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Internal Factors Affecting Firm Performance: A Case Study in Vietnam

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Abstract

The higher the firm performance, the more chances enterprises can expand and develop their production, create jobs, and improve the workers' living quality. The main objective of this study was to measure the internal factors influencing the firm's performance of food and beverage (F&B) firms listed on the Hanoi Stock Exchange (HNX). Data was collected on 15 F&B firms listed on the HNX from 2015 to 2019. We use mixed research method, both qualitative and quantitative. For the quantitative research method, the supporting tool is Stata13 software. The results via Ordinary Least Squares (OLS) regression method show the impacts of internal factors with the following observed variables: the ratio of short-term debt to total liabilities (CS1) and total assets (S2) have an opposite impact (–) on ROA and ROE; debt-to-total assets ratio (CS2) has an opposite effect (–) on ROA; growth of total assets (G2) of the growth factor positively affects (+) ROA and ROE, the remaining factors do not affect ROA and ROE; and internal factors do not influence ROS. Based on the findings, some recommendations have been proposed to help the F&B firms listed on the Hanoi Stock Exchange improving their firm performance in the future.

Keywords: Internal Factors, Firm Performance, Finance, Food and Beverage (F&B)

JEL Classification Code: G30, M41, L25, O16, P33

1. Introduction

Vietnam has been integrating into the global economic development. With the emergence of FDI enterprises in Vietnam, the market is increasingly competitive and, in order to survive and develop, businesses must operate effectively. The higher the firm performance, the more chances enterprises can expand and develop their production, create

jobs, improve the workers' living quality, and fulfill their obligations to the state budget.

Food and beverage (F&B) firms have gradually provided many essential products for the national economy, served the domestic demand, started replacing import products, and participating in export activities with a variety of designs and types. Many products are highly competitive in both domestic and international markets. In addition, F&B firms also account for a significant proportion of the output production of the industry, in general, and the gross domestic product (GDP), in particular. However, the firm performance of F&B firms have not been homogeneous, and there remains some drawbacks.

Despite development opportunities, F&B firms in Vietnam, in general, and F&B firms listed in HNX, in particular, still face many difficulties. The adverse effects of economic crises, the constant fluctuations of interest rates and inflation as well as the State's management policies have directly affected F&B firms. With the specific characteristics of the F&B industry where F&B firms usually have to raise additional capital from external resources, F&B firms in Vietnam now increasingly focus on corporate governance, especially on financial factors that should be adjusted to

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be suitable to them. Appropriate financial indicators are an important decision for all firms, not only because of the need of optimizing the benefits of related individuals and organizations and its operations, but also due to the impact of these decisions on the business capacity of enterprises in a competitive environment.

During the period of high inflation, if F&B firms borrow a large amount of money, will their performance increase? In contrast, in the current period, which shows a low inflation, although the interest rates on bank loans drop sharply and F&B firms can easily access to bank loans, they still record losses in the year. What are the main reasons leading to the decrease in firm performance? Have the internal factors of the enterprise a relationship with its performance? Therefore, studying the effects of internal factors on firms' performance is necessary and highly practical for F&B firms. This study uses mixed research method to measure internal factors influencing the firm performance of F&B firms listed on HNX; the paper, then, proposes some recommendations to improve these firms' performance.

2. Literature Review

2.1. Firm Performance

Firm performance is an economic category that reflects the ability of firms in using human resources and material resources to achieve the targets of the firm (Le, 2005). Firm performance is also to consider the efficiency of using business means during the production and consumption process. Firm performance shows the correlation between the output results and input resources employed in the process of business operations of enterprises (Truong & Tran, 2009).

The common variables representing firm performance are return on assets (ROA), return on equity (ROE) and return on investment (ROI). These accounting indicators of firm performance represent financial ratios obtained from balance sheets and income statements that have been used by several researchers such as Mehran (1995) and Ang et al. (2000).

Abor (2005) uses financial data of 20 listed firms to examine the relationship between financial structure and firm performance of enterprises in Ghana, in which firm performance is measured by ROE. Nieh et al. (2008) use tabular data from a sample of 143 electronic firms listed on Taiwan's stock market in the 1999–2004 period with ROE and EPS as the representative variables for the firm performance. Saedi and Mahmoodi (2011) used a panel data analysis method with a sample of 320 listed firms on the Tehran stock market (Iran). The firm performance is measured by ROA, ROE, EPS and Tobin' Q .

2.2. Internal Determinants of Firm Performance

Zeitun and Tian (2007) conducted a research on factors affecting firm performance and market value of enterprises with research data collected from 167 firms listed on the Amman-Jordan Stock Exchange covering 16 different business areas in the non-financial sector in the period from 1989 to 2003. The dependent variable "firm performance" is measured by the ratio "return on total assets – ROA", the independent variables include: capital structure (financial leverage ratio), firm size (assets, revenue), business risk, income tax, proportion of fixed assets, political crisis, business lines and financial leverage (total debt to total assets, total debt to total equity, long-term liabilities to total assets, short-term liabilities to total assets and total liabilities to total equity). The research results show that debt ratio has the strongest impact while total assets growth, firm size and tax rate have a positive impact on firm performance. Enterprises with a high proportion of fixed assets experience a low firm performance because the enterprises invest too much in fixed assets without an adequate improvement in the firm performance. The business lines factor has a significant impact on firms' performance in some areas: real estate, education services, chemistry and petroleum and tobacco. In addition, the study also finds that the firm performance of enterprises in Jordan is strongly affected by the macroeconomic and regional environment.

Onaolapo and Kajola (2010) survey 30 non-financial firms listed on the Nigerian stock exchange from 2001 to 2007 to measure the impact of determinants on performance of these firms. The authors use quantitative research methods, with OLS regression model. The research results show the following factors: debt ratio, size (assets), proportion of fixed assets, growth rate (assets), asset turnover, the company's age, and business lines have different degrees of influence on the performance of firms (return on total assets-ROA and return on equity-ROE). The debt ratio and the proportion of fixed assets have negative effects on firm performance, while asset turnover indicates a positive impact. The factor business lines such as the sectors of alcohol, food and beverage, chemistry, printing and publishing, tobacco, computer and office equipment industry have a strong influence on firm performance. From the research results, the authors present a number of solutions according to the determinants to enhance firms' performance.

Pouraghajan and Malekian (2012) study the impact of capital structure on performance of enterprises with a sample of 400 firms in 12 industries listed on the Tehran Stock Exchange in the years 2006–2010. Using qualitative research method combined with quantitative methods, the authors identify the dependent variables, which represent firm performance – ROA and ROE. The independent variables

are debt ratio, asset turnover, firm size (assets), proportion of tangible assets, firm age, and growth rate. Research results show a significant negative relationship between debt ratio and firm performance. Asset turnover, firm size, tangible asset structure, and growth rate have a statistically significant and positive relationship with the firm's business performance (ROA and ROE). There is no statistical relationship between the firm age and firm performance. Firms in the industrial sector such as non-metallic mineral manufacturing firms, F&B firms, base metals, automotive, and parts manufacturing companies have a negative relationship with firm age while firms in materials industry and chemical industry show a positive and significant correlation between firm age and firm performance of enterprises.

The research scope in the study by Pervan and Višić (2012) is manufacturing enterprises in Croatia in the period 2002–2010. The authors use the mixed research method to study the effect of firm size on firm performance. Besides, the authors also consider how performance of a firm is affected by which subjective internal and which other objective external factors. Research results show that the larger the firm size, the higher the firm performance. In addition, the study finds that increasing the efficiency of assets will increase the firm performance, while a large amount of debt will lead to a decrease in the firm performance. One reason given by researchers is that large enterprises have the market power, and are able to offer higher prices and generate more profits. Moreover, the economies of scale is another reason because large firms can benefit from low costs. Their firm scale offers them the ability to negotiate the price with suppliers and when production reaches their break-even point, an increase in the number of products reduces the average cost per product. Market experiences of large firms help them to confront and adapt with changes better than small and medium enterprises. They have a better chance of compensating accidental losses. For example, when the market is in the high volatility situation, larger firms will have lower risk compared to small firms. Favorable financial condition is also an advantage of large-scale firms. Small companies are often limited in accessing credit sources. They cannot require the large amounts of capital; therefore, capital constraints may not be severe for larger firms. Last, but not least, large firms have an advantage in R&D (research and development) because of their scale and outstanding ability to exploit research results.

In Vietnam, there have been studies on firm performance and factors affecting firm performance in doctoral thesis, master's thesis and scientific papers, typically:

Nguyen (2016) selected a sample of key construction enterprises of Song Da Corporation, in the period 2010–2014. The author has systematically studied the theoretical basis of firm performance such as the definition of firm performance,

the influencing factors, the criteria for evaluating firm performance; assessed the current status of firm performance of the construction enterprises of Song Da Corporation, clearly analyzed the determinants, the advantages and limitations of firm performance of these enterprises; thereby proposing feasible and synchronous solutions to improve firm performance of these enterprises in a sustainable and long-term way.

Vo (2017) measures factors affecting firm performance of foreign direct investment (FDI) enterprises in the fishery sector in Khanh Hoa from 2011 to 2015. The results of the data analysis show that firm performance of enterprises, which are represented by the return on assets (ROA) and return on sales (ROS), is affected by the following factors: (i) growth rates of assets; (ii) revenue scale; (iii) scale of total assets; and (iv) structure of fixed assets. However, this result also shows that firm performance measured through return on equity (ROE) is not affected by variables in the model. From the research findings, managers can make reasonable decisions to improve firm performance of enterprises, especially in the context of international economic integration in both depth and width.

Truong et al. (2020) investigated the impact levels of determinants on the Balanced Scorecard application in evaluating the performance of tourism firms in Hanoi. This study uses data of tourism firms in Hanoi during 2018–2019. The data used for analysis and regression consists of 135 observations. The results show that two determinants, including internal factors of tourism firms (IF) and external factors of tourism firms (EF), had positive relationships with the Balanced Scorecard application in evaluating the performance.

Pham et al. (2020) used correlation regression to evaluate the performance based on the influence of factors in the BSC model, including strategic planning, internal process, finance, mission, customer, and employee learning and growth. The results show that the performance of public hospitals in the research sample is influenced by the factors in the BSC model in descending order based on the regression coefficient as follows: internal process, finance, mission, strategic planning, customer, employee learning, and growth.

Ngo et al. (2020) used the data from the authors' survey of 568 SCEs in Vietnam in 2019, using Cronbach's alpha, confirmatory factor analysis (CFA) and path analysis (SEM), to analyze the mechanism by which social capital impacts on SCE performance. In addition to the direct role, social capital indirectly affects corporate performance through entrepreneurship and resilience capability. This study enriches the theory by proposing a measurement scale of the contextual latent variables as a result of in-depth interviews with experts using a qualitative analysis technique.

Besides, the classical theories such as M&M theory, pecking order theory and capital structure theory mention determinants of firm performance of enterprises. The M&M theory of Modigliani and Miller (1958) shows that market value of a firm is independent of capital structure in perfect market conditions, with no corporate income tax. With the elimination of the hypothesis of corporate income tax, M&M (1963) concluded that the financial structure has a positive impact on the value of the enterprise. In other words, an enterprise using more corporate debt would have higher value, and firms that are financed with 100% debt would reach the maximum of firm value (Modigliani & Miller, 1963). The theory of pecking order (Myers & Majluf, 1984), in contrast, shows the negative impact between capital structure and enterprise value by the research results that companies with high profitability will use less debt to finance their investments than companies with low profitability. The static trade-off theory of capital structure (Myers, 1977) states that the value of a levered firm is equal to the value of an unlevered firm plus the present value of the tax shield minus the present value of bankruptcy costs. Thus, it can be seen that the financial structure is an important determinant of performance of enterprises. However, the direction and degree of impact between these factors is different across enterprises and across groups of enterprises under specific conditions.

3. Methodology

3.1. Sample

The secondary data is collected from the audited financial statements of 15 F&B firms listed on HNX in operation by the end of the accounting year 2019 on such reputable website <https://finance.vietstock.vn/>; cafef.vn/. Thus, this study has 15 firms * 5 years = 75 observed variables, which have been processed and cleaned with Excel. We selected HNX because HNX is one of the leading stock exchanges in Vietnam.

3.2. Data

Data is collected and imported into an Excel file. Data were tested for normal distribution, used Histogram’s chart of Stata13 software, results were presented in Figure 1, which shows that distributed data is fully qualified for analysis.

For the quantitative research method, the supporting tool is Stata13 software, which includes descriptive analysis, comparative and correlation analysis.

3.3. Research Model

Informed by previous studies and the opinions of interviewed experts, we build the research model as follows (Figure 2):

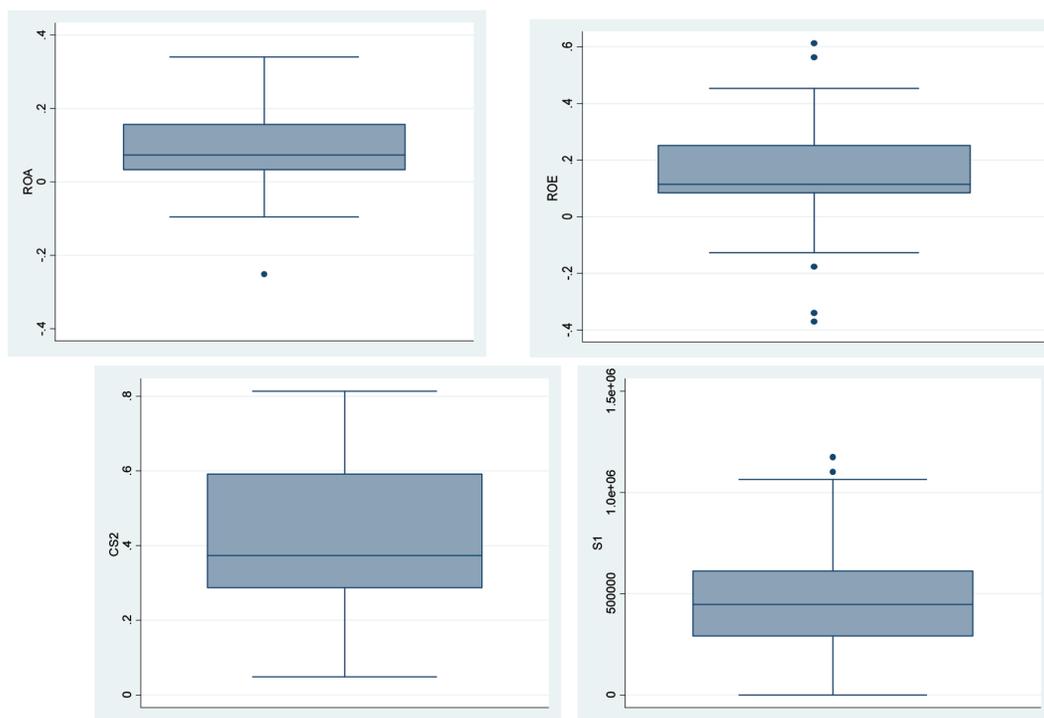


Figure 1: Evaluation of Standard Distribution Data

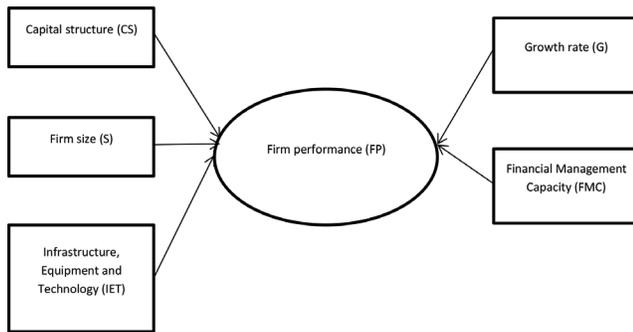


Figure 2: Research Model

4. Results

4.1. Descriptive Statistics Results

Tables 1 and 2 show that the dependent variable includes three observed variables; five independent variables include 10 observed variables; each observed variable is described by 75 observations. Basic indicators such as mean, maximum value (max), minimum value (min), standard deviation (sd), variance, skewness, kurtosis, distribution degree (p 50), sum, range, coefficient of variation (cv) of each observed variable have been identified and these basic indicators reflect the true state of firm performance of F&B firms listed on the HNX.

Table 1: Dependent Variables and Independent Variables

| Dependent Variables: Firm Performance | | | | |
|---|---|-------------------------------|---|---|
| Determinants | Observed Variable | Measurement | Sources | |
| ROA | Return on assets | Profit after tax/Total assets | Zeitun and Tian (2007), Onaolapo and Kajola (2010), Pouraghajan and Malekian (2012), Vo (2017), Nguyen (2018), Pham and Nguyen (2018), Tran and Nguyen (2019) | |
| ROE | Return on equity | Profit after tax/Total equity | Onaolapo and Kajola (2010), Pouraghajan and Malekian, (2012), Pham and Nguyen (2018), Tran and Nguyen (2019) | |
| ROS | Return on sales | Profit after tax/Sales | Vo (2017), Tran and Nguyen (2019) | |
| Summary of Independent Variables | | | | |
| Determinants | Observed Variable | Code | Measurement | Sources |
| Capital structure (CS) | Short-term debts over total liabilities | CS1 | Short-term debts / total liabilities | Schiantarelli and Sembenelli (1999), Zeitun and Tian (2007), Onaolapo and Kajola (2010), Margaritis and Psillaki (2010), Pouraghajan and Malekian (2012), Pervan and Višić (2012) |
| | Debts over total assets | CS2 | Total Debts / Total assets | |
| | Debts over total equity | CS3 | Total Debts/ Total equity | |
| Firm size (S) | Revenue | S1 | Total Revenue in a year | Zeitun and Tian (2007), Margaritis and Psillaki (2010), Pouraghajan and Malekian (2012), Pervan and Višić (2012) |
| | Total assets | S2 | Total assets in a year | |
| Infrastructure, Equipment and Technology(IET) | Fixed assets ratio | IET1 | Fixed assets/ Total assets | Zeitun and Titan (2007), Onaolapo and Kajola (2010), Pouraghajan and Malekian (2012) |
| Growth rate (G) | Net revenue growht | G1 | (Sales last period – Sales next period)/Sales last period | Zeitun and Tian (2007), Onaolapo and Kajola (2010), Abbasali and Esfandiar (2012) |
| | Total asset growth | G2 | (assets at the end of the period - assets at the beginning of the period)/assets at the beginning of the period | |
| Financial Management Capacity (FMC) | Payables Turnover ratio | FMC1 | Gross revenue/Average payables | Vu and Nguyen (2007), Marian et al. (2012), Nguyen (2013) |
| | Average day payables | FMC2 | Revenue/average of starting payables and ending payables | |

Table 2: General Descriptive Statistics and Detail Descriptive Statistics

| General Descriptive Statistics | | | | | | | | | | |
|---------------------------------------|------------|-------------|------------|------------|------------------|-------------|------------|-----------|-------------|-------------|
| Variable | Obs | Mean | | | Std. Dev. | Min | Max | | | |
| Dependent Variable | | | | | | | | | | |
| ROA | 75 | 0.089944 | | | 0.0948046 | -0.252 | 0.3405 | | | |
| ROE | 75 | 0.1536307 | | | 0.1641782 | -0.3706 | 0.6123 | | | |
| ROS | 75 | -0.023563 | | | 0.7448909 | -6.2586 | 1.1043 | | | |
| Independent Variable | | | | | | | | | | |
| CS1 | 75 | 0.9334933 | | | 0.1090019 | 0.4776 | 0 1 | | | |
| CS2 | 75 | 0.4348213 | | | 0.1854231 | 0.0487 | 0.8135 | | | |
| CS3 | 75 | 1.037579 | | | 0.8987545 | 0.0512 | 4.3624 | | | |
| S1 | 75 | 486,005.7 | | | 290,110.9 | 0 | 1,174,440 | | | |
| S2 | 75 | 330,354.6 | | | 282,445.4 | 101,832 | 1,405,537 | | | |
| IET1 | 75 | 0.244036 | | | 0.1214555 | -0.0074 | 0.56 | | | |
| G1 | 75 | 0.0519813 | | | 0.3923879 | -1 | 1.7864 | | | |
| G2 | 75 | 0.0694684 | | | 0.3233429 | -1 | 1.247 | | | |
| FMC1 | 75 | 509.302 | | | 2,834.729 | 0 | 19,815.18 | | | |
| FMC2 | 75 | 37.66264 | | | 45.85016 | 0 | 338 | | | |
| Detail Descriptive Statistics | | | | | | | | | | |
| Dependent Variable | | | | | | | | | | |
| Stats | ROA | | | ROE | | | ROS | | | |
| N | 6.7458 | | | 11.5223 | | | -1.767226 | | | |
| sum | 0.5925 | | | 0.9829 | | | 7.3629 | | | |
| range | 0.0089879 | | | 0.0269545 | | | 0.5548624 | | | |
| variance | 1.05404 | | | 1.068655 | | | -31.61272 | | | |
| cv | 0.0109471 | | | 0.0189577 | | | 0.0860126 | | | |
| skewness | -0.0596468 | | | -0.1316035 | | | -7.930744 | | | |
| kurtosis | 4.698497 | | | 4.961448 | | | 67.30833 | | | |
| p 50 | 0.0732 | | | 0.1143 | | | 0.039 | | | |
| Independent Variable | | | | | | | | | | |
| Stats | CS1 | CS2 | CS3 | S1 | S2 | IET1 | G1 | G2 | FMC1 | FMC2 |
| N | 70.012 | 32.6116 | 77.8184 | 3.65e+07 | 2.48e+07 | 18.3027 | 3.8986 | 5.210128 | 38197.65 | 2824.698 |
| sum | 0.5224 | 0.7648 | 4.3112 | 1174440 | 1303705 | 0.5674 | 2.7864 | 2.247 | 19815.18 | 338 |
| range | 0.0118814 | 0.0343817 | 0.8077597 | 8.42e+10 | 7.98e+10 | 0.0147514 | 0.1539683 | 0.1045506 | 8035688 | 2102.237 |
| variance | 0.1167678 | 0.4264351 | 0.8662038 | 0.596929 | 0.8549765 | 0.4976951 | 7.548631 | 4.654533 | 5.56591 | 1.217391 |
| cv | 0.0125865 | 0.0214108 | 0.1037792 | 33499.12 | 32613.99 | 0.0140245 | 0.0453091 | 0.0373364 | 327.3263 | 5.294321 |
| skewness | -2.124417 | 0.2113604 | 1.567896 | 0.3858335 | 2.047407 | 0.6130754 | 0.674647 | 0.6935193 | 6.041868 | 4.053048 |
| kurtosis | 7.096187 | 2.05793 | 5.260313 | 2.460239 | 6.938022 | 2.75927 | 8.10963 | 7.52578 | 38.35435 | 25.88739 |
| p 50 | 0.9877 | 0.3735 | 0.5962 | 446562 | 213106 | 0.2015 | 0.0532 | 0.0419 | 13.3 | 24 |

4.2. Correlation Analysis Results

Table 3 shows the results of correlation analysis, also known as multicollinearity analysis. The results present that all the absolute value of each correlation coefficient between 2 independent variables are less than 0.8, except for that of the two independent variables CS2 and CS3 with the correlation coefficient of 0.9215. Therefore, the multicollinearity phenomenon occurs between the two variables CS2 and CS3, the remaining pair of independent variables do not suffer from multicollinearity. Thus, the independent variable CS3 will be excluded from the regression model (Bryman & Cramer, 2001). The regression model then has 5 independent variables with 9 observed variables and 1 dependent variable with 3 observed variables.

4.3. Regression Results

With 95% of confidence degree, Table 4 shows:

For observed variable ROA of the dependent variable

$F = 6.07 > 1.96$ and $\text{Prob} > F = 0.0000 < 0.05$: Thus, the model is consistent and statistically significant (Bryman & Cramer, 2001).

R -Squared = 0.4565 means that the independent variables of the research model can explain 45.65% of the influence of independent variables on the dependent variable. Therefore, the research results are temporarily accepted, but still need to be tested the suitability of the model (Bryman & Cramer, 2001).

For observed variable ROE of the dependent variable

$F = 3.69 > 1.96$ and $\text{Prob} > F = 0.0000 < 0.05$: Thus, the model is consistent and statistically significant (Bryman & Cramer, 2001).

R -Squared = 0.3382 means that the independent variables of the research model can explain 33.82% of

the influence of independent variables on the dependent variable. Therefore, the research results are temporarily accepted, but still need to be tested the suitability of the model (Bryman & Cramer, 2001).

For observed variable ROS of the dependent variable

$F = 1.44 < 1.96$ and $\text{Prob} > F = 0.1902 > 0.05$: Thus, the model is not consistent and statistically significant (Bryman & Cramer, 2001).

Table 5 shows that there are seven observed variables of five independent variables with VIF coefficient less than 2, so it can be confirmed that these five independent variables are not autocorrelated to each other; two observed variables of the five independent variables all have VIF coefficient in the range $2 < \text{VIF} < 5$; therefore, it can be concluded that no autocorrelation occurs (Bryman & Cramer, 2001).

For ROA: Table 6 shows that, $\text{Prob} > \chi^2 = 0.3589 > 0.05$; thus, there is not a phenomenon of heteroskedascity, which means that the model is suitable with the input data. Therefore, it is not necessary to use another model at a higher level (Bryman & Cramer, 2001).

Table 4 shows column $p > |t|$ and column Coef, with a significance level of 95%, the regression equation of factors affecting ROA is as follows:

$$\text{ROA} = -0.3968414 \times \text{CS1} - 0.1375536 \times \text{CS2} - 2.32\text{e}-07 \times \text{S2} + 0.0656586 \times \text{G2}$$

Conclusion: CS1, CS2 and S2 have the opposite effect on ROA, while G2 has a positive effect on ROA, the remaining factors do not affect ROA. ($2.32\text{e}-07 = 0.000000232$).

For ROE: Table 6 shows that, $\text{Prob} > \chi^2 = 0.0762 > 0.05$; thus, there is not a phenomenon of heteroskedascity, which means that the model is suitable with the input data. Therefore, it is not necessary to use another model at a higher level (Bryman & Cramer, 2001).

Table 3: Correlation Analysis Results of Independent Variable

| | CS1 | CS2 | CS3 | S1 | S2 | IET1 | G1 | G2 | FMC1 | FMC2 |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| CS1 | 1.0000 | | | | | | | | | |
| CS2 | -0.2255 | 1.0000 | | | | | | | | |
| CS3 | -0.1142 | 0.9215 | 1.0000 | | | | | | | |
| S1 | -0.1710 | 0.1907 | 0.1041 | 1.0000 | | | | | | |
| S2 | -0.7729 | 0.2640 | 0.1591 | 0.3672 | 1.0000 | | | | | |
| IET1 | -0.0222 | -0.2469 | -0.3085 | 0.2300 | 0.0087 | 1.0000 | | | | |
| G1 | 0.0398 | 0.0762 | 0.0748 | 0.3893 | -0.0130 | 0.1599 | 1.0000 | | | |
| G2 | -0.4283 | -0.0349 | -0.0801 | 0.2234 | 0.3995 | 0.1170 | 0.1118 | 1.0000 | | |
| FMC1 | 0.1086 | 0.3354 | 0.5609 | 0.0515 | -0.1012 | -0.1478 | 0.0231 | 0.0102 | 1.0000 | |
| FMC2 | -0.3702 | 0.1468 | 0.1302 | -0.2267 | 0.3190 | -0.2662 | -0.1964 | -0.1118 | -0.1469 | 1.0000 |

Table 4: OLS Regression Results

| OLS Regression Results for Observed Variable ROA of the Dependent Variable | | | | | | |
|---|--------------|------------------|-------------|------------------------|-----------------------------|------------|
| Source | SS | df | MS | Number of obs = 75 | | |
| | | | | F (9, 65) = 6.07 | | |
| Model | 0.303595364 | 9 | 0.033732818 | Prob > F = 0.0000 | | |
| Residual | 0.361509881 | 65 | 0.00556169 | R-squared = 0.4565 | | |
| Total | 0.665105245 | 4 | 0.008987909 | Adj R-squared = 0.3812 | | |
| | | | | Root MSE = 0.07458 | | |
| ROA | Coef. | Std. Err. | t | P > t | [95% Conf. Interval] | |
| CS1 | -0.3968414 | 0.1361243 | -2.92 | 0.005 | -0.6687004 | -0.1249823 |
| CS2 | -0.1375536 | 0.0559405 | -2.46 | 0.017 | -0.2492746 | -0.0258326 |
| S1 | 4.68e-08 | 3.89e-08 | 1.20 | 0.234 | -3.10e-08 | 1.25e-07 |
| S2 | -2.32e-07 | 5.48e-08 | -4.24 | 0.000 | -3.42e-07 | -1.23e-07 |
| IET1 | 0.1421049 | 0.0795967 | 1.79 | 0.079 | -0.0168606 | 0.3010704 |
| G1 | 0.0137934 | 0.024661 | 0.56 | 0.578 | -0.035458 | 0.0630449 |
| G2 | 0.0656586 | 0.0324294 | 2.02 | 0.047 | 0.0008926 | 0.1304245 |
| FMC1 | 2.60e-06 | 3.40e-06 | 0.76 | 0.448 | -4.20e-06 | 9.40e-06 |
| FMC2 | -0.000253 | 0.0002371 | -1.07 | 0.290 | -0.0007265 | 0.0002205 |
| _cons | 0.5424564 | 0.1477534 | 3.67 | 0.000 | 0.2473725 | 0.8375403 |
| OLS Regression Results for Observed Variable ROE of the Dependent Variable | | | | | | |
| Source | SS | df | MS | Number of obs = 75 | | |
| | | | | F (9, 65) = 3.69 | | |
| Model | 0.674487915 | 9 | 0.074943102 | Prob > F = 0.0009 | | |
| Residual | 1.32014398 | 65 | 0.020309907 | R-squared = 0.3382 | | |
| Total | 1.9946319 | 74 | 0.026954485 | Adj R-squared = 0.2465 | | |
| | | | | Root MSE = 0.14251 | | |
| ROE | Coef. | Std. Err. | t | P > t | [95% Conf. Interval] | |
| CS1 | -0.5847384 | 0.2601275 | -2.25 | 0.028 | -1.104249 | -0.0652279 |
| CS2 | -0.0429706 | 0.1068999 | -0.40 | 0.689 | -0.2564644 | 0.1705232 |
| S1 | 7.62e-08 | 7.44e-08 | 1.02 | 0.310 | -7.24e-08 | 2.25e-07 |
| S2 | -3.58e-07 | 1.05e-07 | -3.42 | 0.001 | -5.68e-07 | -1.49e-07 |
| IET1 | 0.2077487 | 0.1521057 | 1.37 | 0.177 | -0.0960273 | 0.5115246 |
| G1 | 0.0077098 | 0.0471261 | 0.16 | 0.871 | -0.0864075 | 0.1018271 |
| G2 | 0.1504723 | 0.0619711 | 2.43 | 0.018 | 0.0267074 | 0.2742371 |
| FMC1 | 8.14e-06 | 6.51e-06 | 1.25 | 0.215 | -4.85e-06 | 0.0000211 |
| FMC2 | -0.0004654 | 0.000453 | -1.03 | 0.308 | -0.0013702 | 0.0004394 |
| _cons | 0.7513568 | 0.2823502 | 2.66 | 0.010 | 0.1874646 | 1.315249 |

Table 4: (Continued)

| OLS Regression Results for Observed Variable ROS of the Dependent Variable | | | | | | |
|--|------------|-----------|-------------|------------------------|----------------------|-----------|
| Source | SS | df | MS | Number of obs = 75 | | |
| | | | | F (9, 65) = 1.44 | | |
| Model | 6.82224611 | 9 | 0.758027346 | Prob > F = 0.1902 | | |
| Residual | 34.2375718 | 65 | 0.526731874 | R-squared = 0.1662 | | |
| Total | 41.0598179 | 74 | 0.554862404 | Adj R-squared = 0.0507 | | |
| | | | | Root MSE = 0.72576 | | |
| ROS | Coef. | Std. Err. | t | P > t | [95% Conf. Interval] | |
| CS1 | -1.87033 | 1.324729 | -1.41 | 0.163 | -4.515997 | 0.7753367 |
| CS2 | 0.2654043 | 0.5443999 | 0.49 | 0.628 | -0.2564644 | 1.352646 |
| S1 | 4.89e-07 | 3.79e-07 | 1.29 | 0.202 | -2.68e-07 | 1.25e-06 |
| S2 | -1.35e-06 | 5.33e-07 | -2.54 | 0.014 | -2.42e-06 | -2.87e-07 |
| IET1 | 0.5944503 | 0.7746155 | 0.77 | 0.446 | -0.9525638 | 2.141464 |
| G1 | 0.291263 | 0.239995 | 1.21 | 0.229 | -0.1880401 | 0.7705661 |
| G2 | 0.4228286 | 0.3155949 | 1.34 | 0.185 | -0.207458 | 1.053115 |
| FMC1 | -1.70e-06 | 0.0000331 | -0.05 | 0.959 | -0.0000679 | 0.0000645 |
| FMC2 | 0.003042 | 0.0023072 | 1.32 | 0.192 | -0.0015657 | 0.0076498 |
| _cons | 1.512844 | 1.437901 | 1.05 | 0.297 | -1.358842 | 4.38453 |

Table 5: Result of the Autocorrelation by VIF Coefficient (Estat Vif) of ROA, ROE

| Variable | VIF | 1/VIF |
|----------|------|----------|
| S2 | 3.19 | 0.313614 |
| CS1 | 2.93 | 0.341378 |
| S1 | 1.70 | 0.588758 |
| FMC2 | 1.57 | 0.636079 |
| G2 | 1.46 | 0.683552 |
| CS2 | 1.43 | 0.698545 |
| G1 | 1.25 | 0.802643 |
| IET1 | 1.24 | 0.804176 |
| FMC1 | 1.24 | 0.807144 |
| Mean VIF | 1.78 | |

Table 4 shows column $p > |t|$ and column Coef, with a significance level of 95%, the regression equation of factors affecting ROE is as follows:

$$ROE = -0.5847384 \times CS1 - 3.58e-07 \times S2 + 0.1504723 \times G2$$

Conclusion: CS1 and S2 have the opposite effect on ROE while G2 has a positive effect on ROE, the remaining factors do not affect ROE. ($3.58e-07 = 0.000000358$).

Table 6: Results of Heteroskedascity (Estat Hottest)

| ROA | ROE |
|---|---|
| Breusch-Pagan / Cook-Weisberg test for heteroskedasticity | Breusch-Pagan / Cook-Weisberg test for heteroskedasticity |
| Ho: Constant variance | Ho: Constant variance |
| Variables: fitted values of ROA | Variables: fitted values of ROE |
| chi2(1) = 0.84 | chi2(1) = 3.14 |
| Prob > chi2 = 0.3589 | Prob > chi2 = 0.0762 |

5. Discussion and Conclusion

We focus on the observed variables of factors in the research model that affect the firm performance of the F&B firms listed on the HNX.

Observed variables: the ratio of short-term debt to total liabilities (CS1) of the capital structure factor negatively affects (-) on ROA, ROE. The observed variable debt to total assets ratio (CS2) of the capital structure factor have an opposite effect (-) to ROA. (i) According to the capital structure theory, the debt ratio increases the profitability of the firm because of the benefit from tax shield. However, the debt ratio has a two-sided impact. Debt is a lever for firms

to increase revenue, thereby increasing profits. At the same time, if the use of debt is not effective, it will easily push the firm to the edge of bankruptcy. The above research results show that firms in the F&B industry use debt ineffectively, the benefits obtained from borrowing cannot compensate for the costs arising from debts. (ii) One of the reasons for the ineffective use of debt comes from the enterprises themselves who still depend on debt. In addition, fluctuating inflation has a great influence on interest rates and debt repayment of firms. In the period 2015–2019, although the economy tends to stabilize, the F&B market still suffers from many difficulties, affecting their firm performance.

The observed variable of total assets (S2) of the factor firm size has an opposite impact (–) on ROA and ROE. The larger the total assets of the enterprise, the lower the firm performance is because the enterprises have not promoted their efficiency in assets using, making firm profits decrease, leading to a significant decline in ROA and ROE.

The observed variable of growth of total assets (G2) of the growth factor positively affects (+) on ROA and ROE. The more firms focus on expanding their investment for their business, the more efficient and developed they are. This result is consistent with the theory and research results of Abbasali and Esfandiari (2012).

We propose some recommendations on factors in the research model that affect the firm performance of F&B firms listed on the HNX.

Capital Structure Recommendation

Effective capital use: F&B firms listed on the HNX need to have a detailed plan to effectively handle tasks such as debts collection, inventories clearance as the production and business plans. Increasing the speed of working capital has the effect of reducing the need for capital, hence firms are not under the pressure to borrow for investment activities as well as to settle debts such as suppliers' debts, bank loans. **Determining the funding sources:** determining which business activities the enterprise's internal capital cannot meet or if borrowed capital will bring higher profits to make reasonable decisions. In addition, firms need to reduce short-term loans and utilize long-term loans.

Employ capital raising channels: According to research results, growth of total assets (G2) will improve firm performance, but the ratio of debt to total assets (CS2) has an opposite effect; this shows that the growth of the enterprise helps to improve firm performance when the increase in performance comes from profit and equity. Therefore, enterprises should focus on capital raising channel of shares issuance to existing shareholders, for the employees in enterprises, for strategic partners or issuing widely on the stock market. This is a fairly effective form of capital raise because enterprises can access capital in large quantity and be stable in a long time. From there, enterprises can make

long-term production and business plans, do not worry about fluctuation of interest rate in the market like bank loans. However, in order to successfully receive this capital source, enterprises need to focus on innovating and completing some of the following contents:

- (i) **Build credibility and reputation of firms:** firms need to be transparent in providing information to the market. Information about financial statements as well as their commitment to long-term business strategies will make enterprises gain the trust of investors, then it will certainly be easier to raise capital.
- (ii) **Building an image of the capacity of enterprises:** enterprise capacity is shown through management ability, operational skills, financial capacity as well as business acumen. Corporate financial commitment is for specific business activities. Enterprises need to prepare financial statements on firm performance, management capacity (ISO standard certification, etc.) because those are the most obvious manifestations of their ability to investors, sponsors, and suppliers. Transparent, honest and high quality financial statements are a tool to provide information about firms' operations, at the same time provide necessary information for regulatory agencies, existing and potential investors, creditors, etc. about the financial situation of the business. Therefore, trustfulness in financial statements is of particular importance.

In addition, firms can get finance from investment funds. Currently in Vietnam, there are quite a lot of investment funds. Investment funds with the financial potential, professional capacity in collecting, distributing and analyzing data will be a bridge, not only to help firms overcome difficulties in capital through buying shares, but also contribute to reducing weaknesses in governance, by consulting strategies, improving production processes, financial accounting and professional staff reference. This is also a strategy for investment funds to manage capital resources, minimize risks and have a certain voice in firms. However, in order to attract capital from investment funds, firms need to be transparent in their financial statements, present feasible projects, effective business strategies, and a professional and capable management team.

Recommendation on firm size

According to a survey by Vietnam Report, the reasons firms assess factors that contribute the most to the growth rate in the past 5 years (2015–2019) are due to the growth of the domestic and regional markets. Next is the development of new product lines; expansion of existing markets; development of new market segments with ready-made and cost-competitive skilled labor. Therefore, F&B firms listed

on the HNX need to diversify their products, develop new product lines, and expand existing markets, develop new market segments.

F&B firms listed on the HNX need to avoid diversified, spread and ineffective investments. Business portfolio must be focused on projects with potential and guaranteed investment capital. Each enterprise needs to restructure its production, adapt to and research the market, ensure to maintain and improve the quality of products and services to meet the increasing demands of customers. To improve competitiveness and market share expansion, firms can choose projects in potential segments based on market trends or technical strengths. Firms with an advantage in technology, or specialized engineering methods can extract revenue from projects that are a part of the entire agricultural project, starting from propagation, production and consumption.

Recommendations for Growth Factor

Enterprises with stable high revenue growth always get the attention of investors. However, it is not possible to conclude that enterprises are growing well even when enterprises have high and continuous asset growth index. Therefore, the F&B firms listed on the HNX need to maintain a stable revenue growth at a high level.

Enterprises need to choose a reasonable growth rate, not too fast, and use debt at a moderate level. Choosing a reasonable growth rate is a very important and decisive factor in reducing interest expenses. In addition, firms need to focus on increasing additional equity through retaining profits for reinvestment and issuing additional shares to reduce dependence on debt, maintain the coefficient at a reasonable level to decrease interest expenses.

Experts also stated that the consumption demand, especially in big cities and central cities, for food and beverages is increasing and diversifying. However, these needs are also concerned more closely with highly technical criteria such as traceability, nutritional products and health assurance. Therefore, perfecting the system from production to distribution of enterprises is essential to compete in the market, meeting the increasingly high and diverse needs of consumers (Quynh Anh, 2019).

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