Factors Affecting the Profitability of F&B Companies Listed on the Vietnam Stock Exchange

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ABSTRACT: *Secondary data were collected and filtered from the financial statements of 99 companies over a six-year period (from 2017 to 2022) across three stock exchanges: HOSE, HNX, and UPCOM. This data was analyzed to identify the factors affecting the profitability of companies in the F&B sector using a combination of qualitative (grounded theory) and quantitative methods (descriptive statistics and linear regression). The data collected was analyzed using STATA 17 software. The results indicate that there are eight factors affecting the profitability of companies in the F&B industry listed on the stock exchange. These factors include: operating time (AGE), company size (SIZE), revenue growth rate (GRO), financial leverage (LEV), inventory turnover ratio (ITR), total asset turnover ratio (ATR), current ratio (CR), and e-commerce (EC). Based on the research findings, specific solutions have been proposed to assist F&B companies listed on the stock exchange, investors, and credit organizations in making business or investment decisions.*

KEYWORDS – *Inventory turnover, Profitability, F&B industry*

I. INTRODUCTION

To evaluate financial performance, various financial indicators are used in the literature. Profitability is a crucial indicator for assessing a company's growth prospects and is a useful tool for making important decisions related to the company, such as increasing the company's asset value, providing investment capital, extending credit, determining the company's tax obligations, and considering contract signings. The Return on Assets (ROA) ratio is a widely used measure by researchers [1-6] to gauge a company's business performance. Ibrahim Abidemi Odusanya [3] used ROA to examine the determinants of profitability for 114 companies listed on the Nigerian Stock Exchange (NSE) from 1998 to 2012. Utilizing ROA as a metric, the author [6] demonstrated that the company's age, size, leverage ratio, and liquidity are significant factors impacting the business performance of companies. Besides ROA, other financial indicators are also employed to assess a company's financial performance, such as Return on Equity (ROE), Return on Sales (ROS), Net Interest Margin (NIM), and Return on Investment (ROI). ROE measures how well the shareholders' equity is utilized within the year [7] and plays a vital role in evaluating a company's profitability. In addition to these two indicators, ROS directly assesses a company's operating performance, reflecting the relationship between net profit and net revenue [8]. The financial indicators ROA and ROS are used in studies examining the determinants of financial performance of listed food manufacturing companies in Vietnam [9] and evaluating the profitability of listed textile companies on the Vietnamese stock market from 2009 to 2018 [10]. According to study [9], two variables, including the total asset turnover ratio (ATR) and revenue growth, significantly affect financial performance. Abu Kalam (2020) [11] combined ROA, ROE, and NIM to study the impact of factors on profitability in non-bank financial institutions in Bangladesh on the Dhaka Stock Exchange (DSE).

II. FACTORS AFFECTING CORPORATE PROFITABILITY

Tran Tu Uyen (2018) identified the impact of firm size (SIZE), short-term liquidity (CR), and leverage ratio (LEV) on the return on assets (ROA) of enterprises. Le Thanh Huyen (2020) employed regression analysis, correlation analysis, and regression analysis to analyze data collected from 30 companies during the period from 2014 to 2019, concluding that three factors affect the profitability of enterprises: LEV, SIZE, and the ratio of fixed assets. The study (2020) indicated that larger enterprises have a greater impact on the market and can secure a stable economic source, helping them reduce production costs, enhance technology innovation, and increase product value. Nguyen Khanh Linh & Phan Thi Hang Nga (2022) demonstrated that macroeconomic factors such as GDP growth rate (GDPR), interest rates (IntR), and exchange rates (ExcR) have a positive impact on corporate profitability. Using pooled data and the Ordinary Least Squares (OLS) method, Mohammad Kamal Abuamsha (2021) found a significant and positive relationship between managerial ownership, large

ownership, and foreign ownership with the financial performance (ROA, ROE, Tobin's Q) of Palestinian firms from 2017 to 2020.

Theoretically, factors influencing profitability include firm size (SIZE), length of operation (AGE), growth, liquidity, and financial leverage. The larger the enterprise, the higher the profitability [11, 14, 15]. However, some studies [12, 16] suggest that larger firms face more management challenges, which can affect profitability. The longer the operating period (AGE), the more experience enterprises gain in operations and management, allowing them to control production and management costs within permissible limits, thereby generating higher profits [3, 10, 17]. Nevertheless, some studies suggest that younger enterprises may adapt better and be more responsive to market changes [6].

Growth (GRO): Increased growth indicates the development of the enterprise, which can lead to higher profitability [18]. However, some studies show a conflicting relationship between growth and profitability [19]. Liquidity: Adequate and appropriate liquidity promotes profitability while minimizing the risk of bankruptcy. The current ratio (CR) reflects the level of assurance of short-term assets against short-term liabilities. A higher current ratio positively impacts profitability [20]. Financial leverage (LEV) represents the extent of debt utilization within an enterprise. Financial leverage is an effective tool for investors and managers to revive and elevate the enterprise. According to the capital structure theory, leverage and profitability are inversely related. However, depending on the trade-off theory, managers choose between the benefits of tax shields and the risks of financial distress to assert the relationship between leverage and profitability.

Additionally, other factors such as inventory turnover ratio (ITR), total asset turnover ratio (ATR), and e-commerce (EC) are considered. Reasonable inventory reserves are a target for many enterprises, with lower inventory turnover ratios positively impacting profitability [4]. A higher total asset turnover ratio indicates more effective use of assets in production and business activities [10, 22]. E-commerce, also known as online business, has not been extensively studied for its specific impacts on profitability. However, as Vietnam transitions from traditional business methods to a digital economy in line with the global development trend of the Fourth Industrial Revolution, the potential benefits from online business are vast for market-operating enterprises.

III.   RESEARCH METHODOLOGY

The research model was constructed with 3 dependent variables and 8 independent variables affecting F&B companies listed on Vietnam's stock exchange (Table 1). The dependent variables reflect profitability with three representatives: return on assets (ROA), return on equity (ROE), and return on sales (ROS). The independent variables reflect factors affecting profitability with 8 representatives, including: operating time (AGE), firm size (SIZE), revenue growth rate (GRO), financial leverage (LEV), inventory turnover ratio (ITR), total asset turnover ratio (ATR), current ratio (CR), and e-commerce (EC). These variables were selected based on a comprehensive analysis of reference materials.

Symbol	Variable Name	Calculation	Expected Sign
Dependent Variables			
ROA	Return on Assets	Net profit after tax / Average total assets	
ROE	Return on Equity	Net profit after tax / Average equity	
ROS	Return on Sales	Net profit after tax / Average net sales	
Independent Variables			
SIZE	Firm size	Natural logarithm (Total assets at year-end)	+
AGE	Operating time	2023 - Year of establishment	+
LEV	Financial leverage	Total debt / (Short-term payables + equity)	-
GRO	Revenue growth rate	(Current year net sales - Previous year net sales) / Previous year net sales	+
ITR	Inventory turnover ratio	Cost of goods sold / Average inventory value	-
ATR	Total asset turnover ratio	(Net sales - deductions) / Average total assets	+
CR	Current ratio	Total short-term assets / Short-term debt	+
EC	E-commerce	Does the enterprise sell online? (If the enterprise sells online on e-commerce platforms, it will receive a value of 1; otherwise, it will receive a value of 0)	+

Table 1: Variables Used in the Research Model

Based on the review of studies on profitability and the factors affecting profitability, the following research model is proposed:

Model 1:

$$ROA_{i,t} = a_o + a_1 SIZE_{i,t} + a_2 AGE_{i,t} + a_3 LEV_{i,t} + a_4 GRO_{i,t} + a_5 ITR_{i,t} + a_6 ATR_{i,t} + a_7 CR_{i,t} + a_8 EC_{i,t} + e_{i,t}$$

Model 2:

$$ROA_{i,t} = a_o + a_1 SIZE_{i,t} + a_2 AGE_{i,t} + a_3 LEV_{i,t} + a_4 GRO_{i,t} + a_5 ITR_{i,t} + a_6 ATR_{i,t} + a_7 CR_{i,t} + a_8 EC_{i,t} + e_{i,t}$$

Model 3:

$$ROA_{i,t} = a_o + a_1 SIZE_{i,t} + a_2 AGE_{i,t} + a_3 LEV_{i,t} + a_4 GRO_{i,t} + a_5 ITR_{i,t} + a_6 ATR_{i,t} + a_7 CR_{i,t} + a_8 EC_{i,t} + e_{i,t}$$

IV.   RESEARCH HYPOTHESES

According to [9, 11, 15], firm size has a positive impact on profitability. Therefore, H1: Firm size positively affects the profitability of F&B companies listed on the Vietnam stock exchange. Studies by [3, 10, 23] show that the operating time of a company positively impacts profitability, hence H2: Operating time positively affects the profitability of F&B companies listed on the Vietnam stock exchange. Financial leverage can help enterprises seize opportunities to meet market demands and achieve profit objectives [2, 16]. Therefore, H3: Financial leverage negatively affects the profitability of F&B companies listed on the Vietnam stock exchange. According to [3, 10, 20, 24], as revenue increases, profitability also increases. Therefore, H4: Revenue growth rate positively affects the profitability of F&B companies listed on the Vietnam stock exchange. As inventory turnover increases, the profitability of enterprises decreases [10, 22, 25]. Thus, H5: Inventory turnover negatively affects the profitability of F&B companies. Studies [10, 22, 25] indicate that as total asset turnover increases, the profitability of enterprises also improves, so H6: Total asset turnover positively affects the profitability of F&B companies listed on the Vietnam stock exchange. Research by Chander & Aggarwal [20] shows that as the current ratio increases, the profitability of enterprises also improves, meaning H7: Current ratio positively affects the profitability of F&B companies listed on the Vietnam stock exchange. The shift in shopping methods not only in Vietnam but worldwide creates a new market with enormous value and unlimited potential. This diversification of sales channels creates new income sources for enterprises, thus, H8: E-commerce positively affects the profitability of F&B companies listed on the Vietnam stock exchange.

V.   RESULTS AND DISCUSSION

5.1 Correlation Analysis of the Model

The results of the correlation coefficients between the variables in the model are shown in Table 2.

Variable	AGE	SIZE	GRO	LEV	ITR	ATR	CR	EC
AGE	1.0000							
SIZE	-0.0873	1.0000						
GRO	-0.0927	-0.0040	1.0000					
LEV	-0.0804	-0.1191	0.1274	1.0000				
ITR	0.0471	-0.0577	0.0674	-0.0641	1.0000			
ATR	-0.0258	-0.0528	0.1290	-0.2838	0.1963	1.0000		
CR	0.0768	-0.0665	-0.0092	-0.2274	-0.0220	-0.0152	1.0000	
EC	0.1478	0.2039	0.0075	0.0258	-0.0003	-0.0027	-0.0935	1.0000

Table 2: Correlation coefficients between the variables in the model

Table 2 shows that the correlation coefficients of the pairs of independent variables all have values <0.8, so the possibility of multicollinearity between the pairs of independent variables in the model is not significant (there is no correlation phenomenon in the model). Therefore, all 8 independent variables are retained to build the model.

5.2 Model Regression Analysis

The study uses panel data, so three techniques for data processing are employed: the Ordinary Least Squares (OLS) model, the Fixed Effects Model (FEM), and the Random Effects Model (REM).

The regression results based on the factors affecting ROA, ROE, and ROS according to the OLS model are shown in Table 3.

variable	ROA			ROE			ROS		
	coefficient	t	P>|t|	coefficient	t	P>|t|	coefficient	t	P>|t|
AGE	0.0008303	-2.83	0.005	0.0043674	1.12	0.264	0.0019401	0.34	0.733
SIZE	0.0086382	6.59	0.000	0.0454395	2.32	0.021	0.0201850	5.94	0.000
GRO	0.0157974	3.45	0.001	0.0830989	0.57	0.567	0.0369140	0.33	0.739
LEV	0.0470068	-15.20	0.000	0.2472704	0.57	0.569	0.1098419	-6.06	0.000
ITR	0.0036810	2.14	0.033	0.0019363	0.32	0.745	0.0008602	0.04	0.967
ATR	0.0126857	-2.55	0.011	0.0667305	1.7	0.090	0.0296429	-0.58	0.563
CR	0.0035896	-0.42	0.675	0.0188824	0.96	0.336	0.0083879	1.39	0.165
EC	0.0270208	-2.14	0.033	0.1421376	0.77	0.442	0.0631400	-2.63	0.009
intercept	0.2412898	-4.89	0.000	1.2692580	-2.59	0.010	0.5638268	-5.28	0.000
N	592			592			592		
Prob > F	0.0000			0.1636			0.0000		
R-squared	0.3754			0.0198			0.1459		

Table 3: Regression Results of ROA, ROE, and ROS According to the OLS Model

The regression results based on the factors affecting ROA according to the OLS model show that the value of Prob > F = 0.0000 (< 5% significance level), indicating that this model is statistically significant. The R-squared value of 0.3754 indicates that the independent variables explain 37.54% of the variation in ROA. There are four independent variables, including operating time, firm size, inventory turnover, and current ratio, which affect profitability at the 1% significance level. Additionally, four independent variables, including revenue growth rate, financial leverage, total asset turnover, and e-commerce, affect profitability at the 5% significance level.

Similarly, the OLS model for ROS also has a Prob > F value of 0.0000 (< 5% significance level), indicating that this model is statistically significant. The R-squared value of 0.1459 indicates that the independent variables explain 14.59% of the variation in ROS. Three independent variables, including operating time, inventory turnover, and current ratio, affect profitability at the 1% significance level. Additionally, three independent variables, including firm size, revenue growth rate, and total asset turnover, affect profitability at the 5% significance level. Meanwhile, the regression results based on the factors affecting ROE according to the OLS model have a Prob > F value of 0.1636 (> 10% significance level), indicating that this model is not statistically significant.

The regression results of the factors affecting ROA, ROE, and ROS according to the FEM model are shown in Table 4.

variable	ROA			ROE			ROS		
	coefficient	t	P >|t|	coefficient	t	P >|t|	coefficient	t	P>|t|
AGE	0.0028693	-3.31	0.001	0.0394080	-0.83	0.408	0.0158344	-0.38	0.704
SIZE	0.0220614	3.26	0.001	0.3030009	3.73	0.000	0.1217478	1.90	0.058
GRO	0.0067205	1.24	0.216	0.0923019	0.87	0.386	0.0370875	-1.80	0.073
LEV	0.0245560	-1.58	0.116	0.3372635	0.15	0.881	0.1355148	-0.23	0.814
ITR	0.0033220	0.74	0.460	0.0045631	1.80	0.072	0.0018335	-0.44	0.659
ATR	0.0118074	1.46	0.145	0.1621681	2.71	0.007	0.0651603	1.03	0.305
CR	0.0019261	1.58	0.115	0.0264539	0.53	0.595	0.0106294	1.39	0.164
EC	Omitted			Omitted			Omitted		
intercept	0.5907505	-2.81	0.005	8.1136240	-3.73	0.000	3.2601100	-3.73	0.000
N	592			592			592		
Prob > F	0.0000			0.0456			0.0000		
R-squared	0.0789			0.0089			0.0669		

Table 4: Regression Results of ROA, ROE, and ROS According to the FEM Model

The regression results of ROA according to the FEM model have a Prob > F value of 0.0000 (< 5% significance level), indicating that this model is highly statistically significant. The R-squared result in the FEM model for ROA is 0.0789, showing that the independent variables explain only 7.89% of the variation in ROA. There are four independent variables, including operating time, firm size, inventory turnover, and current ratio,

which affect profitability at the 1% significance level. Additionally, three independent variables, including firm size, financial leverage, and total asset turnover, affect profitability at the 5% significance level.

The regression results of the factors affecting ROE according to the FEM model have a Prob > F value of 0.0456 (< 5% significance level), indicating that this model is statistically significant. The R-squared result in the FEM model for ROE is 0.0089, showing that the independent variables explain only 0.89% of the variation in ROE. There is one independent variable, inventory turnover, which affects profitability at the 1% significance level. Additionally, two independent variables, including firm size and current ratio, affect profitability at the 5% significance level. Similarly, the OLS model for ROS also has a Prob > F value of 0.0000 (< 5% significance level), indicating that this model is highly statistically significant. The R-squared result in the FEM model for ROS is 0.0669, showing that the independent variables explain only 6.69% of the variation in ROS. There is one independent variable, total asset turnover, which affects profitability at the 1% significance level. Additionally, three independent variables, including operating time, revenue growth rate, and current ratio, affect profitability at the 5% significance level.

Similar to the FEM model, the REM model is run in STATA 17. The regression results of the factors affecting ROA, ROE, and ROS according to the REM model are shown in Table 5.

variable	ROA			ROE			ROS		
	coefficient	t	P>|t|	coefficient	t	P >|t|	Hcoefficient	t	P>|t|
AGE	0.0014360	-1.99	0.046	0.0044729	1.1	0.272	0.0026249	0.39	0.694
SIZE	0.0138307	5.16	0.000	0.0465257	2.29	0.022	0.0271403	4.81	0.000
GRO	0.0073250	1.59	0.113	0.0830776	0.63	0.526	0.0351041	-0.60	0.547
LEV	0.0264884	-3.81	0.000	0.2494151	0.56	0.572	0.1157457	-3.54	0.000
ITR	0.0003325	1.31	0.190	0.0019743	0.35	0.728	0.0010635	-0.10	0.920
ATR	0.0115849	1.54	0.124	0.0679750	1.69	0.090	0.0363361	0.33	0.739
CR	0.0020783	1.56	0.119	0.0190524	0.94	0.345	0.0089148	1.63	0.103
EC	0.0524302	-1.33	0.183	0.1456867	0.74	0.458	0.0864688	-2.03	0.043
intercept	0.3766450	-4.77	0.000	1.2985780	-2.56	0.011	0.7504401	-4.51	0.000
N	592			592			592		
Prob > F	0.0000			0.1669			0.0000		
R-squared	0.1914			0.0198			0.1383		

Table 5: Regression Results of ROA, ROE, and ROS According to the REM Model

Table 5 shows that the regression results of ROA have a Prob > chi2 value of 0.0000 (< 5% significance level), indicating that this model is highly statistically significant. The R-squared result in the REM model for ROA is 0.1914, showing that the independent variables explain 19.14% of the variation in ROA. There are four independent variables, including operating time, revenue growth rate, inventory turnover, and current ratio, which affect profitability at the 1% significance level. Additionally, three independent variables, including firm size, financial leverage, and total asset turnover, affect profitability at the 5% significance level. Similarly, the REM model for ROS also has a Prob > chi2 value of 0.0000 (< 5% significance level), indicating that this model is highly statistically significant. The R-squared result in the REM model for ROS is 0.1383, showing that the independent variables explain 13.83% of the variation in ROS. There are three independent variables, including operating time, inventory turnover, and current ratio, which affect profitability at the 1% significance level. Additionally, three independent variables, including firm size, revenue growth rate, and total asset turnover, affect profitability at the 5% significance level. For ROE, the Prob > chi2 value is 0.1669 (> 10% significance level), indicating that this model is not statistically significant.

5.3 Model Selection

After performing regression analysis according to the three models (OLS, FEM, and REM), tests were conducted between the pairs of models FEM and OLS (F-test), and FEM and REM (Hausman test) to select the optimal model among the three.

Selection of the FEM and OLS models using the F-test with the hypothesis: H0: The appropriate model is FEM and H1: The appropriate model is OLS. On the STATA 17 software, the results of the F-test, the value of Prob > F, are displayed (Table 6) when performing regression of the FEM model.

Selection of the FEM and REM models using the Hausman test with the hypothesis: H0: The appropriate model is FEM and H1: The appropriate model is REM.

The results of the F-test and Hausman test are shown in Table 6.

Test	Dependent Variable: ROA		Dependent Variable: ROE		Dependent Variable: ROS	
	P-value	Selected Method	P-value	Selected Method	P-value	Selected Method
F-Test	Prob > F = 0.0000 < 0.05	FEM is more appropriate than Pooled OLS	Prob > F = 0.0456 < 0.05	FEM is more appropriate than Pooled OLS	Prob > F = 0.0000 < 0.05	FEM is more appropriate than Pooled OLS
Hausman	Prob > chi2 = 0.0000 < 0.05	REM is more appropriate than FEM	Prob > chi2 = 0.0103 < 0.05	FEM is more appropriate than REM	Prob > chi2 = 0.0000 < 0.05	FEM is more appropriate than REM

Table 6: Model Selection Results

For the ROA dependent variable model, the F-Test shows a p-value = 0.0000 < 0.05, therefore, hypothesis H0 is accepted, meaning the FEM model is more appropriate than the Pooled OLS model. With a p-value = 0.000 < 0.05 in the Hausman test, hypothesis H0 is rejected. Therefore, the REM model is more appropriate than the FEM model. From the above test results, it can be concluded that the REM model is chosen as the appropriate model for the ROA dependent variable.

For the ROE dependent variable model, the F-test shows a p-value = 0.0000 < 0.05, therefore, hypothesis H0 is accepted, meaning the FEM model is more appropriate than the Pooled OLS model. With a p-value = 0.0000 < 0.05 in the Hausman test, hypothesis H1 is rejected. Therefore, the FEM model is more appropriate than the REM model. From the above test results, it can be concluded that the FEM model is chosen as the appropriate model for the ROE dependent variable.

For the ROS dependent variable model, the F-test shows a p-value = 0.0456 < 0.05, therefore, hypothesis H0 is accepted, and the FEM model is more appropriate than the Pooled OLS model. With a p-value = 0.0103 < 0.05 in the Hausman test, hypothesis H1 is rejected, so the FEM model is more appropriate than the REM model. From the above test results, it can be concluded that the FEM model is chosen as the appropriate model for the ROS dependent variable.

5.4 Model Testing

When analyzing research data with panel data type, issues such as heteroskedasticity and autocorrelation may arise, leading to biased or inconsistent research results, thereby reducing the reliability of the research results. To detect and propose appropriate handling methods, the following tests are performed:

The heteroskedasticity test using the LM – Breusch and Pagan Lagrangian Multiplier test for the REM model and the Wald test for the FEM model with the hypotheses: H0: The error variances are equal/constant and H1: The error variances are not equal/varying.

The results of the heteroskedasticity test and the autocorrelation test are shown in Table 7.

Test	Dependent Variable: ROA		Dependent Variable: ROE		Dependent Variable: ROS	
	P-value	Selected Method	P-value	Selected Method	P-value	Selected Method
LM – Breusch and pagan Lagrangian Multiplier; Wald	Prob > chibar2 = 0.0000 < 0.05	REM model has heteroskedasticity	Prob > chibar2 = 0.0000 < 0.05	REM model has heteroskedasticity	Prob > chibar2 = 0.0000 < 0.05	FEM model has heteroskedasticity
Wooldrige	Prob > F = 0.0164 < 0.05	Selected model has autocorrelation	Prob > F = 0.0000 < 0.05	Selected model has autocorrelation	Prob > F = 0.5078 > 0.05	The selected model does NOT have autocorrelation

Table 7: Results of the Heteroskedasticity Test and Autocorrelation Test

For the three models ROA, ROE, and ROS, the LM – Breusch and Pagan Lagrangian Multiplier test results all show Prob > chibar2 = 0.0000 < 0.05. Therefore, hypothesis H0 is rejected, and the model has heteroskedasticity. The Wooldridge test for the ROA and ROE models shows values of Prob > F = 0.0164 < 0.05 and Prob > F = 0.0000 < 0.05, respectively, thus hypothesis H1 is accepted, indicating that the model has autocorrelation among the residuals. For the ROS model, the Wooldridge test shows a value of Prob > F = 0.5078 > 0.05, therefore, hypothesis H0 is accepted, indicating that the model does not have autocorrelation.

Addressing Model Deficiencies

The results show that both models have heteroskedasticity. To address the model deficiencies and produce more accurate results, the Generalized Least Squares (GLS) estimation method is used. However, this method does not display the R-squared results. Therefore, the Feasible GLS (FGLS) method is used to correct the research model, based on the RStudio software. The regression results of the model are shown in Table 8.

independent variable	Dependent Variable: ROA		Dependent Variable: ROE		Dependent Variable: ROS	
	FGLS		FGLS		FGLS	
AGE	0.00127*	[2.463]	-0.03124***	[-7.290]	0.00062	[1.104]
SIZE	0.00125	[0.102]				
GRO	0.01490	[0.996]	1.03222***	[13.594]		
LEV	0.00906	[0.059]	-1.13452***	[-6.409]	1.58146***	[3.805]
ITR	-0.00065**	[-2.609]	-0.01569***	[-7.204]	0.00012	[0.522]
ATR	0.00164	[0.219]	0.02876	[0.243]	0.09086***	[4.766]
CR	0.00829***	[4.571]	0.01960	[0.989]	0.11214***	[20.515]
EC	-0.06157***	[-4.727]	-0.59788**	[-2.786]	0.10825*	[2.444]
intercept	0.01049	[0.041]	1.49150**	[3.225]	-0.75058***	[-4.361]

(***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively. The numbers in parentheses indicate t-values)

Table 8: FGLS Regression Results Addressing Heteroskedasticity and Autocorrelation

Based on Table 8, the equations of the factors affecting profitability are constructed as follows:

ROA = 0.0013 * AGE - 0.00065 * ITR + 0.0083 * CR - 0.0616 * EC

ROE = -0.0312 * AGE + 1.0322 * GRO - 1.1345 * LEV - 0.0157 * ITR - 0.5979 * EC

ROS = 1.5815 * LEV + 0.0907 * ATR + 0.1121 * CR + 0.1083 * EC

From the regression results, the "age of the enterprise (AGE)" has a positive effect on ROA and a negative effect on ROE, with coefficients of 0.0013 and -0.0312, respectively, at significance levels of 5% and 1%. This indicates that the older the enterprise, the higher the return on assets and the lower the return on equity. The positive impact of AGE on ROA shows that older enterprises in the F&B sector have advantages in market presence, reputation, and management experience over newer enterprises [3, 10]. The negative impact of AGE on ROE means that older enterprises are less efficient in using capital compared to younger enterprises. Older enterprises initially have to establish business strategies, build organizations, and conduct market research. In contrast, younger enterprises can leverage technological advancements and lessons learned from pioneers to avoid mistakes in capital usage.

The regression results of "financial leverage (LEV)" with ROE and ROS show a strong impact on both variables. It is evident that greater financial leverage leads to a decrease in ROE, with a coefficient of -1.1345 at a 1% significance level, which aligns with previous studies [10, 16, 25]. This indicates that the enterprises studied have not effectively used financial leverage to increase the return on equity. Financial leverage positively affects ROS as it helps meet customer demands, thereby improving the enterprise's revenue by expanding business operations. This demonstrates that financial leverage is a highly effective tool for expanding business scale and increasing revenue, but it also imposes significant financial pressure on enterprises due to debts. Hence, the use of financial leverage is a double-edged sword.

The variable "revenue growth rate (GRO)" has a strong positive effect on profitability with a coefficient of 1.0322 at a 1% significance level. This positive relationship has been confirmed in previous studies [3, 10]. Inventory turnover (ITR) negatively affects the profitability of listed food enterprises on the Vietnam stock market from 2017-2022, with regression coefficients of -0.00065 and -0.0157 at a 1% significance level. This shows that shorter inventory periods lead to higher profitability [2, 4]. The regression result of the "total asset turnover (ATR)" variable shows a positive impact on ROS with a coefficient of 0.0907 at a 1% significance level. Similar results are noted in [10]. In the F&B industry, optimizing the ability to generate profits from assets is a top concern because, unlike other sectors, F&B companies must continuously adapt to market demands, from packaging equipment to production machinery.

The current ratio (CR) has a positive effect on both ROA and ROS with coefficients of 0.0083 and 0.1121, respectively, indicating that liquidity positively impacts profitability. This finding is consistent with [5], but differs from [6]. The regression results show that the "e-commerce" or online business (EC) variable negatively affects ROA and ROE, and positively affects ROS, with coefficients of -0.0616, -0.5979, and +0.1083, respectively. This aligns with [26, 27]'s predictions about the e-commerce boom in the digital economy 4.0. The positive impact on ROS, with a high coefficient of 0.1083, indicates that online sales

channels have increased enterprise revenues. Additionally, online business platforms facilitate product promotion and distribution channel diversification. However, investing in infrastructure for online business poses significant management cost challenges for enterprises. The regression results indicate that the "firm size (SIZE)" variable does not affect the profitability ratio of the enterprise, differing from [9, 12], but consistent with findings in Vietnam [1] and internationally [3, 16, 24]. This can be explained by the fact that the F&B sector is highly competitive compared to other sectors as it serves essential human needs, where enterprises with innovative products in terms of price and quality, along with an open economy, constantly compete.

VI. CONCLUSION

This study was conducted to identify the factors affecting the profitability of F&B companies listed on the stock exchange. The research identified eight factors influencing the profitability of F&B companies in Vietnam, including: operating time, firm size, revenue growth rate, financial leverage, inventory turnover, total asset turnover, current ratio, and e-commerce. The results show that "firm size" does not affect the profitability of the enterprise; "operating time" has an impact on the profitability of enterprises; using "financial leverage" is an excellent tool that helps enterprises expand their production scale when financial resources do not meet the needs of expansion, enabling them to stay ahead of trends and achieve profits. "Inventory turnover" is significant for the profitability of enterprises. Short inventory turnover not only improves the revenue of enterprises but also enhances their profitability. Regarding "liquidity," enterprises often implement payment policies for partners and customers, helping to reduce current financial burdens and encouraging more purchases. Currently, F&B enterprises primarily sell through wholesale and retail methods via shopping centers and small distribution stores. However, shopping methods have gradually changed, with online shopping becoming more convenient and rapidly growing. Therefore, "diversifying distribution channels" is a new factor that needs attention.

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REFERENCES

[1].   Nguyen Le Thanh Tuyen (2013), Research on factors affecting business performance of food processing companies listed on the Vietnam stock market, *Master Thesis in Business Administration*, Danang University.
[2].   Bui Ngoc Toan. (2016). Impact of working capital policy on return on assets of real estate enterprises in Vietnam. *Journal of Science, Can Tho University*, No. 44, 18–27.
[3].   Ibrahim Abidemi Odusanya & Olumuyiwa Ganiyu Yinusa & Bamidele M. Ilo (2018). Determinants of Firm Profitability in Nigeria: Evidence from Dynamic Panel Models. *SPOUDAI Journal of Economics and Business, University of Piraeus*, vol. 68(1), pages 43-58, January-M.
[4].   Tran Tu Uyen (2018). Impact of working capital management on profitability of food companies listed on the Vietnam stock market, *VNU Journal of Science: Economics and Business*, Vol. 34, No. 3, 1-14.
[5].   Le Thanh Huyen (2020). Impact of internal factors on profitability of listed food production and processing enterprises in Vietnam, *University of Commerce, Journal of Commercial Science*, No. 149-150, Code: 149+150.1FiBa.11.
[6].   Lai Cao Mai Phuong, & Nguyen Thi Loi. (2022). Factors affecting business performance of food enterprises, *Journal of Finance*, 6, 107–111.
[7].   Stephen A. Ross & Randolph W.Westerfield, *Corporate finance*, Times Mirror/Mosby College Pub., 1988
[8].   Nguyen Van Cong, *Financial Report Analysis Textbook*, National Economics University Publishing House, 2019.
[9].   Le Thi Kim, N., Duvernay, D. and Le Thanh, H. (2021), "Determinants of financial performance of listed firms manufacturing food products in Vietnam: regression analysis and Blinder–Oaxaca decomposition analysis", *Journal of Economics and Development*, Vol. 23 No. 3, pp. 267-283.
[10].   Phan Thu Hien, & Nguyen Nhat Ha. (2021). Factors affecting profitability of textile enterprises on the Vietnam stock market. *Journal of Science, Open University of Ho Chi Minh City - Economics and Business Administration*, 16(3), 180–195.
[11].   Abu Kalam, & Monzurul Islam Utsho (2020). Effects of Firm Specific Factors on Profitability of Non Bank Financial Institutions in Bangladesh: Evidenced from Dhaka Stock Exchange (DSE), *International Journal of Science and Business*, 4, 1–13.
[12].   Nguyen Khanh Linh, & Phan Thi Hang Nga (2022). Factors affecting profitability of consumer goods enterprises: Study of listed companies on the Vietnam stock market. *Journal of Finance - Marketing Research*, 13–26.

[13]. Mohamed Khaled Al-Jafari, & Hazem Al Samman (2015). Determinants of profitability: Evidence from industrial companies listed on Muscat Securities Market. *Rev. Eur. Stud*., 7, 303.

[14]. Hifza Malik (2011). Determinants of Insurance Companies Profitability: An analysis of insurance sector of Pakistan, *Academic Research International*, 1(3).

[15]. Rami Zeitun, & Gary Tian (2007). Capital structure and corporate performance: Evidence from Jordan. Australasian Accounting, *Business and Finance Journal*, 1(4), 40–61.

[16]. Mohammad Kamal Abuamsha (2021). The impact of corporate governance mechanism on financial performance in the Palestinian firms listed in the stock exchange. *Academy of Accounting and Financial Studies Journal*, 25(3), 1–13.

[17]. Lorna Goddard, *Social Problem-Solving Processes and Mood in College Students: An Examination of Self-report and Performance-based Approaches*, Academia, 2009

[18]. Agiomirgianakis, G., Voulgaris, F., & Papadogonas, T. (2006). Financial factors affecting profitability and employment growth: The case of Greek manufacturing. *International Journal of Financial Services Management*, vol. 1, issue 2/3, 232-242

[19]. Keith Glancey (1998). Determinants of growth and profitability in small entrepreneurial firms. *International Journal of Entrepreneurial Behavior & Research*, 4(1), 18–27.

[20]. Chander, S., & Aggarwal, P. (2008). Determinants of Corporate Profitability: An Empirical Study of Indian Drugs and Pharmaceutical Industry. *Paradigm*, 12(2), 51–61.

[21]. Stewart C. Myers, & Majluf. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13(2), 187–221.

[22]. Alarussi, A. S., & Alhaderi, S. M. (2018). Factors affecting profitability in Malaysia. *Journal of Economic Studies*, 45(3), 442–458.

[23]. Mathuva, D. (2010). The Influence of Working Capital Management Components on Corporate Profitability: A Survey on Kenyan Listed Firms. *Research Journal of Business Management*, 4, 1–11.

[24]. Sebastian Lazar (2016). Determinants Of Firm Performance: Evidence from Romanian Listed Companies, *Review of Economic and Business Studies, Alexandru Ioan Cuza University, Faculty of Economics and Business Administration*, issue 17, pages 53-69

[25]. Tran Thi Tuan Anh, & Dang Thi Thu Thuy (2017). Impact of financial leverage on business performance of Vietnamese enterprises: Quantile regression approach. *Journal of Science, Open University of Ho Chi Minh City - Economics and Business Administration*, 12(3), 16–25.

[26]. Vu Minh Khuong (2019). Forecasting the impact of digital transformation on the production and business results of the 500 largest enterprises in Vietnam. *Vietnam Journal of Science and Technology*, No 10.

[27]. Bughin, Jacques (2003). Finding the path(s) towards profitable e-commerce, *Research Notes* 7, Deutsche Bank Research

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