



Impact of Capital Structure on Firm Performance of Food and Beverage Listed Companies on the Stock Exchange of Vietnam

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ABSTRACT: This study tested the relationship between capital structure and firm performance. Data were collected from 41 food and beverage companies listed on the Vietnam Stock Exchange from 2017 to 2021. Three variables were used to measure the performance of each company, including ROA, ROE and EPS. The ratio of total debt to total assets (DA), total debt to total equity (DE), short-term debt to total assets (SDTA) and long-term debt to total assets (LDTA) are the key factors. for capital structure. Besides, growth rate (GROWTH) and company size (SIZE) are also applied in the model as control variables. As a result, most of the capital structure variables have a negative effect on each of the firm's performance variables. It is noteworthy that this study also illustrates the negative correlation between ROE and capital structure shown, which was thought to be insignificant in many previous studies but also shows a negligible relationship between SDTA and SDTA. Moreover, ROE was rarely seen in previous studies. Furthermore, the research results also show a negligible impact on growth rate and a positive relationship between size and firm performance.

KEYWORDS: Capital structure, Firm performance.

1. INTRODUCTION

Capital structure is an essential issue in today's era. In general, Vietnam is an emerging market, and a lack of experience and understanding of the capital structure is why these companies cannot find an appropriate capital structure. The Vietnamese market has much potential, but the limited access to capital and the lack of consideration when using it has created a shortage of capital and pressure because of the cost of paying interest. Therefore, those limitations have created barriers that prevent domestic companies from competing with foreign companies with abundant capital and experience in using debt effectively.

Although many studies have been done in other countries, such as the study in Ghana of the Abor (2005) or the study by Ebaid (2009) conducted in Egypt, similarly, research on the relationship between capital structure and firm performance in many areas can include the study of Nigerian stock exchange companies by Onaolapo & Kajola (2010), or Research by Umar et al. (2012) with a sample of the top 100 Pakistani companies. Studies in the Vietnamese market can include studies by Tran Hung Son (2008) with a sample of 50 non-financial companies listed on the Ho Chi Minh Stock Exchange (HOSE), Le Dat Chi (2013)) with an observed sample of 178 non-financial companies listed on Vietnam Stock Exchanges (HOSE and HNX) in the period 2007-2010 or research by Le Thi My Phuong (2017) on the impact of capital structure on business performance of 207 manufacturing companies listed on both HNX and HOSE in the period 2010 to 2015. However, the above studies have not updated the data. Vietnam's economy has been changing rapidly, which may affect previous research results. Besides, many studies and evidence have demonstrated different outcomes in different fields and professions, which shows that this relationship is significantly dependent on context and industry. Therefore, the author has conducted a research study to have a clearer view of the relationship between capital structure and financial performance in developing and potential markets like Vietnam's food and beverage industry. Research through the topic "The impact of capital structure on the performance of companies listed in the Food and Beverage industry on the Vietnam Stock Exchange."

2. RESEARCH MODEL AND HYPOTHESES

There have been many studies in the world researching the influence of capital structure on the company's performance, as the author mentioned above. These studies used several different variables to represent capital structure. In the study of Ebrati et al. (2013), the author used four variables to represent the capital structure, including the ratio of total debt to total assets (DA) and the ratio of total debt to equity (DE), short-term debt to total assets (SDTA), long-term debt to total assets (LDTA). It can be seen that



the above four indices are standard variables used as a proxy for capital structure in many studies, for example, Saeedi and Mahmoodi (2011), Amara & Dr Bilal Aziz (2014), Sathyamoorthi (2019), Nguyen Thanh Hieu and Nguyen Huu Anh (2020). Therefore, the author uses the above four variables to measure capital structure in the following study.

Regarding the company's performance, there are many different indicators to indicate the company's level of development. In different studies, the authors have used a variety of ratios and ratios to represent company performance. In the study of Zeitun and Tian (2007), three financial ratios, MBR, ROE and ROA, and Tobin's Q, are applied to measure the company's performance. Besides, in the study of Olaniyi et al. (2015), Umar et al. (2012), Amara & Dr Bilal Aziz (2014), Mahmoodi and Saeedi (2011), Sathyamoorthi (2019), Nguyen Thanh Hieu and Nguyen Huu Anh (2020) used earnings per share (EPS) along with other variables to measure performance. After referencing previous studies and selecting and selecting three ratios, the author chooses three ratios to measure the company's performance, including return on total assets (ROA), return on investment and return on assets (ROE) and earnings per share (EPS).

Two regression models are used, namely the fixed effects model (FEM) and random effect model (REM), for the business performance of companies on the Ho Chi Minh City and Hanoi stock exchanges period (2017 to 2021). The independent variable is capital structure as measured by debt-to-equity (DE), debt-to-total assets (DA), short-term debt to total assets (SDTA), and long-term debt to total assets (LDTA). Dependent variables are financial indicators, including return on equity (ROE), return on assets (ROA), and earnings per share (EPS) of food and beverage companies on both HOSE and HNX in the period 2017-2021. The control variables are firm size (SIZE) and growth rate (GROWTH).

$$ROA_{it} = \beta_0 + \beta_1 + DA_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \varepsilon_{it} \quad (Model 1)$$

$$ROA_{it} = \beta_0 + \beta_1 + DE_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \varepsilon_{it} \quad (Model 2)$$

$$ROA_{it} = \beta_0 + \beta_1 + SDTA_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \varepsilon_{it} \quad (Model 3)$$

$$ROA_{it} = \beta_0 + \beta_1 + LDTA_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \varepsilon_{it} \quad (Model 4)$$

$$ROE_{it} = \beta_0 + \beta_1 + DA_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \varepsilon_{it} \quad (Model 5)$$

$$ROE_{it} = \beta_0 + \beta_1 + DE_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \varepsilon_{it} \quad (Model 6)$$

$$ROE_{it} = \beta_0 + \beta_1 + SDTA_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \varepsilon_{it} \quad (Model 7)$$

$$ROE_{it} = \beta_0 + \beta_1 + LDTA_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \varepsilon_{it} \quad (Model 8)$$

$$EPS_{it} = \beta_0 + \beta_1 + DA_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \varepsilon_{it} \quad (Model 9)$$

$$EPS_{it} = \beta_0 + \beta_1 + DE_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \varepsilon_{it} \quad (Model 10)$$

$$EPS_{it} = \beta_0 + \beta_1 + SDTA_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \varepsilon_{it} \quad (Model 11)$$

$$EPS_{it} = \beta_0 + \beta_1 + LDTA_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \varepsilon_{it} \quad (Model 12)$$

H1: Return on assets (ROA) is negatively related to total debt to total assets (DA).

H2: Return on assets (ROA) is negatively related to total debt to total equity (DE).

H3: Return on assets (ROA) is negatively related to short-term debt to total assets (SDTA).

H4: Return on assets (ROA) is negatively related to long-term debt to total assets (LDTA).

H5: Return on equity (ROE) is negatively related to total debt to total assets (DA).

H6: Return on equity (ROE) is negatively related to total debt to equity (DE).

H7: Return on equity (ROE) is negatively related to short-term debt to total assets (SDTA).

H8: Return on equity (ROE) is negatively related to long-term debt to total assets (LDTA).

H9: Earnings per share (EPS) is negatively related to total debt to total assets (DA).

H10: Earnings per share (EPS) is negatively related to total debt to equity (DE).

H11: Earnings per share (EPS) is negatively correlated with short-term debt to total assets (SDTA).

H12: Earnings per share (EPS) is negatively correlated with long-term debt to total assets (LDTA).

3. METHODS

The study was conducted manually by taking secondary data from food and beverage companies listed on the Ho Chi Minh City (Hose) and Hanoi Stock Exchanges (HXS) for 5 years from 2017 to 2021. Data is collected from public and reliable websites



such as s.cafef.vn, finance.vietstock.vn, vn.tradingview.com, www.bsc.com.vn and the company's financial statements during the audit period.

With Panel data, two regression models are used, the fixed effects model (FEM) and random effects model (REM), to evaluate the relationship between variables. Research results are through Hausman tests to choose suitable models. Defects are checked through the Breusch - Pagan Lagrangian, Wald, and Wooldridge tests. Ultimately guests with disabilities will, if have been resolved through the GLS generalized least squares method.

4. RESULTS

Table 1: Descriptive statistics for all variables

	Observation	Mean	STD	Min	Max
ROA	205	.0723815	.0800513	-.2974	.3394
ROE	205	.1324151	.1483496	-.6529	.5832
EPS	205	3.305259	4.388632	-4.32	27.22
DA	205	.4759159	.1738107	.0336221	.8335011
SDTA	205	.4093579	.1611069	.02757	.8312895
DE	205	1.162295	.8466042	.0347921	5.006045
LDTA	205	.0760961	.1049708	0	.5545923
SIZE	205	6.118397	.7249705	4.95346	8.100693
GROWTH	205	.2036858	1.530579	-.650419	21.4935

The 5-year mean of the debt-to-equity (DE) ratio is more than 1.16 and the mean of the debt-to-assets (DA) ratio is over 0.47. Besides, the maximum index of DE of 5 is many times higher than the minimum index of the ratio of 0.034 with a standard deviation of 0.84. After calculations, the data show that 104 values of DE less than 1 and 101 values of DE greater than one show that the data is fairly balanced and even among firms with total debt less than total equity and opposite. Most companies have DE index less than 3, some companies have high DE index such as Thang Long Wine JSC, Tuong An Vegetable Oil JSC. The DA ratio of companies shows a more even situation when the standard deviation of this index is only 0.17, the mean value is 0.47 is less than 0.5, this shows that the capital of the companies in the food and beverage industry financed by investment capital is higher than external capital. However, this figure close to 0.5 indicates a relative balance between different levels of funding from internal and external sources of funding by companies in the food and beverage industry. On the other hand, the SDTA average short-term debt-to-total assets ratio of 0.4 is also close to the average debt-to-assets (DA) ratio of 0.47, which suggests that if firms in the industry If food and beverage companies have to use debt to finance their business operations, these companies will prefer to use short-term debt. After calculation, it is found that more than 80% of the subject's debts are short-term debts. The variance of SDTA is 0.16 and the maximum index is more than 0.83 equal to the maximum index of DA, it can be seen that there are companies that use short-term debt almost as the main source of financing for business operations. .

On the other hand, the indicators showing the company's performance are ROA and ROE with an average of 0.07 and close to 0.13, respectively. The standard deviation of ROA is 0.08, the maximum is 0.33 and the minimum is -0.29 . While the standard deviation of ROE is about 0.15 the largest is 0.58 the smallest is -4.32 . Besides, it can be seen that the average value of EPS is about 3.3 and the largest value is 27.22 belongs to Vinacafé Bien Hoa company, the EPS value of this company increased sharply in the three years from 2018 to 2018. 2020 remains above 20. Besides, Growth's average index is only 0.2 and nearly 37% of the index over the years is below zero, most of which focus on 2020 and 2021. This shows that there is Many companies have failed in recent years, possibly due in part to the pandemic that has affected the global economy as a whole. Growth's highest value was 21.49 due to the sudden increase in sales of Vietnam Food and Drugs JSC in 2017 affecting the reality of industry data.



Table 2: Correlation matrix of variables

	ROA	ROE	EPS	DA	SDTA	DE	LDTA	SIZE	GROWTH
ROA	1.0000								
ROE	0.8748	1.0000							
EPS	0.7105	0.6971	1.0000						
DA	-0.3752	-0.1707	-0.1518	1.0000					
SDTA	-0.2569	-0.0894	-0.1232	0.8656	1.0000				
DE	-0.3900	-0.2304	-0.1722	0.9098	0.8162	1.0000			
LDTA	-0.2717	-0.1862	-0.0992	0.3335	-0.0803	0.2538	1.0000		
SIZE	0.1857	0.1971	0.2114	0.0627	-0.0979	-0.0021	0.2299	1.0000	
GROWTH	-0.0002	-0.0069	-0.0059	-0.1038	-0.1226	-0.0554	0.0167	-0.0744	1.0000

Table 2 presents the Pearson correlation coefficient between the variables applied in this paper. Variables used as a measure of capital structure and financial performance of listed companies for the period 2017-2021 in the food industry. In the above regression method, there are 3 types: The first is the dependent variable including return on equity ROE, return on assets ROA and Earning per share EPS, the second is the independent variable. includes total debt to total assets DA, total debt to total equity DE, short-term debt to total assets SDTA, long-term debt to total assets LDTA and finally the control variable Growth Rate GROWTH and company size SIZE).

The first point worth noting in this table is that leverage ratios are almost positively correlated. It can be seen that there is a high correlation between total debt-to-total assets and short-term debt-to-total assets SDTA, above 0.9 and above 0.7, based on general rules for explaining the relationship. Correlation was introduced in 1998 by Hinkle et al. Although the correlation between total short-term debt to total DA and short-term debt to total SDTA's assets after testing by Pearson Correlation Coefficient is high, the two variables are separated and used in regression models. are different, so it does not affect the reliability of the present study. Similarly for the correlation between DA and DE, DE and SDTA both have indexes above 0.7, but these independent variables are separate and used in different regression models, so they do not affect the reliability. trust.

Second, all the independent variables are negatively related to firm performance. Whenever a company decides to take on more debt, the company's performance will follow a downward trend. This problem is related to the theoretical order mentioned in chapter 2, which states that profitable firms tend to use less debt because they prioritize their own internal capital over profits. keep.

Table 3: Summary of Feasible Generalized Least Squares (FGLS) regression for model 1 model 2 model 3 and model 4

ROA	Model 1	Model 2	Model 3	Model 4
DA	-0.148*** (-8.69)			
DE		-0.0260*** (-7.83)		
SDTA			-0.113*** (-5.06)	
LDTA				-0.141*** (-4.79)
SIZE	0.0205*** (2.96)	0.0152** (2.28)	0.00872 (1.11)	0.0135* (1.68)
GROWTH	0.000626 (0.35)	0.00153 (0.94)	0.000541 (0.32)	0.00213 (1.52)
_CONS	0.00168 (0.04)	-0.00948 (-0.23)	0.0464 (0.95)	-0.0207 (-0.42)
N	205	205	205	205

Note: *, **, *** represent statistical significance at 10%, 5% and 1%, respectively.



After using the FGLS model to handle the problems of variable variance and autocorrelation in model 1, model 2, model 3 and model 4, the above table shows the results after running the model. regression using FGLS.

The results after analysis, the figure in the Table 3 shows that the relationship between ROA and the capital structure representative indexes including DA, DE, SDTA and LDTA is inversely related with β equal to -0.148; -0.026; -0.113 and -0.141; while the standard deviation is at the 1% significance level. This result is similar to the study results of Ebrati et al (2013), Amara & Dr. Bilal Aziz (2014), Sathyamoorthi (2019) on the negative association between DE and ROA. In addition, the negative correlation between ROA and SDTA or DA is confirmed with the results of Zeitun's 2007 study, Saedi and Mahmoodi's study in 2011, Ebaid (2009). The negative relationship between LDTA and ROA is similar to the research results of Nguyen Thi Minh Hue and Dang Tung Lam (2017) and Nguyen Thanh Hieu and Nguyen Huu Anh (2020) on the Vietnamese market. Besides, the fixed variable is the company's GROWTH growth index which shows a negligible relationship but the SIZE size ratio shows a significant positive effect on ROA in the three models, β is zero, respectively. ,0205; 0.0152; 0.0135 while the level of statistical significance is from 1% - 10%.

Table 4: Summary of Feasible Generalized Least Squares (FGLS) regression for model 5, model 6, model 7, and model 8

ROE	Model 5	Model 6	Model 7	Model 8
DA	-0.0894** (2.56)			
DE		-0.0218*** (3.06)		
SDTA			-0.0396 (0.92)	
LDTA				-0.166*** (2.95)
SIZE	0.0403*** (2.77)	0.0400*** (2.86)	0.0296** (2.10)	0.0411*** (2.91)
GROWTH	0.000959 (0.33)	0.00132 (0.46)	0.00108 (0.40)	0.00236 (0.86)
_CONS	-0.0995 (-1.14)	-0.115 (-1.35)	-0.0614 (-0.71)	-0.132 (-1.53)
N	205	205	205	205

*Note: *, **, *** represent statistical significance at 10%, 5% and 1%, respectively.*

The Table 4 shows the results of model 5, model 6, model 7, and model 8 after conducting FGLS to handle the problems of variable variance and autocorrelation in the model. The calculated results show that the relationship between ROE and major capital structure indexes including DA, DE and LDTA is inversely related with β equal to -0.0894; -0.0218 and -0.166 while the level of statistical significance is 1% - 5%. This result is different from the results of Umar et al. (2012), Saedi and Mahmoodi (2011) who stated that there is no significant effect of capital structure on ROE. Meanwhile, the SDTA index shows a negligible negative relationship with ROE, the above result is different from previous studies such as research by Nguyen Thanh Hieu and Nguyen Huu Anh (2020) showing an inverse relationship. significant dimension of the above two indices. In addition, the fixed variable of Firm Growth Index indicates a positive but insignificant relationship with ROE while the fixed variable SIZE indicates a significant positive relationship in all four models, β equal to 0.0403; 0.04, 0.0296 and 0.0411 while the statistical significance is 1% - 5%.



Table 5: Summary of Feasible Generalized Least Squares (FGLS) regression for model 9, model 10, model 11 and model 12

EPS	Model 9	Model 10	Model 11	Model 12
DA	-4.649*** (5.46)			
DE		-0.986*** (5.90)		
SDTA			-3.303*** (3.49)	
LDTA				-4.227*** (3.35)
SIZE	1.008*** (3.64)	1.043*** (4.03)	1.048*** (3.90)	1.208*** (5.08)
GROWTH	0.0740 (1.08)	0.0982 (1.59)	0.0886 (1.47)	0.136*** (2.65)
_CONS	-1.457 (-0.85)	-2.713* (-1.72)	-2.574 (-1.52)	-4.419*** (-3.09)
N	205	205	205	205

*Note: *, **, *** represent statistical significance at 10%, 5% and 1%, respectively.*

Table 5 shows the FGLS results for model 9, model 10, model 11 and model 12. As the results in the table show, the relationship between EPS and the capital structure proxy indexes includes DA, DE, SDTA and LDTA are negatively related with β equal to -4,649; -0.986; -3.303 and -4.227 while the level of statistical significance is 1%. The negative relationship between EPS and variable capital structure in the results of this paper is similar to the results of Ebrati et al. (2013), Umar et al. (2012) and research save Nguyen Thanh Hieu and Nguyen Huu Anh. All four models show a positive effect of SIZE Scale on EPS, β equals 1,008.3; 1,043; 1,048 and 1.208, while the level of statistical significance is 1%. Meanwhile, growth rate GROWTH shows a positive relationship in a model with β equal to 0.136 and the level of statistical significance is 1%.

5. CONCLUSION

This study was conducted with the aim of investigating the correlation between capital structure and corporate performance in the food and beverage industry of 41 companies listed on the Vietnam Stock Exchange in the period 2017- 2021. These companies were selected based on the requirements outlined in the first chapter. After applying the regression methods and implementing solutions to eliminate defects, testing the reliability for the results to be effective and consistent, the study came to the following conclusions:

There exists a relationship between capital structure and firm performance in the food and beverage industry and this relationship is negative. This result is consistent with the results of many previous studies including Umar et al. (2012), Ebrati et al (2013), Nguyen Thi Minh Hue and Dang Tung Lam (2017), Sathyamoorthi (2019), Nguyen Thanh Hieu and Nguyen Huu Anh (2020). However, in contrast to the finding that the relationship between capital structure and ROE is insignificant by Abor (2005), Saedi and Mahmoodi (2011), this paper illustrates the negative and significant effects of three on the four representative factors of capital structure including DA, DE, LDTA to ROE but also show that the relationship between SDTA and ROE is much inverse but not significant.

It is worth noting here that the negative relationship of capital structure and firm performance is consistent with the views of Le Dat Chi (2013), Nguyen Thi Minh Hue and Dang Tung Lam (2017), Nguyen Thanh Hieu and Nguyen Huu Anh (2020) on the Vietnamese market have a strong correlation with pecking order theory. Profitable companies tend to prioritize internal financing to retain income over debt, besides borrowing in the context of volatile economy and non-transparent information like Vietnam's. send negative signals to the market and cause bad impacts on business activities. In the current Vietnamese market, the lack of



experience and investment knowledge of the people along with the consequences that Covid 19 left on the country's economy and the negative information of the stock market are causing concern. sensitive investor. The increase in corporate loans can make investors nervous and affect their investment decisions. One of the leading causes of this sensitivity can be attributed to the lack of knowledge of investors. In the five-year period, the number of people participating in securities has increased sharply over the years, a large number of people have invested in securities but have not really grasped the information and knowledge. When all their decisions are based on one-way information and herd decisions have made the stock market more sensitive than ever. Besides, it is impossible not to mention the frauds in the stock market that have caused the confidence of most investors to collapse. After the Covid crisis, domestic companies were severely short of capital due to the fact that business had not yet recovered, along with workers' auxiliary expenses, medical expenses, and implementation of isolation and distancing measures, which made the The debt to maintain business operations is increasing day by day, resulting in an increase in the burden of paying interest. In addition, because many companies use short-term debt to pay long-term interest, the company faces bad debt while income from domestic sales is still facing many difficulties and competition. The figure after analysis also shows that more than 80% of the company's debt is short-term, but it can be seen that this company is also balancing between debt and equity.

In addition, in contrast to the study of Zeitun and Tian (2007), this study shows a positive but insignificant effect of growth rate on business performance; however, the ratio of size has a positive effect on all variables measuring the performance of firms. This is similar to the study of Le Thi My Phuong (2017), Nguyen Thanh Hieu and Nguyen Huu Anh (2020). In fact, large companies will build better trust with customers and investors than small companies. Besides, large-sized companies will have easier access to capital and will have more incentives than small-sized companies, thereby minimizing interest expenses in business.

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