

## *Original Paper*

# Factors Affecting on the Capital Structure of Real Estate Joint-Stock Companies Listed on Vietnam's Stock Exchange

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### ***Abstract***

*This study is conducted to evaluate and analyze factors affecting the capital structure of real estate joint-stock companies listed on Vietnam's stock exchange for more than 5 years or more. The research uses a regression model for table data in which data is collected from the consolidated financial statements and other information of 55 joint-stock companies in the real estate industry from the period 2015 - 2019. The result indicates that factors such as firm size, age of the Chairman of the Board and return on equity (ROE) have a positive effect on capital structure. In contrast, factors such as operating time, gender, liquidity, asset turnover ratio, and return on total assets (ROA) have a negative impact on the capital structure of real estate joint-stock companies. In general, the women-chaired enterprises have a higher debt ratio than those of males. However, the higher age of the men-chaired enterprises, the higher the debt ratio their enterprises have compared to women-chaired enterprises.*

### ***Keywords***

*Capital structure, real estate joint-stock companies, influencing factors*

## **1. Introduction**

Capital structure is the combination of debt and equity that a company uses to finance its assets. Optimal capital structure is achieved when the firm's value is maximized and the cost of capital is minimized (Ross, Westerfield, & Jordan, 2008). On the one hand, the Policy on mobilizing and utilizing resources reflects capital needs for business activities; On the other hand, the vital role of this policy is that it is directly related to financial security and efficiency of utilizing a firm's capital. As the result, it affects operational efficiency as well as risks to enterprises (Assoc. Prof. Dr. Nguyen Nang Phuc, 2011).

To achieve the optimal capital structure, enterprises need to have a capital mobilization policy so that it is suitable for each specific period and business stage.

However, in recent years there are many unfavorable factors in the Asia areas as well as international areas. Especially, the Covid-19 epidemic is becoming a widespread and complicated development. This leads to a great effect on the operation plan, revenue, and profit of businesses, particularly in real estate businesses. The real estate industry requires large capital and relies heavily on loans while the credit market is increasingly tight and the interest rate fluctuates continuously. Therefore, it is necessary to consider how much the ratio of loan to equity ratio is optimal; besides, finding out the factors that affect the use of capital decisions is also important. By using the correlation between these influencing factors and the capital structure, we can assess whether the decision to use debt or equity capital is reasonable or unreasonable and risks; from that, we propose solutions to improve the efficiency of using financial leverage and maximize asset value for businesses.

In addition, over the world and in Vietnam, there are many studies on factors affecting the capital structure of companies listed on the stock exchange in different fields. However, research on companies operating in the real estate sector is still limited. Therefore, this study was conducted to determine the key factors affecting the capital structure of real estate joint-stock companies listed on Vietnam's Stock Exchange. By reviewing the literature, building an appropriate quantitative analysis model to quantify the level and direction of impact of each factor on capital structure. It leads to giving some suggestions on capital mobilization policies for joint-stock companies in the real estate industry the next time as well as adding more research to this field.

## 2. Research Overview

Theoretically, there have been many studies on the capital structure of enterprises, of which prominent theories are as Structure theory of Modigliani and Miller (1958), Agency Costs of Jensen and Meckling (1976), trade-off theory, The Pecking Order Theory, Signaling Theory. The theory of Modigliani and Miller focuses on examining the relationship between financial leverage and firm value based on assumptions in taxed and non-tax situations.

In a tax-free situation, the value of the leveraged firm and the unleveraged firm is the same. In a tax environment, the value of a leveraged firm is higher than that of an unleveraged firm due to the benefit of the tax shield.

This theory is made with some assumptions that these can not happen in practice such as perfect capital markets, no corporate and personal income taxes, no transaction costs, no bankruptcy cost, individuals and companies can borrow money at the same interest rate. As for the view of the trade-off theory of capital structure, the theory that was initiated by Kraus and Litzenberger (1973) and further developed by Myers (1977) and other researchers, managers believe that they will find an optimal capital structure that maximizes the value of the firm. Optimal financial leverage is to strike a balance between the benefits and costs of debt. In other words, an optimal capital structure can be determined based on a

trade-off between the benefits and costs of using debt. Using debt can gain some benefits of tax shield and interest. The more debt a firm has, the greater benefit of the tax shield is but the trade-off with this benefit is an increase in financial costs.

The agency costs of Jensen and Meckling (1976) show that agency costs are essentially generated by the separation of ownership and control over firms, whereby managers tend to maximize their interest rather than the company's value. When an administrator realizes that the company's cash is high, the manager will use it for personal purposes rather than profit-making purposes for the company. Using more debt or increasing the dividend payout ratio will reduce free cash flow because the business is under pressure to pay interest and principal on debentures, an increase in dividend payout ratio will increase the interest of shareholders and reduce the dispersion of investment decisions. The signaling theory was conceived in the early 1970s and it was used by Ross (1977) to explain financial statement disclosure. According to signal theory, managers who expect a high growth signal in the future will have an incentive to send this signal to investors. Disclosure is one of the signaling methods where companies disclose more information to signal to investors that they are better than others in the market. According to the pecking order theory studied by Myers and Majluf (1984), The company prefers to use retained earnings rather than borrowed capital and considers issuing new shares to raise capital as the last resort. In other words, internal capital will be prioritized to be used before mobilizing more from outside. Some of the firm characteristics that influence the level of disclosure related to agency theory are industry type, profitability, and liquidity. Although there are different views on the approach to capital structure, the above theories are built with inheritance, the latter theory is built based on assumptions from the previous theory.

In practice, there are also many studies showing that capital structure is influenced by many different factors. According to the research results of Rajan and Zingales (1995) who analyzed data from 8,000 enterprises in G7 countries in the period 1987-1991, capital structure has a positive relationship with firm size but has a negative relationship with profitability. Wiwattanakantang (1999) analyzed the data of 270 non-financial firms listed in Thailand in 1996 and found that capital structure is positively related to business risk but negatively related to profitability and the tax shield. Research by Chen (2004) was carried out on 77 large companies with shares listed on the Shanghai Stock Exchange, China. The author determines factors affecting the capital structure of listed companies are: profitability, growth potential, tangible fixed assets, financial distress costs, and tax shields on the capital structure of firms. Chen's research result shows that growth rate and tangible fixed assets have a positive effect while profitability ratio and firm size have a negative impact on capital structure. In the same research area, Huang and Song (2006) conducted research and analysis on 1,200 listed companies in China the period 1994-2003, the results showed that capital structure has a positive relationship with asset structure but it is negatively related to profitability, taxes and growth opportunities. Research by Wanrapee Banchuenvijit (2009) was carried out on 81 companies listed on the Stock Exchange of Thailand from 2004 to 2008. In this research, five factors including profitability ratio, firm size, the

ratio of tangible fixed assets, asset growth rate, and volatility of operating profit are given in the model. The results show that three factors are statistically significant at a 1% level: profitability, the fixed asset has a negative relationship while firm size has a positive relationship with structure. capital.

A recent study by Obeid Gharaibeh (2015) with a data collected from 49 companies listed on the Kuwait stock market in many industries from 2009 to 2013 said that the factors related to the capital structure include: industry characteristics, age, enterprise size, growth opportunities, liquidity, and profitability; in which, profit has a negative relationship and other variables are positive.

In Vietnam, Nguyen Thi Thanh Nga (2010) mentioned the influence of factors on capital structure such as firm size, liquidity, and financing coefficient. Research by Le Thi My Phuong (2014) used collected from financial statements for 3 years (2009-2011) of 40 constructed joint-stock companies listed on the Ha Noi Stock Exchange (HNX). According to the results of correlation analysis and multiple regression, four factors affect the capital structure in which solvency and business risk have a negative relationship; firm size factor and State capital ratio have a negative relationship. A study related to the factors affecting the capital structure of goods enterprises listed on the Ho Chi Minh Stock Exchange is authored by Ngo Thi Hong Phung (2017). This study was observed in the period from 2011 to 2015 by 52 goods companies. In this study, capital structure is influenced by firm size, business performance, asset structure, corporate income tax, and capital ownership form. According to Le Tham Duong et al. (2020), based on financial reporting data for 52 food companies listed on the Vietnamese stock market from 2011 to 2018, the authors conducted research on capital structure factors. The study shows that in goods firms the profitability, ratio of fixed assets to total assets, and the number of years of operation have a negative effect on capital structure. In contrast, size and growth rate are two factors that have a positive influence on capital structure. In addition, the corporate income tax rate does not affect the capital structure decision of foods businesses.

Thus, the capital structure of an enterprise is influenced by many factors including internal characteristics and external factors. These studies mentioned above are important references. They are a basis for approaching research on the factors affecting the capital structure of real estate joint-stock companies listed on Vietnam's stock exchange.

However, identifying, predicting, and determining which factors need to be included in the analysis in this study is a matter that needs to be discussed. It leads to choosing the appropriate model and analysis tools to achieve the research objectives.

### **3. Research Method and Proposed Model**

Based on the literature review, the author uses the ratio of total liabilities to total assets (capital) of real estate enterprises as a variable to measure capital structure (dependent variable) for this study. Besides, there are 10 indicators used by the author to measure independent variables with the expectation that they can affect the capital structure of enterprises. They are listed in Table 1.

**Table 1. Interpretation of the Measurements of Variables Used in the Study**

Indicator	Signal	Method	Trend	reference source
Capital Structure	Y	Total liabilities / Total assets (Capital) ×100		Le Thi My Phuong (2014), Ahmad Mohammad Obeid
1. Enterprise size	(X <sub>1</sub> )	Log (Total Assets)	(+)	Gharaibeh (2015), Rajan and Zingales (1995), Banchuenvijit (2009)
2. Operating time	(X <sub>2</sub> )	Current year - year of establishment	(±)	Le Tham Duong et al. (2020), Ahmad Mohammad Obeid Gharaibeh (2015)
3. Gender of chairman board	(X <sub>3</sub> )	1- Male; 0- Female	(±)	
4. Age of the chairman board	(X <sub>4</sub> )	Current year - year of birth	(-)	
5. Liquidity	(X <sub>5</sub> )	Current ratio = Current assets / Current liabilities	(-)	Le Thi My Phuong (2014)
6. Efficiency of management and using assets	(X <sub>6</sub> )	Asset turnover TAT = Net sales/Average total assets	(±)	
7. Ratio of fixed assets to total assets	(X <sub>7</sub> )	The ratio of fixed assets to total assets = Fixed assets/Total assets	(±)	Le Tham Duong et al. (2020), Chen (2004), Banchuenvijit (2009)
8. Business performance	(X <sub>8</sub> )	ROA = Profit after tax ×100/Average total assets	(±)	Le Tham Duong et al. (2020), Rajan and Zingales (1995)
	(X <sub>9</sub> )	ROE = Profit after tax ×100/Average equity	(±)	Ngo Thi Hong Phung (2017)
9. Earnings per share (EPS)	(X <sub>10</sub> )	EPS = (Earnings after tax - Preferred dividends)/ Average number of shares outstanding	(±)	

The model assumes that the factors affecting the capital structure have the following factors:

$$Y = \beta_0 + \beta_1 X_{it} + \beta_2 X_{it} + \beta_3 X_{it} + \beta_4 X_{it} + \beta_5 X_{it} + \beta_6 X_{it} + \beta_7 X_{it} + \beta_8 X_{it} + \beta_9 X_{it} + \beta_{10} X_{it} + u_{it}$$

$\beta_0, \beta_1, \dots, \beta_{10}$  are estimated parameters;  $u_{it}$  is a random error

This study uses the Fixed effect model (FEM) by comparing the fit of Pooled OLS and the Random effect model. The author uses the Hausman test and Breusch and Pagan Lagrangian multiplier test for random effects.

In addition, the tests of multicollinearity, autocorrelation, and variance of the variable error are performed to find the defects of the model. As a result, defects of the model are corrected to ensure the reliability of the estimated results.

#### **4. Data Collection and Analysis Method**

The data used in this study are collected from the Consolidated Financial Statements (Balance Sheet; Income Statement; Cash Flows; Notes to Financial Statements) and other financial statements (Government reports, Annual reports, information about the chairman Board...) during the period from 2015 to 2019. The data used in this study are collected from the Consolidated Financial Statements (Balance Sheet; Income Statement; Cash Flows; Notes to Financial Statements) and other financial statements (Government reports, Annual reports, information about the chairman of the Board of Directors...) from 2015 to 2019 of 55 real estate joint-stock companies that have been listed on the stock market in Vietnam for 5 years or more. Those data are collected by finding websites such as <https://www.cophieu68.vn>, <https://www.hsx.vn>, <https://cafef.vn...> Of 55 businesses, there are 11 enterprises listed on the Hanoi Stock Exchange (HNX), and the remaining enterprises are listed on the Ho Chi Minh City Stock Exchange (HOSE). The calculation and data processing are supported by Stata 13.0 software. Thank to the collected data, the author conducts a synthesis according to the criteria that are suitable for the research purpose by using the technique of scheduling, and statistical tables to summarize the data. In addition, applying statistical and economic analysis is conducted to assess the current state of capital structure and factors affecting capital structure such as descriptive statistics and comparative statistics.

#### **5. Research Result**

##### *5.1 Descriptive Statistics of Variables Included in the Research Model*

According to the statistical results, the average debt ratio of the real estate joint-stock companies in this study is 54.89%. It means that on average 100 VND of assets is financed by 54.89 VND liabilities; in other words, the financing of equity for assets is quite large accounting for 45.11%. The highest level of capital financed by debt is 95% and the lowest is 1% with a standard deviation of 19.13%. Hence, the gap between the maximum and the minimum value of financial leverage of real estate companies is very large. Therefore, there are huge differences between companies in the source of capital mobilization and this leads to urgent attention. In other words, many listed real estate companies use capital mobilization by issuing more shares, which increases the cost of capital. As a result, domestic and foreign investors will be concerned about long-term investment and the result may affect the goal of profit maximization and increase the value of enterprises.

The variable of enterprise size has a huge difference, the smallest is 140 billion, the largest is 403,740 billion and the average value is 10,920 billion. This shows the average enterprise size of real estate joint-stock companies listed on the Vietnam stock exchange is quite high. Thanks to this indicator, it

can be easier for businesses to get loans if they mortgage their assets.

**Table 2. Statistical Results of Variables in the Research Model**

Name	Unit	Mean	Std. Dev.	Min	Max
Capital Structure (Y)	%	54,89	19,13	1,00	95,00
Enterprise size (X <sub>1</sub> )	1000 billion VND	10,92	36,01	0,14	403,74
Operating time (X <sub>2</sub> )	Year	16,95	6,55	6,00	42,00
Age of chairman board (X <sub>4</sub> )	Age	52,52	8,03	32,00	71,00
Liquidity (X <sub>5</sub> )	Time	2,28	1,96	0,21	17,60
The efficiency of management and using assets (X <sub>6</sub> )	Turnover	0,43	0,74	0,00	5,94
The ratio of fixed assets to total assets (X <sub>7</sub> )	Time	0,08	0,12	0,00	0,68
ROA (X <sub>8</sub> )	%	4,00	6,73	-49,19	29,91
ROE (X <sub>9</sub> )	%	9,08	17,95	-145,98	93,30
Market Index (X <sub>10</sub> )	VND/share	1.967,84	3.037,72	-9.851,94	23.601,08

*Source:* collected data processed by Stata software

In this research, the operating time of business is also distributed from 6 to 42 years and an average of nearly 17 years, in which 55 real estate companies have an average operating time is quite long. This is also one of the advantages of real estate businesses in creating trust and prestige in the market. Of 55 enterprises researched, 48 men-chaired enterprises account for 87.2%, while women-chaired enterprises account for the proportion (12.8%). The average age of women-chaired enterprises is 54,38 years old, higher than that of men (52.32 years old). This is explained that up to 18.75% of men-chaired enterprises with the age of 32-40 years old; while the female is not in this age group. The youngest age of women-chaired enterprises in the real estate businesses in this study is 41 years old and the highest is 67 years old.

The current solvency of enterprises is on average 2.28 times, which means that 1 VND of short-term debt is guaranteed by 2.28 VND of the short-term assets. In general, this ratio is quite high. This is a good sign of short-term debt solvency in real estate companies.

However, it is not good if this coefficient is so large because the higher this coefficient is, the higher the company must use long-term capital with the high cost of capital to finance short-term assets for low profitability. It will lead to a decrease in profitability. There is a big gap between companies in the real estate industry, the largest is 17,60 times and the smallest is 0,21 times. The asset turnover of real estate companies is relatively low, the average value is only 0,43 and there is a big difference between the maximum and minimum values. There are enterprises with the average asset almost inefficiently used

(minimum value is 0.00 rounds), and the maximum value is 5.94 rounds.

The average coefficient of fixed assets in total assets is 0.08 times, which means that in 1 VND of total assets there is 0.08 VND of the fixed asset. This is a very low number and affects capital mobilization of the business because of the uncertainty in the assets. This coefficient varies greatly between companies, the lowest coefficient is 0.001 times and the highest is 0.68 times. This is a bad sign because there is a large difference and the average level is also low. A business that this ratio is high is likely to take on more debt than a business with less investment in fixed assets. At this time, the capital structure of each enterprise is also very different.

The reason is that besides the main business of real estate, these companies also have several other fields such as production, trade, etc...so the coefficients are not uniform. This makes investors untrust and unattraction to them. Return on assets ROA has a rather low average rate, only 4%. It means that every 100 VND of assets invested in business activities will bring back 4 VND of profit after tax. Return on equity (ROE) is also low, only 9,08%, which means that for every 100 VND of equity invested in the business, it will bring in 9,08 VND of after-tax profit. In addition, many companies still have negative profitability, the lowest level of ROA is -49,19% and ROE is -145,98%. Therefore, managers have to find the answer to the problem of building a capital structure to ensure the profitability of the business. Earnings per share EPS also fluctuate. Specifically, the largest EPS is 23.601,08VND/share, the lowest is -9.851,94 VND/share. The average EPS of joint-stock companies in the real estate industry is 1.967,84 VND/share, which is still relatively low.

## 5.2 Regression Results

### 5.2.1 Check for Multicollinearity

To ensure that the regression model achieves reliable estimation results and does not violate the assumptions, this study conducts a correlation analysis between the proposed explanatory variables that are included in the model to estimate the factors affecting the capital structure of real estate enterprises. The results show that the variables from X1-X8 have their correlation coefficient with the independent variables included in the very low analysis ( $<0,5$ ). Particularly, variables X9 (ROE) and X10 (EPS market index) have a high correlation coefficient with the explanatory variables. In detail, the correlation coefficient between variables X9 and X8 is 0,79; between variables X9 and X10 is 0,76; between the variable X8 and X10 is 0,58.

Thus, there is a high possibility of causing multicollinearity in these variables when included in the regression model. Therefore, the author keeps the variable X9 (ROE) and removes the variable X10 (EPS) from the research model.

**Table 3. Correlation Matrix between Explanatory Variables**

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10
X1	1									
X2	0,293	1								
X3	-0,093	-0,404	1							
X4	0,003	0,370	-0,075	1						
X5	-0,139	-0,048	0,012	-0,015	1					
X6	-0,227	0,021	-0,164	-0,068	-0,110	1				
X7	-0,067	-0,020	0,087	-0,031	-0,050	0,250	1			
X8	-0,091	0,075	-0,057	-0,085	0,275	0,264	0,100	1		
X9	-0,014	0,059	-0,006	-0,037	0,316	0,203	-0,002	0,7865	1	
X10	0,022	0,115	-0,097	0,016	0,191	0,249	-0,082	0,581	0,7574	1

*Source:* collected data processed by Stata software

### 5.2.2 Evaluate the Suitability of the Proposed Research Model

The study performed regression with balanced panel data according to FEM and REM models. The Hausman test results show that the FEM model is more suitable than the REM model. According to the results of the Lagrangian Breusch – Pagan test, it can be confirmed that the FEM model is completely more suitable than the Pooled OLS model, which is used to evaluate and analyze the factors affecting the capital structure of real estate joint-stock companies listed on Vietnam's stock exchange.

Based on the regression results according to the FEM model, the study has examined the defects of the model. The research results show that the FEM model has heteroskedasticity (Note 1); In addition, the model has an autocorrelation phenomenon (Note 1).

Both of these errors will make the estimates obtained by the FEM regression method on panel data ineffective, the regression coefficient tests are no longer reliable. Therefore, to overcome the phenomenon of variance of variable errors and autocorrelation, the study uses the regression with Driscoll-Kraay standard errors (1998). The results show that  $F$  value  $(9, 4) = 356,93$ ;  $\text{Prob} > F = 0.0000$ , so the FEM model estimated by this method is suitable and achieves stable and efficient estimation results.

### 5.2.3 Explanation of the Estimated Parameters

Based on the estimation results (Table 4), it shows that there are 8 factors affecting the capital structure and 1 factor is not statistically significant (Coefficient of fixed assets to total assets). Hence, the study will not discuss this variable because there is not enough statistical basis to conclude. The factors that will be discussed are as follows:

**Table 4. FEM Regression Results with Standard Error by Driscoll & Kraay/Driscoll & Kraay**

Variable name	Estimated parameter	t	p> t
Enterprise size (X <sub>1</sub> )	27,600 <sup>***</sup>	10,30	0,001
Operating time (X <sub>2</sub> )	-0,945 <sup>***</sup>	-17,09	0,000
Gender of chairman board (X <sub>3</sub> )	-1,464 <sup>***</sup>	-4,41	0,012
Age of chairman board (X <sub>4</sub> )	0,223 <sup>***</sup>	6,26	0,003
Liquidity (X <sub>5</sub> )	-1,732 <sup>***</sup>	-6,59	0,003
Efficiency of management and using assets (X <sub>6</sub> )	-4,222 <sup>**</sup>	-3,67	0,021
The ratio of fixed assets to total assets (X <sub>7</sub> )	-0,869	-0,19	0,861
ROA (X <sub>8</sub> )	-1,378 <sup>***</sup>	-13,71	0,000
ROE (X <sub>9</sub> )	0,385 <sup>***</sup>	5,89	0,004
Constant	-275,687 <sup>***</sup>	-7,92	0,001
R <sup>2</sup>	0,380		
F (9, 4)	1.097,16		
Prob > F	0,0000		

Notes. \* (significant level of 10%); \*\* (5% significance level); \*\*\* (1% significance level)

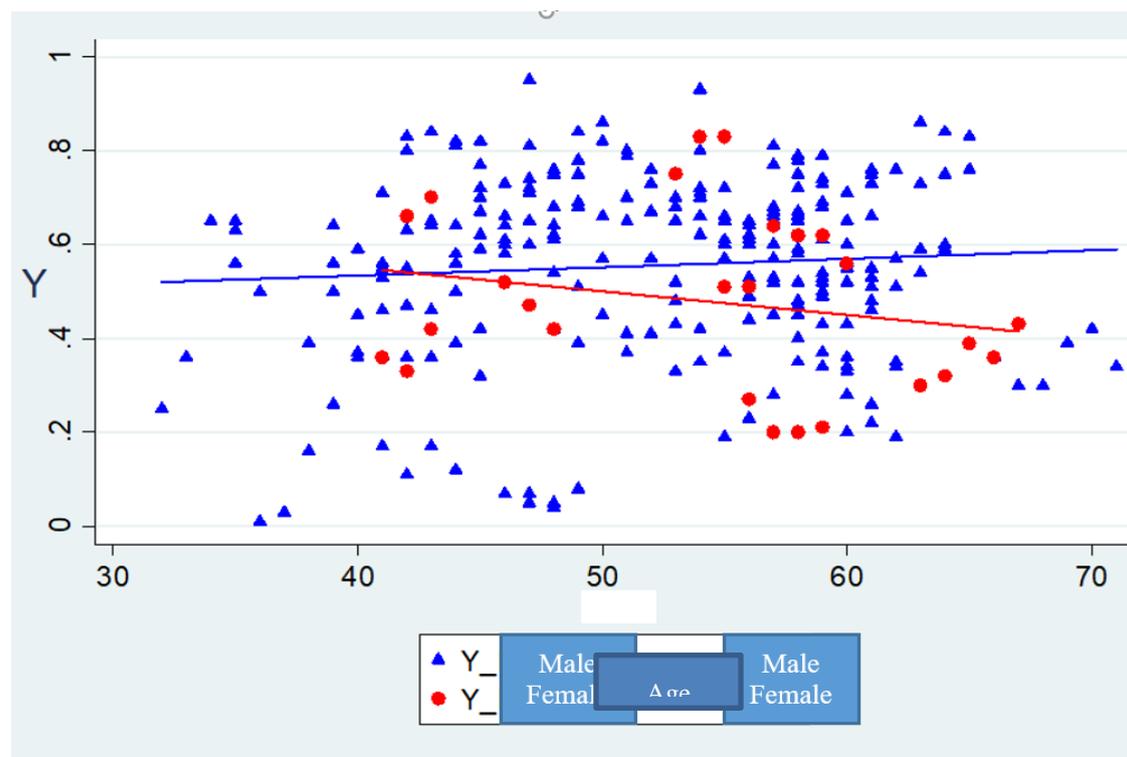
Source: collected data processed by Stata software

Firm size (X<sub>1</sub>) reflects the size of the firm's assets, expressed in logarithms of assets. The estimated parameter of the variable X<sub>1</sub> is 27,6 and has a statistical significance of 1%, reflecting the positive impact on the capital structure of enterprises. It means in the condition that other factors are constant when the total assets of the business increase by 1%, the capital structure (the ratio of Liabilities to Total Assets) of the company increases by 0,119%. ( $=27,6 \times \log_{10}^{(1,01)}$ ). The positive effect of firm size on capital structure is consistent with the proposed hypothesis. Le Thi My Phuong (2014) and Rajan and Zingales (1995), Banchuenvijit (2009) also gave similar results. This result is completely consistent with current practice because large-scale companies have strong financial potential and create a reputation in the competitive market, so they can easily access the financial market and financial services more than that small and medium ones. Thus, the larger the size of the enterprise is, the greater influence the capital structure of the enterprise has. Those are in contrast to the research results of Obeid Gharaibeh (2015) but similar to the research results of Le Tham Duong et al. (2020), the variable operating time has a negative impact on the capital structure of joint-stock companies in the real estate sector, at the 1% significance level.

In recent years, the real estate market is heavily speculative and is developing unbalanced and unsustainable due to the lack of affordable housing, and social housing. In contrast, there is a signing an oversupply of high-end housing, and high-class apartments. The transparency in the market is still low, the information system about housing and the real estate market is still chaotic, easily losing of

confidence of consumers.

Speculation and price blowing are quite common. In addition, the input prices of real estate companies are too high due to the lengthy administrative procedures of the projects. Financial resources for real estate projects are not diversified and sustainable, mainly depending on bank credit and customer advances. Financial resources for real estate projects are not diversified and sustainable, mainly depending on bank credit and customer advances. Companies that are having real estate projects mainly with loans from banks have to face difficulties so many companies cannot escape losses. Therefore, the bank also temporarily stopped lending capital even to businesses that have been operating for a long time in the market.



**Figure 1. Relationship between a Capital Structure with Age and Gender of the Chairman Board in Real Estate Enterprises**

Source: collected data processed by Stata software

The estimated coefficient of the gender variable has a negative sign with a statistical significance of 1%, reflecting that the ratio of Liabilities/Total Assets in men-chaired enterprises is 1,464% lower than in that of women-chaired enterprises. When analyzing the relationship between capital structure and the age and gender of the Chairman Board, it was found that out of the 55 enterprises included in the analysis, the majority of the Chairman Board are male of the same age from 32 to 45 years old have a much lower level of loan use than women (see Figure 1). This means that the younger men-chaired enterprises are more cautious and risk-averse than the female of the same age group. Although this

view has gradually changed with age in the men-chaired enterprise; however, the trend of increasing the ratio of liabilities / total assets in an enterprise is not significant.

In contrast, in enterprises that women-chaired enterprises with older age, the ratio of liabilities / total assets tend to decrease rapidly. Overall, in real estate businesses, the older age of men-chaired enterprises is, the more borrowed capital they tend to use. This leads to an increase in the ratio of liabilities/ total assets. However, this impact is also insignificant (estimated to increase by 0,2%).

Coinciding with the prediction before the study and the research results of Le Thi My Phuong (2014), liquidity has a negative impact on the capital structure of enterprises. This opposite movement is also understandable because real estate companies are the type of business that needs large and stable capital. If the short-term debt is mobilized for real estate business, the profitability of companies is high because capital mobilization has a low cost of capital to finance assets with high profitability. However, this will make these companies under pressure to repay, so the liquidity risk will be large. With business strategies to minimize risks and maximize business value, real estate companies are focusing on long-term capital sources and reducing short-term capital to ensure independence in the financials of companies. The negative effect of variable X5 on capital structure is consistent with the trade-off theory of the capital structure of Kraus and Litzenberger (1973) and Myers (1977).

The variable of efficiency in asset management and use X6 (asset turnover) has a negative relationship with capital structure at the 5% significance level. This means that if asset turnover turns faster than 1 revolution, the Liabilities/Total Assets ratio will decrease by 4.222%.

When revenue increases or the average total assets decrease or increase revenue and decrease average assets (by selling assets that do not directly or indirectly increase revenue), the management efficiency and use of the property will increase. Assets are used efficiently, capital is turned around quickly, and the payback period is short, so there is less capital put into circulation. Thus, it will reduce the pressure on capital mobilization, companies in the real estate industry tend to rarely use debt.

The ROA variable has a negative effect on capital structure and it is statistically significant at 1%. When other factors are constant, if increasing ROA by 1%, the ratio of Liabilities/Total Assets decreases by 1,378 %. Research results on ROA impact on financial structure also coincide with the research results of Rajan and Zingales (1995) and Le Tham Duong and associates (2020). Besides, the ROE variable has a positive effect on the financial structure. Companies can raise capital by increasing short-term debt, long-term debt, and equity to increase the assets of the business. Increasing capital by using short-term debt will increase financial pressure, while issuing more shares will share ownership of shareholders, incur the additional high cost of capital, reducing profits. Real estate joint-stock companies increase the return on equity by increasing debt which is long-term debt. Long-term debt that companies appropriate for capital is mainly from extending payment terms with customers, raising capital from customers, and issuing bonds of the company. Mobilizing capital from customers through advance deposit or partial payment of agreed works even though the work has not been completed. These ways of raising capital both take advantage of the low cost of capital and increase the certainty of sales of real estate companies.

## 6. Conclusion and Policy Suggestions

According to the research results, it can be seen that there is a positive relationship between the size of firms and capital structure. The larger the company's asset size is, the easier it is to borrow from creditors compared to small and medium-sized companies. Therefore, when using liabilities, companies should consider the advantage of asset size to be able to borrow capital with this low cost of capital. According to the research results, the year of operation has a negative relationship with capital structure. Therefore, financial managers need to develop capital development plans for companies that must be specific, considering each stage in the operating cycle of the industry to be able to mobilize capital to finance operations in a suitable way. Capital should only be mobilized during recovery and growth periods, considered during the bubble period, and should be avoided in periods of recession and freezing.

Factors such as the age and gender of the chairman board affect capital structure. Therefore, companies must study these factors to appoint the chairman of the board by the capital mobilization goal for each period.

Real estate joint-stock companies need to improve the efficiency of production and business activities. Research results show that business performance has a negative relationship with capital structure. When businesses are efficient, companies tend to use less debt. In addition, when businesses are efficient, creditors and customers, and investors will appreciate and have more trust, so it is easier to raise capital.

Companies should increase long-term debt to increase profitability for business owners.

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#### Note

Note 1. Modified Wald test for groupwise heteroskedasticity:  $\sigma(i)^2 = \sigma^2$  for all  $i$ ;  $\chi^2(55) = 3.5139, 99$ ;  $\text{Prob} > \chi^2 = 0,0000$