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The Effect of Company Size and Sales Growth on ROE in Food and Beverage Companies (2021–2024)

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ABSTRACT
This study examines the effect of firm size and sales growth on return on equity (ROE) in food and beverage sub-sector companies listed on the Indonesia Stock Exchange over the 2021–2024 period. The sample consists of 14 firms, yielding 56 firm-year observations of balanced panel data. Panel regression analysis is employed, and model selection tests indicate that the Fixed Effect Model (FEM) is the most appropriate specification, as evidenced by a significant Chow test (F = 3.8909; p = 0.0005) and Hausman test (Chi-Sq = 9.7833; p = 0.0075). The classical assumption tests show no multicollinearity between the independent variables (correlation between firm size and sales growth = 0.047 < 0.85) and no evidence of heteroskedasticity, supporting the use of FEM estimators. The estimation results reveal that firm size has a negative and statistically significant impact on ROE (coefficient = −6.35E−08; t = −2.2616; p = 0.0292), while sales growth exerts a positive but statistically insignificant effect (coefficient = 0.0267; t = 0.3897; p = 0.6988). The model's R-squared is 0.5950, with an adjusted R-squared of 0.4432, indicating that approximately 44–60% of the variation in ROE is explained by the explanatory variables and firm-specific fixed effects; the F-statistic of 3.9182 (p = 0.000276) confirms overall model significance. These findings suggest that larger asset scale in food and beverage firms tends to reduce equity returns, whereas higher sales growth does not necessarily translate into higher ROE. The results highlight the importance of asset efficiency and cost management, beyond just expansion of firm size or top-line growth, for improving shareholder returns in this sector.

Keywords:*Firm size; Sales Growth;; ROE; Panel Data; Food & Beverages*

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INTRODUCTION

Return on Equity (ROE) is an important financial performance indicator, demonstrating a company's ability to generate profits for shareholders. A high ROE reflects the effective use of equity capital and is attractive to investors. Internal factors such as company size and sales growth are often considered in efforts to increase ROE. In theory, larger companies have the potential to achieve higher profitability due to economies of scale, easier access to resources, and a strong market reputation. Company size is often measured by total assets (or its logarithm) as a proxy for company scale. High sales growth is also viewed positively because it reflects increased market demand and market share expansion, which in turn can boost future profits. Previous research has found a positive relationship between these two factors on both firm value and profitability. For example, a study by Asimakopoulos et al. (2009) found that larger companies with rapidly growing sales tend to have higher profitability. Similarly, Yazdanfar (2013) on micro-enterprises in Sweden reported that company size and sales growth have a significant positive effect on profitability.

However, empirical findings are not always consistent. Several studies in various contexts show insignificant or varying effects. Kaptiana and Asandimitra (2018), who studied the consumer goods sector in Indonesia from 2008–2012, reported that sales growth had no effect on ROE, while company size also

had no significant effect. Estiasih et al. (2024) found that for food and beverage companies from 2017–2019, company size had no significant impact on financial performance. Conversely, several other studies found sales growth to have a positive impact. Sumilat et al. (2023) found that sales growth had a significant positive effect on ROE in property companies in Indonesia, although company size was not a significant factor in their study. These inconsistent results suggest the need for further research, particularly in the food and beverage subsector in Indonesia, given that this sector is a vital and attractive primary consumption sector for investors. Do larger food and beverage companies tend to be more profitable? Is increased sales in line with increased ROE in this sector? These questions are the focus of this study.

The research problem is formulated as follows: Do company size and sales growth significantly influence ROE in food and beverage sub-sector companies listed on the Indonesia Stock Exchange (IDX) for the 2021–2024 period? The objective of this research is to analyze the direction and significance of the influence of company size and sales growth on ROE in food and beverage companies in Indonesia, as well as to provide an empirical contribution to addressing the inconsistencies in previous findings. The results of this research are expected to be useful for company management in determining strategies to improve financial performance, as well as for investors in considering company fundamental factors. Academically, this research enriches the literature on the determinants of profitability (ROE), especially in the primary consumption sector in Indonesia.

RESEARCH METHODS

This research employs a quantitative explanatory design with an empirical study method on panel data. The study population comprised companies in the food and beverage sub-sector listed on the Indonesia Stock Exchange (IDX). Using a purposive sampling technique, 14 companies were selected that consistently published annual financial reports during the 2021–2024 study period. The data used are secondary data obtained from the companies' published annual financial reports and audited financial statements downloaded from the official IDX website and from each company.

The dependent variable in this study is Return on Equity (ROE), which is calculated as the ratio of net income to shareholders' equity. ROE is measured as a percentage, reflecting the rate of return generated by the company on its equity. The independent variables consist of: (1) Firm Size, which is proxied by the total value of the company's assets. For analytical purposes, total assets are processed in the form of a natural logarithm (Ln Total Assets) to reduce skewness and differences in scale between companies. The use of log assets as an indicator of company size is commonly used in financial studies to reflect the scale of company operations comparatively. (2) Sales Growth, which is measured as the percentage change in net sales for the current year compared to the previous year. Sales growth reflects the company's business expansion in terms of revenue. This growth value can be positive (increased sales), zero, or negative (decreased sales from the previous year).

The analytical method used is panel data regression analysis. First, the appropriate panel model selection test is performed using the Chow Test and the Hausman Test. The Chow Test (Lagrange Multiplier Test) is used to determine whether the Common Effect or Fixed Effect model is more appropriate to the data. If the Chow Test is significant ($p<0.05$), then the Fixed Effect Model is more appropriate than the model without special effects. Next, the Hausman Test is performed to choose between the Fixed Effect Model (FEM) and the Random Effect Model (REM). The Hausman Test examines differences in coefficient estimates; if the result is significant ($p<0.05$), then the FEM is selected, whereas if it is not significant, the REM can be used. In addition, the Classical Assumption Test is also performed on the selected model (FEM), which includes: multicollinearity test, heteroscedasticity test, and normality and autocorrelation assumption tests, if relevant. The multicollinearity test is performed by examining the Variance Inflation Factor (VIF) and

the correlation between independent variables; a VIF value <10 indicates no serious multicollinearity. The heteroscedasticity test examines whether the error variance is constant, using the Breusch-Pagan test or the White test. A regression model is declared free of heteroscedasticity if the p-value > 0.05 (fails to reject H0 of homoscedasticity).

The panel data regression equation in this study can generally be written as follows:

$$〖"ROE"〗_it=α+β_1〖"Size"〗_it+β_2〖"Sales Growth"〗_it+μ_i+ϵ_it$$

where subscript i represents the i-th firm (cross-section unit), t represents the t-th year (time series unit), α is the intercept, μ_i are fixed effects that capture firm-specific characteristics that are constant over time (e.g., differences in management or firm market segment), and ϵ_{it} is the error term. Parameter estimation is performed using the Ordinary Least Squares (OLS) method adjusted for panel data according to the selected model. All tests are performed using statistical software, with a significance level of 5%.

RESULTS AND DISCUSSION

Model Selection Test and Classical Assumptions

Based on the results of panel data analysis, the model used in this study is the Fixed Effect Model (FEM). This was determined through the Chow Test (F = 3.89; p = 0.0005) and the Hausman Test (Chi-Sq = 9.78; p = 0.0075) which were both significant, so the fixed effect model is more appropriate than the ordinary effect model or random effect. Prior to estimation, a classical assumption test was conducted which showed that the regression model had met the prerequisites: no multicollinearity was detected (correlation X1–X2 = 0.047 < 0.85, indicating a low correlation between Firm Size and Sales Growth), and no heteroscedasticity occurred (p-value in the heteroscedasticity test > 0.05 for all variables), so that the error variance can be considered constant (homoscedastic). In addition, the Durbin–Watson value was around 2.025 close to 2, which indicates there is no significant serial autocorrelation in the model residuals.

Next, panel data regression estimation is performed using FEM. The resulting regression equation is:

$$\text{ROE} = 13{,}35 - 6{,}35 \times 10^{-8} \times \text{Firm Size} + 0{,}03 \times \text{Sales Growth}.$$

In the equation above, the constant 13.35 represents the estimated ROE (% per year) when the Firm Size and Sales Growth variables are set to zero. The Firm Size coefficient is negative, while the Sales Growth coefficient is positive. Table 1 below presents a summary of the FEM regression results, including the coefficients, t-statistics, and significance of each independent variable on ROE.

Table 1. Results of Panel Data Regression of Fixed Effect Model (FEM)

Variables	Coefficient	t-count	p-value
Constant	13.35	–	–
Firm Size	-6.35 × 10^−8	-2.26	0.0292
Sales Growth	0.0267	0.39	0.6988

From Table 1, it can be seen that Firm Size has a negative coefficient with a t-value and p-value of 0.0292. This means that Firm Size has a negative and significant effect on ROE at a significance level of 5% (p < 0.05). Conversely, Sales Growth has a positive coefficient of 0.0267 with a t-value of 0.39 and a p-value of 0.6988, which indicates that the effect of Sales Growth on ROE is positive but not statistically significant (p > 0.05). The R-squared value of 0.5950 indicates that approximately 59.5% of the variation in ROE can be explained by the independent variables (Firm Size and Sales Growth) along with company fixed effects, while the remaining ~40% is influenced by other factors outside the model. The Adjusted R^2 value of 0.4432 indicates the model's fit after adjusting the degrees of freedom. The simultaneous significance test yielded

an F-statistic of 3.9182 with a p-value of 0.000276, indicating that the overall regression model is significant (having a significant combined effect on ROE). Finally, the Durbin–Watson statistic of 2.0255 is close to 2, indicating no strong indication of autocorrelation in the model residuals.$-6{,}35 \times 10^{-8} - 2{,}26$

The results of this study indicate that firm size has a significant negative effect on Return on Equity (ROE). The negative coefficient indicates that the larger the F&B company, the lower its return on equity tends to be. This finding is consistent with the trend reported in previous studies, where larger firm size is associated with decreased firm profitability. For example, Budiharja (2020) found a negative (though insignificant) relationship between firm size and ROE, which aligns with the results of this study. However, this result contrasts with the findings of Hidayati (2020), who reported a positive effect of firm size on profitability. This difference suggests that the impact of firm size on financial performance can vary depending on the industry context, period, and firm conditions. In theory, large firms generally have easier access to capital and higher economies of scale, which should improve performance. However, excessive size can also trigger diseconomies of scale, or bureaucratic and operational inefficiencies, resulting in a decreased return on equity ratio in very large firms. In other words, the increase in assets and resources owned by large companies is not always accompanied by a commensurate increase in profits, so the ROE of large companies tends to be lower than that of smaller companies. In addition to inefficiency factors, large companies in the F&B sector may face relatively stable/slow growth and complex organizational structures, making it difficult to significantly increase ROE. The large equity base of established companies can also lead to a lower ROE ratio because the profits generated are relatively small compared to the high total equity.

Meanwhile, the Sales Growth variable has a positive but insignificant effect on ROE. The positive coefficient of 0.0267 indicates a relationship that aligns with theoretical expectations—that is, when sales increase, company profits, ceteris paribus, have the potential to increase, leading to a higher ROE. However, the high p-value (0.699) indicates that statistically, increased sales growth does not significantly impact ROE for F&B companies in the 2021–2024 period. This finding aligns with previous research by Hansen and Juniarti (2014), which also found a positive but insignificant effect of sales growth on profitability (ROE). In other words, although sales growth is an indicator of business development, it does not necessarily translate into increased returns for shareholders in the short term. One possible explanation is that increased sales are often accompanied by increased costs (e.g., production, marketing, and distribution costs), so profit margins do not increase materially. If sales growth is due to market expansion strategies or large-scale promotions, companies may offer discounts or incur high marketing costs, which depress profitability. The condition of the F&B industry in 2021–2024, which has navigated the pandemic and economic recovery, could also have an impact: sales growth during this period may be more of a recovery from the previous decline, resulting in a less than optimal impact on profits. Furthermore, high sales growth does not necessarily reflect efficiency; management needs to ensure production capacity, cost control, and appropriate pricing strategies to translate revenue growth into increased net profit. Without improvements in internal efficiency, additional sales will only increase business volume but not significantly improve ROE.

Overall, the empirical findings above confirm that in the food and beverage sector listed on the IDX, company size plays a significant role and has been shown to significantly reduce ROE levels, while sales growth is not the primary determinant directly impacting ROE. Consequently, larger F&B companies need to be aware of potential inefficiencies as their business scales and focus on improving asset management to prevent declining returns on equity. Furthermore, sales growth still needs to be managed effectively—for example, through increased profit margins—so that top-line growth can be reflected in increased returns for shareholders. This study's findings align with the literature suggesting a negative relationship between

company size and performance (profitability) and demonstrate that growth alone is insufficient without efficiency to increase ROE. However, approximately 40% of the variation in ROE is still influenced by factors other than the two variables studied, such as operational efficiency, cost structure, leverage, and macroeconomic factors. Therefore, further studies are recommended to include additional variables (e.g. net profit margin, leverage, or management efficiency) to obtain a more comprehensive picture of the determinants of ROE in Food and Beverages sector companies.

CONCLUSION

This study aims to analyze the effect of firm size and sales growth on return on equity (ROE) in 14 food and beverage sub-sector companies listed on the Indonesia Stock Exchange during the 2021–2024 period using panel data (56 observations) and a Fixed Effects Model (FEM). The estimation results show that firm size has a negative and significant effect on ROE, while sales growth has a positive but insignificant effect on ROE. Therefore, the hypotheses that firm size has a positive effect on ROE and that sales growth significantly increases ROE are not proven in the context of this study.

The R-squared value of 0.595 and Adjusted R-squared of 0.443 indicate that approximately 44–60% of the variation in ROE can be explained by a combination of firm size, sales growth, and differences in fixed characteristics between companies, while the remainder is influenced by other factors outside the model. Simultaneously, the regression model proved significant (F-statistic 3.918; $p < 0.01$), which means that the variables used together with the company fixed effects jointly influence ROE. This finding implies that in the food and beverage sector, asset scale expansion without increasing asset utilization efficiency actually has the potential to reduce the return on equity, and sales growth alone is not enough to drive ROE increases if not accompanied by effective cost and profit margin management.

Practically, F&B company management needs to place greater emphasis on operational efficiency, asset productivity, and cost structure control strategies rather than simply pursuing growth in company size or sales volume. For future research, it is recommended to add other variables such as leverage, total asset turnover, net profit margin, and expand the observation period to provide a more comprehensive picture of the determinants of ROE in this sector.

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