

Impacts of factors affecting the business efficiency of seafood companies listed on the stock market of Vietnam



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ABSTRACT

This study aims to examine the factors affecting the business efficiency of companies in the seafood industry listed on the Vietnamese stock market. The article analyzes the data collected from the financial statements of 20 listed seafood companies operating in Vietnam from 2016 to 2020. The study uses EViews software in quantitative analysis to build a panel data regression model to determine the relationship and level of impact of internal factors on the business performance of seafood companies. Business efficiency is measured by return on assets (ROA), return on equity. The research results show that the factors affecting the business efficiency of listed seafood companies include: capital structure, firm size, growth rate of assets, solvency.

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1. Introduction

The fishery sector plays an important role in Vietnam's economic development strategy, especially in today's global integration. However, it is a fact that the number of joint-stock companies with low profitability or inefficient operation, possibility to be suspended, dissolved, and bankrupt tended to increase over the past years. Therefore, the important question is how to improve the business efficiency of these companies in the near future? To answer that question, it is necessary to analyze, find out the causes and influencing factors. As a basis to come up with solutions to adjust business strategies, allocate and use resources efficiently, reasonably coordinate resources and improve business efficiency.

Business efficiency represents the development in depth, reflecting the level of exploitation and use of resources in the reproduction process to achieve business goals with the lowest costs and highest efficiency. Therefore, improving business performance is necessary for any company to maximize profits.

Vietnam's stock market is a long-term capital mobilization channel for investment and development. The major concern of investors on the

stock market is the efficiency of production and business activities of listed joint-stock companies. Therefore, listed seafood companies must improve their business efficiency in order to attract investors. The study of influencing factors is necessary to help companies be aware of their advantages, access investment capital to expand and develop the company and contribute to stabilizing the economy.

2. Literature review and hypotheses

2.1. Literature review

Myers and Majluf (1984) conducted a study on determining the order of priority in selecting capital sources in funding decisions. Accordingly, the study indicates that enterprises prefer to choose to finance with internal capital. In the case of having to choose external sources of capital, enterprises will choose an order that achieves the goal of minimizing the cost increase due to asymmetric information. The order of priority for the selection of capital sources includes:

- (i) Internal capital,
- (ii) Debts,
- (iii) Owner's contributed capital.

Consequently, the study concludes that: Firstly, the size and proportion of debts play an important role in choosing the optimal capital structure. Although the use of debt can increase the financial risk of enterprises, it will have the effect of maximizing the return on equity if used effectively.

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Secondly, when businesses are affected by the fluctuations of the business situation as well as the characteristics of their industries and business areas, they need to determine a target capital structure for themselves to ensure an optimal capital structure and consider financial risk factors and profitability in each specific condition and circumstance.

Fischer et al. (1989) argued that the capital structure of enterprises in fact does not always coincide with the optimal capital structure. The study indicates that the more profitable the enterprise, the greater the benefits from the tax shield when the enterprise borrows more money. Therefore, businesses should operate with higher leverage to take advantage of the tax shield. Although the cost of financial distress or bankruptcy of the enterprise will be higher when the enterprise operates with a high level of leverage. Bankruptcy costs do exist, but they represent a relatively small fraction of the tax shield benefits. Therefore, there should be a positive relationship between capital structure and the performance of enterprises.

The studies of Roden and Lewellen (1995), Hadlock and James (2002), and Berger and Patti (2006) also have similar results.

Baker and Wurgler (2002) studied the US market from 1968 to 1999 and showed that: The Company will issue shares when its price is overvalued and will buy it back in the future when the share price is undervalued. Thus, the timing of the market has an impact on the capital structure, thereby affecting the financing decision of enterprises.

Phillips and Sipahioglu (2004) studied the relationship between capital structure and financial performance of hotel businesses in the UK. By means of the least-average estimation method, the research results show that there is no correlation between capital structure and return on equity (ROE). Abor (2005) studied the impact of capital structure on the profitability of 33 companies listed on the stock market in the period 1998-2002. By regression method, the research results show that there is a negative, statistical relationship between debt ratio and return on equity.

Khatib et al. (2011) based on data collected from 2005-2009, studied the relationship between corporate governance quality and business performance of enterprises through ROA, ROE, and Tobin's Q coefficients with explanation variables including financial leverage, firm size, and asset growth of 20 companies listed on Karachi Stock Exchange, Pakistan. The results show that financial leverage and asset growth rate have a statistically significant effect on ROA, ROE, and Tobin's Q, while firm size has no effect on the mentioned criteria. This study indicates that the business efficiency of enterprises is determined by corporate governance policies.

2.2. Hypotheses

Based on research and experience on the business efficiency of companies, the author

establishes four basic factors affecting the business efficiency of seafood companies listed on Vietnam's stock market as follows.

2.2.1. Capital structure

The capital structure of an enterprise is a combination of debt (short-term debt and long-term debt) and equity in the total capital that the business mobilizes to finance business activities (Saad, 2010). Research on the relationship between capital structure and business efficiency, Phillips and Sipahioglu (2004) showed that there is no correlation between capital structure and return on investment (ROE) of enterprises. Modern capital structure theory in the article of Modigliani and Miller (1958) (M&M Theory) also has similar research results. However, the research results of Abor (2005) showed that there is a negative relationship between debt ratio and return on equity. Research by Abdullah (2013), also showed that capital structure is negatively related to ROA and ROE; short-term debt ratio has a negative relationship with ROA, ROE; long-term debt ratio has a positive relationship with ROE. In contrast, research by Ooi (1999) suggested that companies with good business efficiency will be able to attract more loans from financial institutions due to tax benefits and relatively low bankruptcy costs.

The assumption of this study is:

H₁: Capital structure has a negative effect on business efficiency.

2.2.2. Company size

Company size indicates the financial resources that the company currently owns. Majumdar (1997) showed that firm size has an effect on profitability because large companies will have higher business efficiency and vice versa. Economies of scale are obtained to help reduce fixed costs, purchase raw materials and spare parts in large quantities. Wu and Chua (2009) argued that larger firms are more competitive because they have advantages in accessing financial resources. Research by Tzelepis and Skuras (2004) also showed that there is no significant effect between size and business efficiency of the company.

The assumption of the study is:

H₂: Firm size has a positive effect on business efficiency.

2.2.3. Growth rate

Growth is one of the basic conditions for the company to accumulate capital, invest in business expansion, and create a good image with customers, investors, and suppliers. If the company uses undistributed profits to reinvest, asset growth is an opportunity to increase revenue, profit, and ROA.

Thus, business performance will be better if the company has a high growth rate of total assets. Research by Tzelepis and Skuras (2004) showed that the growth rate of total assets has a positive effect on business performance. Research by Pouraghajan et al. (2012) also had similar conclusions.

The assumption of the study is:

H3: The growth rate of total assets is positively related to business efficiency.

2.2.4. Solvency

Solvency reflects the liquidity of the company. If high liquidity allows the company to overcome certain difficult periods. Research by Almajali et al. (2012) showed that the company's solvency has a positive impact on business performance. However, research by Bolek and Wili'nski (2012) suggested that a quick ratio has a negative impact on ROA. The assumption of the study is:

H4: Short-term debt solvency positively affects business efficiency.

3. Research methods

3.1. Research data

The sample in the study is 20 seafood companies listed on the Vietnamese stock market, the research period is from 2016 to 2020. The source of data collection is information on exchanges, securities companies, and the data is collected directly in the companies. This is considered a reliable source of information.

The data used in the research is selected from the financial statements and other annual reports of the company, which have been established on the basis of compliance with accounting standards and have been audited.

3.2. Research model

The study uses quantitative methods, the authors use econometric models to test the impact of internal factors on the business efficiency of listed seafood companies in Vietnam.

3.2.1. Overall regression model

The regression model is as follows:

$$Y = \beta_1 + \beta_2 X_n + u_i$$

where, Y is dependent variable; X_n is The independent variable affects the dependent variable; β₁ is Free coefficient; β_t is Regression coefficient (t = 2 ~ n); u_i is a Random error

In the specific regression model of the study, the dependent variable is the business performance of

the company represented by ROE determined by the company's profit after tax on average equity. The independent variables include: (i) Capital structure (CS), (ii) Firm size (SIZE), (iii) Growth rate (GRO), (iv) Short-term debt solvency (SOL) (Fig. 1).

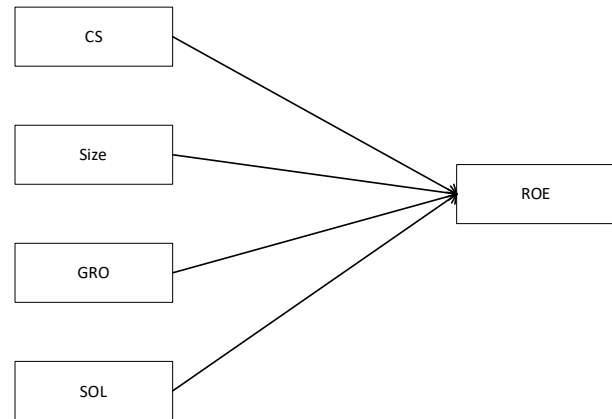


Fig. 1: Independent variables

3.2.2. Building and testing the research model

The parameters of the regression model are estimated by EViews software. Overall regression model:

- $ROE_i = \beta_1 + \beta_2 CS_i + \beta_3 SIZE_i + \beta_4 GRO_i + \beta_5 SOL_i + u_i$

Overall regression function:

- $ROE_i = \beta_1 + \beta_2 CS_i + \beta_3 SIZE_i + \beta_4 GRO_i + \beta_5 SOL_i$

in which:

1. Dependent variable in ROE model (ROE is calculated by average profit after tax on equity of each company in 20 companies in Vietnam's seafood industry in the period 2016-2020).
2. The group of independent variables in the model includes:

CS: The capital structure variable of company i, measured by the debt-equity ratio of company i.

SIZE: Size variable of company i, measured by the logarithm of the value of assets of company i.

GRO: Variable growth rate of the company i, measured by the growth rate of total assets of company i.

SOL: Variable short-term debt solvency of company i, which is determined by the ratio of current assets to short-term liabilities of company i.

β_i: The partial regression coefficient measures the change in the mean value of the dependent variable ROA, ROE when the independent variable changes by one unit and the other independent variable remains unchanged.

u_i: random error of the model.

The statistics are presented in the Table 1.

Table 1: Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	100	-8.04460000	.26743000	-.1210142291	.87578781724
ROE	100	-1.7845600	.5941000	.077989953	.2835678954
CS	100	-2.8773500	6.5101200	1.394368775	1.5850113234
SIZE	100	4.787410	6.982736	5.87090017	.501304084
GRO	100	-9.9299400	1.2674900	-.038403612	1.0381933339
SOL	100	.06373	26.04213	2.0389669	3.67536914
Valid N (listwise)	100				

Table 1 shows that the after-tax return on assets (ROA) and return-on-equity (ROE) ratios of listed seafood companies in the 2016-2020 period are -0.1210142291 and 0.077989953. Here there is a huge variation between companies ranging from -8.04460000 to 0.26743000. This is an issue that needs to be studied in order to find a solution for listed seafood companies in Vietnam. Because of low profitability, many companies have negative ROA, showing inefficient investment and facing many difficulties. On the contrary, ROE has a positive mean value, representing 100 dongs of equity put into the business, the company earned 7,7989953 dongs. This number is not high, but it also proves that the company uses the capital of shareholders relatively effectively. However, the average capital structure is 1.394368775 which means that the 20 listed seafood companies in the period 2016-2020 have an average debt-to-equity ratio of 139.4%. Therefore, seafood companies use more debt than equity to meet business capital needs. Although the ROE is relatively low due to the company's high debt, the profit generated from equity is used only to pay interest on bank loans.

Firm size as measured by the logarithm of the average firm's assets (SIZE) is 5.87090007; the average growth rate (GRO) is -0.038403612; Average short-term debt solvency (SOL) is 2.0389669.

4. Research method

The study runs the model using EViews software and uses the least-squares method (OLS) to determine the regression coefficient β_i . On the basis

of the obtained results, write equations of factors affecting the business performance of the company, then test the appropriateness of the model. This means the β_i test to see if the independent variable can explain the dependent variable or not. Evaluate the fit of the model through the adjusted coefficient of determination R^2 (Adjusted R Square) to determine the explanatory ability of the model in practice.

5. Research results

Run the model with EViews according to the Panel date, we get (Table 2). Regression with Random Effect method shows in Table 3.

Use the Hausman test to select the model shown in Table 4. Hypothesis testing:

H₀: There is no correlation between the explanatory variables and the random component (choose RandomEffect).

H₁: There is a correlation between the explanatory variables and the random component (select FixedEffect).

Prob.=0.0107 <5% inferred rejecting H₀ thereby choosing the Fixed Effect model. Test to remove 1 GRO variable from the original regression model (Table 5). Hypothesis testing:

$$\begin{cases} H_0: \beta_4 = 0 \\ H_1: \beta_4 \neq 0 \end{cases}$$

There is Prob. F=0.7351 > 5% Not enough grounds to reject H₀.

Table 2: Regression results with fixed effect model

Dependent Variable: ROE; Method: Panel Least Squares; Date: 08/03/21 Time: 19:04; Sample: 2016 2020; Periods included: 5; Cross-sections included: 20; Total panel (balanced) observations: 100				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.702671	1.023375	-2.640939	0.0101
CS	-0.073956	0.036296	-2.037581	0.0453
LOG(SIZE)	1.603195	0.588329	2.724994	0.0081
GRO	0.006814	0.020059	0.339717	0.7351
LOG(SOL)	0.279525	0.118584	2.357198	0.0211
Effects Specification				
	Cross-section fixed (dummy variables)			
	Period fixed (dummy variables)			
R-squared	0.710370		Mean dependent var	0.077990
Adjusted R-squared	0.601758		S.D. dependent var	0.283568
S.E. of regression	0.178949		Akaike info criterion	-0.371931
Sum squared resid	2.305649		Schwarz criterion	0.357517
Log likelihood	46.59655		Hannan-Quinn criteria	-0.076710
F-statistic	6.540476		Durbin-Watson stat	1.320548
Prob(F-statistic)	0.000000			

So it is possible to remove 1 GRO variable from the model:

$$ROE = -2.717184 - 0.074741CS + 1.612025SIZE + 0.278172SOL$$

with Prob (F-statistic)=0.0000<5% The regression function is suitable.

The model of factors affecting Vietnam's listed seafood enterprises is:

- Regression model:

$$ROE_i = \alpha_1 - \alpha_2 CS + \alpha_3 SIZE + \alpha_4 SOL$$

- Regression function:

$$ROE_i = -2,717184 - 0.074741CS + 1,612025SIZE + 0,278172SOL$$

Table 3: Regression results with random effect

Dependent Variable: ROE; Method: Panel EGLS (Cross-section random effects); Date: 08/03/21 Time: 19:05; Sample: 2016 2020; Periods included: 5; Cross-sections included: 20; Total panel (balanced) observations: 100; Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.761617	0.751711	-2.343477	0.0212
CS	-0.080282	0.023212	-3.458686	0.0008
LOG(SIZE)	1.099962	0.429097	2.563432	0.0119
GRO	0.016746	0.019782	0.846499	0.3994
LOG(SOL)	0.049304	0.046692	1.055936	0.2937

Effects Specification				
			S.D.	Rho
	Cross-section random		0.193877	0.5305
	Idiosyncratic random		0.182378	0.4695

Weighted Statistics				
R-squared	0.152472	Mean dependent var		0.030242
Adjusted R-squared	0.116787	S.D. dependent var		0.203172
S.E. of regression	0.190940	Sum squared resid		3.463509
F-statistic	4.272688	Durbin-Watson stat		0.944891
Prob(F-statistic)	0.003187			

Unweighted Statistics				
R-squared	0.031505	Mean dependent var		0.077990
Sum squared resid	7.709864	Durbin-Watson stat		0.424474

Table 4: Hausman test results

Correlated Random Effects-Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	13.129063	4	0.0107

Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var(Diff.)	Prob.
CS	-0.070998	-0.080282	0.000822	0.7461
LOG(SIZE)	1.651198	1.099962	0.165675	0.1756
GRO	0.011896	0.016746	0.000012	0.1598
LOG(SOL)	0.260236	0.049304	0.012035	0.0545

Table 5: Test results removing 1 variable GRO from the model

Redundant Variables: GRO

F-statistic	0.115408	Prob. F(1,72)	0.7351
Log likelihood ratio	0.160160	Prob. Chi-Square(1)	0.6890

Test Equation: Dependent Variable: ROE; Method: Panel Least Squares; Date: 08/03/21 Time: 19:07; Sample: 2016 2020; Periods included: 5; Cross-sections included: 20; Total panel (balanced) observations: 100

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.717184	1.016269	-2.673686	0.0093
CS	-0.074741	0.036002	-2.075987	0.0414
LOG(SIZE)	1.612025	0.584183	2.759452	0.0073
LOG(SOL)	0.278172	0.117796	2.361463	0.0209

Effects Specification				
Cross-section fixed (dummy variables)				
Period fixed (dummy variables)				
R-squared	0.709906	Mean dependent var		0.077990
Adjusted R-squared	0.606584	S.D. dependent var		0.283568
S.E. of regression	0.177862	Akaike info criterion		-0.390329
Sum squared resid	2.309344	Schwarz criterion		0.313067
Log likelihood	46.51647	Hannan-Quinn criteria		-0.105652
F-statistic	6.870853	Durbin-Watson stat		1.329146
Prob(F-statistic)	0.000000			

6. Discussion and recommendations

6.1. Discussion

In Table 5, R2 of ROE is 0.709906, indicating that in the regression model, 3 variables CS, SIZE, and SOL have a great influence on ROE, capable of explaining 70,9906% for ROE. In other words,

changes in ROE are caused by the impact of variables CS, SIZE, and SOL. Specifically:

$\alpha_2 = -0.074741$ reflects that the capital structure of listed seafood companies has a negative impact on business performance through ROE. That is, when the debt ratios of companies decrease, the business performance of the company will be better. Specifically, when CS increased by 1%, ROE

decreased by 0.074741%. Therefore, if accessing a lot of capital from outside, the company will reduce profits and reduce production, even though the tax shield is effective. This result is consistent with the study of [Abor \(2005\)](#) and [Abdullah \(2013\)](#).

On the other hand, according to descriptive statistics, ROE is much higher than ROA, showing that listed seafood companies have more debt than equity, so ROE decreases when the debt ratio increases due to inefficient use of capital.

$\alpha_3=1.612025$ reflects that the size of the company has a positive effect on business performance. That is, when the size of listed seafood companies is large, the business efficiency will be higher (in the condition that the other factors remain unchanged). Specifically, if the logarithm of asset value increases by 1%, ROE will increase by 1.612025% and vice versa. This shows that large-scale seafood companies often have many investment opportunities to seek profits to improve their business performance. This result is consistent with the study of [Wu and Chua \(2009\)](#), [Pouraghajan et al. \(2013\)](#), and [Amraoui et al. \(2018\)](#).

On the other hand, because ROE is greater than ROA, it proves that large-scale companies have higher returns to shareholders than small-sized companies, and the growth rate of profits is lower than the growth rate of scale. This is consistent with the study of [Khatab et al \(2011\)](#).

$\alpha_4=0.278172$ means that short-term debt solvency has a positive effect on ROE. When the company's short-term solvency ratio increases by 1%, the company's ROE increases by 0.278172% and vice versa. In other words, the listed seafood company has the ability to pay short-term debt with short-term assets more than 2 times. This result is similar to the study of [Almajali et al. \(2012\)](#).

This study also shows that GRO has no statistical significance for ROE, showing that the assets of listed seafood companies tend to be quite stable in the market, so the increase or decrease in prices is not a factor clearly affecting ROE. This is consistent with the study of [Pouraghajan et al. \(2012\)](#) and the characteristics of the fishery research sample.

6.2. Recommendations

The study conducted a survey of 20 companies in the seafood industry listed on the Vietnamese stock market in the period of 2016-2020. The research model presents four basic factors affecting profitability. Using the quantitative method, the research results show that the factors affecting the ROE of listed companies in the seafood industry include: One negative factor (capital structure CS) and two positive factors (capital size SIZE and short-term debt solvency SOL). Based on the research results, the authors propose some recommendations to increase the profitability of seafood companies listed on the stock market as follows:

- **Firstly**, ensure a reasonable and optimal capital structure: Listed seafood companies often have

large capital needs, the debt-to-equity ratio increases continuously over the years, causing the debt-to-pay ratio to increase accordingly. The higher the financial cost, the lower the profit of the business. This is the direct cause that has a strong impact on the company's ROE. These companies themselves have not been able to exploit equity through the stock market or direct investment capital, but still have to increase loans. Therefore, in order to ensure sufficient capital and reduce financial risks, especially short-term capital for daily production and business activities, the company needs to pay attention to participating in the financial value chain. The closely linked vertical value chain will support companies to save costs, exploit each company's advantages and solve the problem of working capital. At the same time, attracting capital through the stock market will help seafood companies have large capital sources, reduce interest costs, and reduce financial risks to stimulate profit growth.

- **Secondly**, expand the company size: Firm size has a positive effect on business efficiency. Therefore, to increase operational efficiency, listed seafood companies can increase their scale by merging and taking over companies in the same industry. This is consistent with the current period when a series of seafood companies have negative ROA at a high level, facing financial and market difficulties due to the impact of the global epidemic, which has caused many companies to fall into a state of stagnation. In addition, the company needs to find out solutions to promote activities related to research, market expansion, distribution system building, reasonable pricing strategy, etc.
- **Thirdly**, maintain safe solvency: Safe solvency will help the company remain stable sustainably in the payment. Therefore, the company needs to go through the short-term financial management system to find the optimal cash flow in the funds or bank accounts. This helps the company to have certain benefits when paying on time or before due. In the seafood industry, the company's assets mainly exist in the form of short-term assets with inventories and goods sold but have not yet recovered (short-term receivables), especially in the current period. When the Covid epidemic has greatly affected the export situation of the company, the goods in circulation have decreased. Therefore, the company needs to focus on ensuring a reasonable amount of cash to ensure solvency.

In the coming time, the businesses need to regularly analyze their financial situation to make detailed short-term cash low planning to ensure solvency.

7. Conclusion

The article studies the factors affecting the business efficiency of seafood companies listed on

the Vietnam stock market in the period 2016-2020. Through the data collected from 20 listed joint-stock companies, the empirical model was built to show the correlation between internal factors and business efficiency of the company, including capital structure, capital size, growth rate of total assets, and solvency. In which capital structure affects in the opposite direction and capital size and solvency effect in the same direction. The results of this research will help companies in the seafood industry come up with solutions to improve their business performance.

Compliance with ethical standards

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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