has a significant impact on the business performance of the Vietnamese listed construction companies. Therefore, the business's inadequacies in capital structure construction cause a drop-in business performance. The construction enterprises must restructure the ratio of borrowed capital and allocate existing cash flows to ensure the reinvestment ability, which plays a core role in improving the business efficiency of the construction enterprise.

Secondly, construction businesses need to expand their business scale. However, an increase in assets by borrowing for investment with weak management capacity causes

the burden of interest and depreciation expenses, which reduces operational efficiency. Therefore, enterprises should prioritize a raise in short-term assets to improve existing business capacity before considering the increase in long-term assets for stable growth.

Thirdly, construction businesses need to develop a reasonable sales strategy to increase revenue. To do this, some measures could be considered such as improving marketing efficiency, conducting market research, promoting and positioning brands to expand market share, building a suitable distribution system and pricing strategy, developing human resources, and researching and applying science and technology to improve the quality of works and reduce production costs, etc.–$1Fourthly, building an effective and flexible credit policy to strictly manage receivables is extremely crucial in improving business efficiency for the construction enterprise. For traditional customers with a reputable history, it is necessary to create favorable conditions and provide the best products and services to retain customers. For new or old customers who are still late in their payment obligations, it is necessary to regularly remind and strengthen debt collection by arranging for staff to closely monitor and manage. Besides, the construction enterprise needs to use information technology, debt management software, building a professional debt control system to help track debts quickly and accurately.–$1Last but not least, the construction business needs to develop a reasonable fixed asset investment strategy. To enhance business efficiency, the enterprise needs to identify market needs, the business's production, and financial situation before making investment decisions. The enterprise also needs to find suitable suppliers and bidding methods to reduce the investment cost for fixed assets. Not only that, but the construction company also needs to focus on preventive maintenance to limit the damage that occurs during use and affects business performance.

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Appendix

Table A1: Variance Inflation Factor

Model	Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	0.132	0.023		5.653	0.000		
TDTE	–0.006	0.002	–0.266	–3.890	0.000	0.978	1.022
SIZE	1.426E-009	0.000	0.264	3.185	0.002	0.667	1.499
GROWTH	0.001	0.001	0.196	2.243	0.026	0.597	1.675
RETURN	–2.303E-005	0.000	–0.241	–2.828	0.005	0.628	1.592
TANG	–0.030	0.015	–0.175	–1.964	0.051	0.576	1.737
GDP	–1.797E-017	0.000	–0.420	–3.351	0.001	0.291	1.438

a. Dependent Variable: ROA