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The impact of macroeconomic factors on the financial performance of the food and beverage industry – evidence from Vietnam

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Abstract: This study evaluated the impact of inflation, economic growth (GDP), and interest rates on the financial performance of food and beverage (F&B) companies in Vietnam between 2015 and 2024. We used panel data from the financial reports of 28 F&B companies listed on the Vietnamese stock exchange. This was combined with macroeconomic data from the World Bank, the State Bank of Vietnam, and the General Statistics Office of Vietnam. The econometric model was estimated using the Feasible Generalized Least Squares (FGLS) method to address issues of heteroskedasticity and autocorrelation. The results indicate that inflation has no significant impact on financial performance, owing to Vietnam's stable inflation rate. GDP growth positively affects financial performance, while interest rates have a negative impact. Firm size positively influences performance, whereas capital structure and capital expenditure are insignificant. These findings provide a basis for F&B enterprises to optimize financial strategies, particularly in high-interest-rate environments, and support policies to maintain stable GDP growth. This study is among the first in Vietnam to use long-term data and the FGLS model to analyze the impact of macroeconomic factors on the financial performance of the F&B industry.

Keywords: *F&B, Financial performance, GDP, Inflation, Interest rates, Macroeconomics.*

1. Introduction

The food and beverage (F&B) industry is one of the most critical sectors of the global economy, meeting essential nutritional needs and playing a central role in the food supply chain. According to the Food and Agriculture Organization of the United Nations, the F&B industry encompasses the production, processing, distribution, and marketing of food and beverages, from raw materials to finished products [1]. Beyond ensuring food security, the industry drives economic growth, creates jobs, and supports related sectors such as agriculture, transportation, and retail. The World Bank reports that the F&B industry contributes approximately 10–15% to GDP in developing countries and 5–10% in developed nations, serving as a key driver of exports in agriculture-rich countries like Vietnam [2].

In Vietnam, the F&B industry is a cornerstone of the economy, contributing 15% to GDP and providing employment for millions [3]. With a population exceeding 100 million and a rapidly growing middle class, Vietnam is the fastest-growing F&B market in ASEAN. The market was valued at USD 24.8 billion in 2023 and is projected to grow at an annual rate of 10.73%, reaching USD 41.22 billion by 2030. Products such as coffee, seafood, and confectionery generated USD 25 billion in export revenue in 2023 [4].

However, the industry faces significant challenges. Average inflation of 2.9% from 2015 to 2024, with a spike to 4.1% in 2022, has increased raw material costs. GDP growth of 6.1% has boosted demand, but reliance on imported raw materials makes the industry vulnerable. Interest rates ranging from 4.5% to 6.5% raise borrowing costs, particularly for small enterprises. The average return on

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assets (ROA) of listed F&B companies on the Ho Chi Minh Stock Exchange (HOSE) is 1.3%, fluctuating between -0.7% and 3.7%, reflecting uneven financial performance. Modern consumer trends, such as online delivery services, have intensified competition [3].

Macroeconomic factors such as inflation, GDP growth, and interest rates significantly impact the financial performance of Vietnam's F&B industry. High inflation increases raw material costs, reducing profitability. GDP growth stimulates consumer demand, but small enterprises struggle to capitalize due to limited resources. High interest rates raise financial costs, constraining investment [5]. While international studies confirm the relationship between macroeconomic factors and financial performance, Vietnam's context is unique due to its export-driven economy and rapidly growing domestic market. Therefore, studying the impact of inflation, GDP growth, and interest rates on the financial performance of listed F&B companies is essential to provide a scientific basis for business strategies and supportive policies.

This study evaluates the impact of inflation, GDP growth, and interest rates on the financial performance of 28 F&B companies listed on HOSE and the Hanoi Stock Exchange (HNX) from 2015 to 2024. The specific objectives are: (1) to determine the magnitude and direction of the impact of inflation, GDP growth, and interest rates on financial performance; (2) to assess the role of control variables in this relationship; and (3) to propose strategies for enterprises and policies to support the F&B industry.

2. Literature Overview

2.1. Inflation Rate

Inflation, defined as the persistent increase in the general price level of goods and services, is a critical macroeconomic factor affecting business operations and performance. Inflation raises input costs such as raw materials, labor, and transportation, exerting pressure on profitability, particularly in the food and beverage (F&B) industry, which relies on volatile agricultural raw materials [6]. However, as F&B products are essential goods with inelastic demand, companies can pass some of the increased costs onto consumers, thereby mitigating negative impacts [7].

Globally, inflation has a dual impact on firms' financial performance. Moderate inflation may boost revenue through price adjustments, but high inflation escalates input costs faster, reducing profits Shahzad, et al. [8]. Shahzad, et al. [8] further emphasize that high inflation undermines the international competitiveness of F&B companies, especially when production costs exceed pricing flexibility. The F&B industry's supply chain, heavily reliant on agricultural inputs, is particularly sensitive to inflation. Chopra and Meindl [6] note that inflation increases operational and logistics costs, squeezing profit margins. Ball and Mazumder [9] confirm that high inflation reduces financial performance, especially in cost-sensitive sectors like F&B. Small F&B firms, with limited resources, are more adversely affected due to challenges in adjusting prices or optimizing costs [6]. A study on Sainsbury's by Tesco PLC [10] suggests that food price inflation not only impacts corporate profits but also threatens food security in some regions.

The impact of inflation on the F&B industry varies across countries, depending on economic structures and firm size. In China, Zhang, et al. [11] found that inflation drives up raw material prices, reducing profits, particularly for small and medium-sized F&B enterprises. In Vietnam, stable inflation is crucial for sustaining the F&B industry's financial performance. Bui, et al. [7] observe that high inflation erodes the profits of small F&B firms, while larger firms with strong market power can transfer costs to consumers, minimizing adverse effects. Nguyen [12] notes that inflation of 3.5–4% from 2015 to 2020 reduced average profits by 0.5% for listed F&B companies.

In summary, inflation typically increases input costs, pressuring the profitability and financial performance of F&B firms, particularly when it exceeds moderate levels. However, large firms with strong market power can alleviate these effects through flexible pricing and efficient cost management. In Vietnam, stable inflation below 4% creates ideal conditions for the F&B industry's growth, but firms must prepare for unexpected fluctuations, such as the high inflation in 2022. Empirical studies

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underscore the importance of cost management and strategic adjustments to maintain financial performance in a volatile economic environment.

2.2. Economic Growth

Economic growth, measured by annual GDP growth, is an indicator of economic health that boosts disposable income and consumer spending, thereby creating favorable conditions for food and beverage (F&B) enterprises to increase revenue [13]. As an essential consumer sector, the F&B industry is particularly sensitive to changes in macroeconomic conditions, with GDP growth playing a pivotal role in enhancing financial performance.

GDP growth positively impacts the financial performance of F&B enterprises by expanding consumer markets and improving profitability. Kotler and Keller [14] argues that GDP growth increases consumer spending, providing opportunities for F&B companies to scale operations and develop new product lines. Chopra and Meindl [6] emphasize that economic growth supports investments in technology and product innovation, enabling F&B firms to improve operational efficiency and market competitiveness. Ball and Mazumder [9] confirm that economic growth enhances financial performance in consumer-driven sectors like F&B, as rising disposable income drives demand for food and beverage products.

However, the impact of GDP growth varies across firms. Shahzad, et al. [8] warn that without equitable income distribution, small F&B companies may struggle to capitalize on economic growth due to limited resources for competition. Besanko, et al. [15] note that GDP growth fuels demand for healthier food options, creating opportunities for F&B firms to develop products that meet emerging consumer needs. FMI – The Food Industry Association [16] highlights that GDP growth increases consumer demand, thereby improving profitability, particularly in fast-growing markets.

The impact of GDP growth on the F&B industry varies by region and country. Maietta, et al. [17] in a study on the European Union, found that GDP growth positively correlates with F&B companies' stock prices, enhancing financial performance through increased market value. In China, Zhang, et al. [11] report that a 1% GDP increase raises the F&B industry's average ROA by 0.3%, driven by strong consumer demand. In Vietnam, GDP growth significantly boosts the F&B industry's financial performance. Nguyen [12] found that in years with GDP growth exceeding 6.5%, listed Vietnamese F&B companies achieved an average ROA increase of 0.4%, fueled by robust domestic demand. Chopra and Meindl [6] note that Vietnam's GDP growth not only stimulates domestic consumption but also supports exports of key F&B products like coffee, seafood, and confectionery, enhancing enterprise revenue and profits. Mishkin [18] adds that GDP growth alleviates financial pressures for highly leveraged F&B firms, facilitating investments in product innovation and market expansion.

In conclusion, GDP growth positively influences the financial performance of the F&B industry by driving consumer demand, boosting revenue, and improving profitability. In Vietnam, stable GDP growth of 6–7% creates favorable conditions for the F&B sector to thrive in both domestic consumption and exports. However, small enterprises require support to fully leverage opportunities from economic growth, particularly amid uneven income distribution. Empirical studies underscore the critical role of GDP growth in shaping business strategies and enhancing the financial performance of the F&B industry.

2.3. Interest Rate

Interest rates, a critical macroeconomic factor, directly affect borrowing costs and the financial performance of enterprises, particularly in the food and beverage (F&B) industry [19]. According to capital cost theory, high interest rates increase financial expenses, limiting investments in production expansion, technological advancements, and new product development, thereby pressuring financial performance. The F&B industry, reliant on supply chains and consumer demand, is especially sensitive to interest rate fluctuations.

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High interest rates elevate financial costs, negatively impacting F&B firms' profitability. Mishkin [18] notes that high interest rates reduce profits, particularly for debt-reliant companies, due to significantly higher borrowing costs. Ball and Mazumder [9] confirm that high interest rates diminish the international competitiveness of F&B firms, especially when financial costs exceed export profits. Chopra and Meindl [6] emphasize that high interest rates restrict investments in new technologies, weakening F&B companies' ability to optimize production processes and meet evolving consumer trends. Conversely, low interest rates facilitate investments in supply chains, enhancing financial performance through improved operational efficiency and reduced production costs. The impact of interest rates varies across firms. Besanko, et al. [15] highlight that effective debt management, such as reducing long-term debt or restructuring finances, is crucial for F&B companies to mitigate the effects of high interest rates.

The impact of interest rates on the F&B industry differs by regional economic context. In China, Zhang, et al. [11] found that F&B companies with high debt ratios are more adversely affected by rising interest rates, with ROA decreasing by an average of 0.2% for a 1% rate increase. In the European Union, Maietta, et al. [17] observed that high interest rates lower F&B companies' stock prices, indirectly affecting financial performance through reduced market value. In Vietnam, stable interest rates are vital for sustaining the F&B industry's financial performance. Nguyen [12] found that an interest rate increase from 5% to 6% between 2015 and 2020 reduced the average ROA by 0.3% for listed F&B companies, particularly those with high debt ratios.

In conclusion, high interest rates negatively impact the F&B industry's financial performance by increasing borrowing costs and reducing profits, especially for small and debt-dependent firms. In Vietnam, stable interest rates below 6% create favorable conditions for F&B growth, but firms must manage debt effectively to minimize risks. Empirical studies underscore the importance of stable interest rates in supporting investments, improving supply chain efficiency, and maintaining the F&B industry's competitiveness in a volatile economic environment.

2.4. Hypotheses

Based on the literature review, macroeconomic factors such as inflation, economic growth, and interest rates significantly impact the operations and financial performance of enterprises, particularly in the food and beverage (F&B) industry. However, the magnitude and direction of these effects vary depending on economic contexts, firm size, and management strategies, leading to academic debates. Moderate inflation (below 5%) may boost revenue through price adjustments, but high inflation increases input costs, reducing profits [11]. High economic growth (above 6%) enhances disposable income and consumer demand, improving the F&B industry's financial performance. Conversely, high interest rates raise borrowing costs, pressuring profitability, especially for firms with high debt ratios, resulting in reduced profits.

Although previous studies have analyzed these factors, research focusing on Vietnam's F&B industry with long-term data remains limited. Therefore, this study proposes the following hypotheses to examine the impact of macroeconomic factors on the financial performance of Vietnam's F&B industry:

H^{1} Inflation has a negative impact on the financial performance of the F&B industry.

H^{2} Economic growth has a positive impact on the financial performance of the F&B industry.

H^{3} Interest rates have a negative impact on the financial performance of the F&B industry.

3. Methodology

3.1. Econometric model

To assess the impact of macroeconomic factors on the financial performance of Vietnam's food and beverage (F&B) industry, this study develops an econometric model to analyze the relationship between macroeconomic factors and financial performance, measured by the Return on Assets (ROA) indicator. The research model is designed based on financial theory and prior empirical studies, incorporating

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control variables to ensure the accuracy and comprehensiveness of the analysis. The research model is constructed as follows:

$$ROA_{it} = \beta_0 + \beta_1 INF_t + \beta_2 GDP_t + \beta_3 INT_t + \beta_4 SIZE_{it} + \beta_5 CAP_{it} + \beta_6 CEF_{it} + U_{it}$$

where, ROA_{it}: The financial performance of firm i at time t, calculated as net profit after tax divided by total assets; INF_t: The annual inflation rate, representing a macroeconomic factor affecting input costs and consumer purchasing power; GDP_t: The annual GDP growth rate, reflecting economic health and consumer demand; INT_t: The average refinancing interest rate, influencing borrowing costs and firms' investment decisions; $SIZE_{it}$: Firm size, measured by total assets, representing financial strength and competitive capacity; CAP_{it} : Capital structure, calculated as total debt divided by total assets, reflecting the degree of financial leverage; CEF_{it} : Cost efficiency, measured as operating costs divided by total assets, indicating cost control capability; β_0 : The intercept, representing the ROA value when all independent variables are zero; β_1 to β_6 : Regression coefficients, indicating the impact of each independent variable on ROA; U_{it} : The error term, capturing unobserved factors affecting ROA. Details of the variables are described in Table 1.

Table 1.
Description of the variables and data source.

Variable	Symbol	Measurement	Data source
Financial Performance	ROA	Return on Assets	Financial Statements
Inflation	INF	Consumer prices (annual %)	World Development Indicators
Economic growth	GDP	GDP growth (annual %)	World Development Indicators
Interest rate	INT	Refinancing rate (%)	State Bank of Vietnam
Firm size	SIZE	Total asset (Trillion Vietnamese Dong)	Firms financial statements/Annual report
Capital Structure	CAP	Liabilities/Total asset	Firms financial statements/Annual report
Cost Efficiency	CEF	Total operating expense /Total asset	Firms financial statements/Annual report

In this study, the estimation and testing procedures are conducted systematically to ensure the reliability of the results. First, the regression model is estimated using three methods: Ordinary Least Squares (OLS), Fixed Effects (FE), and Random Effects (RE).

Following estimation, an F-test is performed to compare the efficiency of the OLS and FE models, while the Hausman test is applied to choose between FE and RE, ensuring the most appropriate method is selected. Next, to address issues related to panel data, the Modified Wald test is used to detect heteroskedasticity, and the Wooldridge test is conducted to check for autocorrelation in the data.

To assess the presence of endogeneity, the Durbin-Wu-Hausman test is employed. If endogeneity is detected, the Generalized Method of Moments (GMM) is used to estimate the model, addressing endogeneity and ensuring the consistency of the coefficients. Conversely, if no endogeneity is found, the Feasible Generalized Least Squares (FGLS) method is applied to improve estimation accuracy in the presence of heteroskedasticity or autocorrelation. All estimations and tests are performed using Stata software, ensuring precision and transparency in the analytical process.

3.2. Sample and Data

The research sample consists of 28 F&B companies listed on the Ho Chi Minh Stock Exchange (HOSE) and the Hanoi Stock Exchange (HNX), operating continuously from 2015 to 2024. The selection criteria ensure that the companies have complete financial data and meet listing duration requirements, guaranteeing the sample's representativeness and reliability.

The research data are collected from reliable sources, including publicly disclosed financial statements and annual reports of the companies on HOSE and HNX. Macroeconomic data, including inflation rate (INF), GDP growth (GDP), and interest rate (INT), are extracted from the State Bank of Vietnam (SBV) and the World Bank's World Development Indicators (WDI) database. Control

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variables such as firm size (SIZE), capital structure (CAP), and cost efficiency (CEF) are calculated from financial statements, ensuring consistency and accuracy.

Table 2 presents the correlation matrix of the variables in the econometric model. The results show that the independent variables (INF, GDP, INT, SIZE, CAP, CEF) exhibit low correlation with each other, with correlation coefficients all below the 0.8 threshold, indicating no serious multicollinearity. This ensures that the independent variables do not significantly influence each other, making the regression results reliable and unbiased. This correlation analysis is a crucial step to confirm the model's suitability, providing a foundation for estimating regression coefficients using panel data methods with fixed effects (FE) or random effects (RE), depending on the results of the Hausman and F tests.

Table 2.
Correlation Coefficients Matrix.

Variables	INF	GDP	INT	SIZE	CAP	CEF
INF	1.000	0.137	-0.031	0.055	0.028	0.080
GDP	0.137	1.000	0.611	-0.025	-0.035	0.098
INT	-0.031	0.611	1.000	-0.077	-0.039	0.065
SIZE	0.055	-0.025	-0.077	1.000	0.603	-0.110
CAP	0.028	-0.035	-0.039	0.603	1.000	0.029
CEF	0.080	0.098	0.065	-0.110	0.029	1.000

Table 3 presents the descriptive statistics of the variables in the econometric model, including the dependent variable (ROA), macroeconomic variables (INF, GDP, INT), and control variables (SIZE, CAP, CEF). These statistics provide an overview of the variables' characteristics and their variability within Vietnam's F&B industry.

Financial performance, measured by Return on Assets (ROA, calculated as net profit after tax divided by total assets), has an average annual value of 1.3% over the study period. However, there is significant variation among F&B firms across years. Some companies achieved high financial performance, with a maximum ROA of 3.7%, while others recorded low performance, with ROA as negative as -0.7%. This disparity reflects the uneven landscape of Vietnam's F&B industry. Large firms with strong brands and effective management typically achieve higher financial performance, whereas smaller firms or those facing operational challenges may incur losses in certain years. This indicates that while Vietnam's F&B industry has growth potential, maintaining stable financial performance remains a challenge.

Inflation (INF): The annual inflation rate from 2015 to 2024 averages 2.9%, ranging from a low of 0.6% to a high of 4.1%. This level of inflation suggests that Vietnam maintained relatively stable macroeconomic conditions, with moderate inflation fostering a conducive business environment. However, years with higher inflation may increase raw material and operational costs, negatively impacting F&B firms' profitability.

GDP Growth (GDP): The average annual GDP growth rate is 6.1%, with a minimum of 2.6% and a maximum of 8.1%. This growth rate, significantly higher than inflation, reflects the strength of Vietnam's economy over the past decade. Robust GDP growth boosts disposable income and consumer demand, particularly for F&B products, creating favorable conditions for industry development.

Interest Rate (INT): The average refinancing interest rate during the study period is 5.6% per year, fluctuating between 4.5% and 6.5%. The relatively small variation in interest rates indicates stable monetary policy in Vietnam, enabling F&B firms to plan finances more effectively. However, periods of rising interest rates may increase borrowing costs, affecting investment capacity and profitability.

Firm Size (SIZE): The average total assets of F&B firms is VND 2.8 trillion, with significant variation among firms. Asset size ranges from VND 0.03 trillion (small firms) to VND 37.6 trillion (large firms). This disparity highlights the diversity within the F&B industry, spanning small-scale businesses to large corporations with substantial financial resources.

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Capital Structure (CAP): The average debt-to-total-assets ratio is 43.7%, ranging from 8.4% to 89.9%. This suggests that Vietnamese F&B firms rely moderately on financial leverage, though debt usage varies widely. Firms with high debt ratios may face greater financial risks, particularly when interest rates rise.

Cost Efficiency (CEF): The average operating cost-to-total-assets ratio is 74.7%, with values ranging from 9% to 445.3%. This wide variation indicates significant differences in cost control capabilities among F&B firms. Some firms, particularly smaller or less efficient ones, incur high operating costs relative to assets, while larger firms tend to optimize costs more effectively.

Table 3.
Descriptive statistics of variable data

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
ROA	280	1.273	0.809	-0.720	3.700
INF	280	2.870	0.941	0.631	4.085
GDP	280	6.045	1.837	2.554	8.124
INT	280	5.595	0.824	4.450	6.500
SIZE	280	2.774	5.936	0.034	37.615
CAP	280	43.674	20.747	8.396	89.933
CEF	280	74.735	85.553	9.033	445.344

4. Results

In the initial step of the quantitative analysis, we estimate the research model using three common methods: Ordinary Least Squares (OLS), Random Effects Model (REM), and Fixed Effects Model (FEM). The purpose of applying these diverse methods is to identify the most suitable model for the panel data characteristics of the study.

After selecting the model, we conduct diagnostic tests to evaluate the fundamental assumptions of the econometric model. Specifically, we test for heteroskedasticity and autocorrelation, as well as the endogeneity of the independent variables in the model. The test results indicate the presence of heteroskedasticity and autocorrelation, but no endogeneity is detected among the independent variables. This ensures that the explanatory variables are not influenced by endogenous factors, though error correction is necessary.

To simultaneously address both issues and enhance the reliability of the estimation results, we employ the Feasible Generalized Least Squares (FGLS) regression method. This approach allows for error adjustment to ensure the efficiency of regression coefficients in the presence of violations of classical assumptions. The detailed estimation results are presented in Table 4.

Table 4.
FGLS regression results.

Variables	Coefficient	Std-error	z	P>|z|	[95% Conf. Interval]	
INF	0.014	0.013	1.07	0.284	-0.012	0.040
GDP	0.040***	0.010	3.91	0.000	0.020	0.059
INT	-0.150***	0.047	-3.17	0.002	-0.243	-0.057
SIZE	0.001**	0.003	0.35	0.021	-0.005	0.008
CAP	-0.001*	-0.001	-0.10	0.090	-0.002	0.002
CEF	0.001	0.001	0.74	0.457	-0.001	0.001
Cons	1.639	0.244	6.72	0.000	1.161	2.117
F - test			0.003			
Obs.			280			

Note: ***p < 0.01, **p < 0.05, *p < 0.1.

The estimation results of the model examining the impact of macroeconomic factors on the financial performance, measured by Return on Assets (ROA), of 28 food and beverage (F&B) companies listed on the Ho Chi Minh Stock Exchange (HOSE) from 2015 to 2024 are detailed in Table 4. The model

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employs the Feasible Generalized Least Squares (FGLS) method to address heteroskedasticity and autocorrelation, ensuring robust results. The primary independent variables include inflation (INF), GDP growth (GDP), and interest rates (INT), alongside control variables: firm size (SIZE), capital structure (CAP), and cost efficiency (CEF).

Inflation (INF): The INF variable has a regression coefficient of 0.014, which is positive but statistically insignificant ($p > 0.10$). This indicates that inflation does not significantly affect the ROA of F&B firms in Vietnam during the study period. This result can be explained by Vietnam's stable inflation rate, averaging 2.9% from 2015 to 2024, with a peak of only 4.1%, which did not substantially impact firm operations. F&B companies, supplying essential products with inelastic demand, can pass increased costs to consumers, mitigating inflation's negative effects [7]. The positive but insignificant coefficient may suggest that moderate inflation stimulates revenue through price adjustments but is not strong enough to influence ROA. Regarding hypothesis H1 (inflation negatively affects financial performance), this hypothesis is rejected. This finding contrasts with Zhang, et al. [11] in China, where high inflation reduced ROA, likely due to differences in inflation levels and market structures.

GDP Growth (GDP): The GDP variable has a positive regression coefficient of 0.04, statistically significant at the 1% level ($p < 0.01$), indicating that economic growth positively impacts the financial performance of F&B firms. This coefficient implies that a 1% increase in GDP leads to an average 0.04% increase in ROA. This result aligns with economic theory, as GDP growth increases disposable income, boosting consumer spending, particularly in the F&B industry, which relies on domestic and export demand. Vietnam's average GDP growth of 6.1% during the study period created opportunities for market expansion, improving revenue and ROA. This finding underscores the role of economic growth in enhancing financial performance. Regarding hypothesis H2 (GDP growth positively affects financial performance), this hypothesis is accepted, affirming the importance of economic growth for the F&B industry.

Interest Rate (INT): The INT variable has a negative regression coefficient of -0.15, statistically significant at the 1% level ($p < 0.01$), reflecting a negative impact of interest rates on ROA. This coefficient indicates that a 1% increase in interest rates reduces ROA by an average of 0.15%. This result is consistent with capital cost theory, where high interest rates increase borrowing costs, particularly affecting F&B firms with high debt ratios. In Vietnam, interest rates fluctuating between 4.5% and 6.5% from 2015 to 2024 exerted financial pressure, limiting investments in technology and production expansion. This finding aligns with Mishkin [18] which confirms that high interest rates impair financial performance. Regarding hypothesis H3 (interest rates negatively affect financial performance), this hypothesis is accepted, highlighting the challenge posed by financial costs in the F&B industry.

Control Variables: The SIZE variable has a positive coefficient and is statistically significant at the 5% level ($p < 0.05$), indicating that larger asset sizes improve ROA. This reflects that larger firms benefit from greater resources, supporting efficient investments and enhancing profitability [6]. Conversely, CAP and CEF are statistically insignificant ($p > 0.10$), suggesting that capital structure and cost efficiency do not significantly affect ROA. This may be due to heterogeneity in capital and cost management among firms or the dominance of macroeconomic variables in influencing outcomes.

The study's findings indicate that GDP growth and interest rates significantly impact the ROA of F&B firms in Vietnam, while inflation has no notable effect. Firm size plays an important role, but capital structure and cost efficiency are insignificant. These results confirm hypotheses H2 and H3 but reject H1, providing a scientific basis for F&B firms to optimize financial strategies in high-interest-rate environments and capitalize on economic growth opportunities. The findings also support policymakers in maintaining stable GDP growth and controlling interest rates to promote the sustainable development of the F&B industry.

5. Discussion

The results of the study on the impact of macroeconomic factors (inflation, GDP growth, interest rates) on the financial performance (ROA) of food and beverage (F&B) enterprises in Vietnam reveal

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both similarities and differences compared to previous research. Regarding inflation (INF), this study finds a positive but statistically insignificant coefficient (0.014, $p > 0.10$). This contrasts with Zhang, et al. [11] in China, where high inflation reduced ROA due to rising raw material costs. In Vietnam, Bui, et al. [7] also noted that stable inflation (averaging 2.9%) has little impact on ROA, supporting this finding.

For GDP growth (GDP), the study reports a positive coefficient (0.04, $p < 0.01$), confirming that economic growth positively affects financial performance. This aligns with Kotler and Keller [14] who argued that economic growth expands consumer markets, particularly in the F&B industry, which relies on domestic and export demand. This result underscores the role of economic growth in enhancing financial performance.

Regarding interest rates (INT), the study finds a negative coefficient (-0.15, $p < 0.01$), confirming their adverse effect on ROA. This is consistent with Mishkin [18] in Asia, where high interest rates increase borrowing costs, reducing ROA, especially for firms with high debt ratios. The result also aligns with Maietta, et al. [17] in the EU, showing that high interest rates limit technological investments, negatively impacting financial performance. However, the impact in this study (-0.15) is less severe than in Zhang, et al. [11] in China (-0.3), possibly due to Vietnamese firms' more diversified capital structures.

Among control variables, SIZE (firm size) has a positive impact ($p < 0.05$), consistent with Chopra and Meindl [6] suggesting that larger firms benefit from resource advantages, improving ROA. However, CAP (capital structure) and CEF (cost efficiency) are statistically insignificant, indicating these factors vary across Vietnamese F&B firms.

The study's results reflect Vietnam's macroeconomic context and the F&B industry's characteristics. Inflation has no significant impact due to effective control, averaging 2.9% from 2015 to 2024. The F&B industry, producing essential goods like processed foods and beverages with inelastic demand, can adjust prices to offset costs, mitigating inflation's effects [7]. Vietnam's macroeconomic stability, supported by the State Bank's flexible monetary policies, has limited high inflation, unlike China, where inflation fluctuates more [11]. The positive but insignificant INF coefficient may reflect moderate inflation stimulating consumption without strongly affecting financial performance.

GDP growth has a positive impact, driven by Vietnam's stable economic growth (averaging 6.1%) during the study period, which boosts disposable income and consumer spending. The F&B industry benefits from rising domestic demand, fueled by an expanding middle class and modern consumption trends like online delivery services (Vietnam Briefing, 2022). Additionally, F&B exports (coffee, seafood) contributed USD 25 billion in 2023, supported by global economic growth, further enhancing financial performance.

Interest rates negatively impact ROA by increasing borrowing costs, particularly for small, debt-reliant firms. Interest rates ranging from 4.5% to 6.5% from 2015 to 2024 limited investments in technology and production expansion, reducing ROA [18]. However, the impact (-0.15) is less severe than in markets like China, possibly because large Vietnamese F&B firms (e.g., Vinamilk) use internal capital or preferential loans, reducing debt dependency.

The positive impact of SIZE reflects larger firms' advantages in accessing financial resources and technology, improving financial performance Chopra and Meindl [6]. The insignificance of CAP and CEF may stem from heterogeneity in capital and cost management among firms or the dominance of GDP growth and interest rates. For instance, small firms often struggle to optimize costs under high interest rates, while larger firms employ more flexible capital management strategies.

6. Conclusion

This study aims to evaluate the impact of macroeconomic factors, including inflation (INF), GDP growth (GDP), and interest rates (INT), on the financial performance (ROA) of 28 food and beverage (F&B) enterprises in Vietnam from 2015 to 2024. The Feasible Generalized Least Squares (FGLS) model is employed to ensure robustness, with control variables such as firm size (SIZE), capital

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structure (CAP), and cost efficiency (CEF). The findings provide significant insights, aligning with the initial hypotheses.

The results indicate that inflation has no significant impact on financial performance, as Vietnam maintained stable inflation at an average of 2.9%. GDP growth positively affects financial performance, reflecting that economic growth boosts consumer demand and enhances financial efficiency. Interest rates have a negative impact, as rising borrowing costs reduce financial performance. The SIZE variable positively influences ROA, while CAP and CEF are statistically insignificant. These findings highlight the critical role of economic growth and interest rates in shaping the financial performance of the F&B industry, while stable inflation has minimal impact.

Based on these results, F&B enterprises in Vietnam should adopt management strategies and advocate for supportive policies to optimize financial performance amid fluctuating macroeconomic conditions. For enterprises, managing financial costs in high-interest-rate environments is a top priority. Companies, particularly small firms with high debt ratios, should diversify funding sources, such as utilizing internal capital or seeking private investment, to reduce reliance on bank loans. Additionally, optimizing asset size (SIZE) is crucial, as the study shows larger firms have an advantage in improving financial performance. This can be achieved through mergers, acquisitions, or investments in technology to enhance production capacity.

Enterprises should also leverage GDP growth to expand domestic and export markets. Marketing strategies targeting the rapidly growing middle class, combined with the development of online sales channels, will boost revenue [3]. Furthermore, flexible pricing strategies should be developed to address inflation, ensuring cost transfers to consumers without reducing demand.

Regarding policy, the government should sustain stable GDP growth (above 6%) through infrastructure investments and consumer stimulus, creating favorable conditions for the F&B industry. Simultaneously, the State Bank of Vietnam should maintain reasonable interest rates (below 6%) and offer preferential loan packages for F&B enterprises, particularly small firms, to alleviate financial pressures. Export support policies, such as tax reductions for F&B products (coffee, seafood), will enhance international competitiveness.

Despite its significant findings, the study has limitations. First, the sample includes only 28 listed F&B firms on HOSE and HNX, which does not represent the entire industry, particularly small and medium-sized unlisted enterprises that form a significant portion of Vietnam's F&B sector. Second, the study does not consider non-economic factors, such as shifts in consumer behavior or technological impacts, which may affect financial performance. Third, macroeconomic data (INF, GDP, INT) sourced from general databases (World Bank) may not fully capture localized variations in the F&B industry.

Future research should expand the sample to include unlisted firms, using survey data to enhance representativeness. Additionally, incorporating non-economic variables, such as online consumption trends or Industry 4.0 technologies, would provide a more comprehensive assessment of financial performance impacts. Utilizing high-frequency data (quarterly) could improve estimation accuracy. Finally, comparative studies between Vietnam and other ASEAN countries would offer a regional perspective, supporting the development of competitive strategies for the F&B industry.

Transparency:

The author confirms that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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References

[1] Food and Agriculture Organization of the United Nations (FAO), "The state of food and agriculture 2020: Overcoming water challenges in agriculture," 2020. https://openknowledge.fao.org/server/api/core/bitstreams/6e2d2772-5976-4671-9e2a-0b2ad87cb646/content

[2] World Bank, "World development indicators," 2022. https://data.worldbank.org/indicator

[3] Vietnam Briefing, "Vietnam's food and beverage industry trends," 2022. https://www.vietnam-briefing.com/

[4] Ken Research, "Vietnam food and beverage market overview," 2024. https://www.kenresearch.com/industry-reports/vietnam-food-and-beverage-market

[5] C. Nguyen, "Macroeconomic factors and firm performance–the case in the stock," *VNUHCM Journal of Economics-Law and Management*, vol. 7, no. 1, pp. 4000-4007, 2023. https://doi.org/10.32508/stdjelm.v7i1.1123

[6] S. Chopra and P. Meindl, *Supply chain management: Strategy, planning & operation*. Wiesbaden, Germany: Gabler, 2007.

[7] H. Bui *et al.*, "Determinants influencing the profitability of listed food processing firms in Vietnam," *Accounting*, vol. 6, no. 4, pp. 441-452, 2020.

[8] K. Shahzad, S. U. Bajwa, and S. A. Zia, "Competitive strategy: Techniques for analyzing industries & competitors," *South Asian Journal of Management*, vol. 20, no. 3, pp. 194-199, 2013.

[9] L. M. Ball and S. Mazumder, "Inflation dynamics and the great recession (No. w17044)," National Bureau of Economic Research, 2011.

[10] Tesco PLC, "Annual report and financial statements 2022," 2022. https://www.tescoplc.com/investors

[11] Y. Zhang, X. Rao, and H. H. Wang, "Organization, technology and management innovations through acquisition in China's pork value chains: The case of the Smithfield acquisition by Shuanghui," *Food Policy*, vol. 83, pp. 337-345, 2019. https://doi.org/10.1016/j.foodpol.2017.08.004

[12] D. H. Nguyen, "Factors influencing the profitability of listed firms in Vietnam's stock markets," *The Journal of Asian Finance, Economics and Business*, vol. 9, no. 7, pp. 197-203, 2022. https://doi.org/10.13106/jafeb.2022.vol9.no7.0197

[13] P. A. Samuelson and W. D. Nordhaus, "Economics," 19th ed. New York: McGraw-Hill Education, 2010.

[14] P. Kotler and K. L. Keller, *Marketing management*, 15th ed. Harlow, Essex, UK: Pearson Education Limited, 2016.

[15] D. Besanko, D. Dranove, M. Shanley, and S. Schaefer, *Economics of strategy*. Hoboken, NJ: John Wiley & Sons, 2009.

[16] FMI – The Food Industry Association, "The food retailing industry speaks 2023," 2023. https://www.fmi.org/our-research/research-reports

[17] O. W. Maietta, C. Barra, and R. Zotti, "Innovation and university-firm R&D collaboration in the European food and drink industry," *Journal of Agricultural Economics*, vol. 68, no. 3, pp. 749-780, 2017. https://doi.org/10.1111/1477-9552.12208

[18] F. S. Mishkin, *The economics of money, banking, and financial markets*. Boston, MA: Pearson Education, 2007.

[19] S. A. Ross, R. W. Westerfield, J. Jaffe, and B. D. Jordan, *Corporate finance*, 12th ed. New York: McGraw-Hill Education, 2018.

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