**THE DETERMINANTS OF PROFITABILITY IN PROCESSED FOOD INDUSTRY IN INDONESIA**

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**ABSTRACT**

The main purpose of this study is to explore the impact of working capital, sales growth, debt to equity, and operating efficiency ratio on the profitability of processed food industry in Indonesia. The profitability in this study is measured through return on equity (ROE). The research is a quantitative research method by using secondary data for seventeen processed food companies listed in Bursa Efek Indonesia from 2013 until 2019.

The research shows:1) working capital has significant positive effect on processed food company’s profitability; 2) Sales growth has significant negative effect on processed food company’s profitability; 3) the debt to equity or leverage does not have any effect on processed food company’s profitability, 4) operating efficiency ratio has significant negative effect on processed food company’s profitability.

Key words: Working Capital, Sales Growth, Debt to Equity, Operating Efficiency Ratio, Return on Equity

# INTRODUCTION

Indonesia is the fourth most populous country in the world, with a population of about 271 million. Food and beverages are the one of the main important industries in the country. According to statistics from the Indonesian Central Bureau of Statistics (BPS) in 2018, nearly 49.51% of household income is used for food consumption. According to the information published on the website of the Central Bureau of Statistics of Indonesia in 2020, there were about 9,551 medium and large-scale processed food and beverage factories, with more than 1.6 million small enterprises, and nearly 4.7 million people employed in this industry in 2018.

In this huge industry with tight competition, each company needs to improve its performance, by improving its ability to generate profit.

This study is to explore the working capital, leverage (or debt to equity), sales growth and Operating efficiency ratio effect on profitability.

Profitability is the ability of a business to earn a profit from its operations. It is the sovereign criterion of the enterprise (Peter Drucker,2013). Profitability reflects the ability of companies to earn profits in relationship with sales, total assets and own capital (Sartono,2014). This study uses accounting profitability measure return on equity (ROE), which is an important ratio for investors. ROE used by investors to measure a company's ability to obtain net income related to the dividend. High profitability will be better for investors, because it shows a good investment prospect. For companies with low ROE, investors will assess the company as a high-risk investment (Leach, 2010).

Working capital is a measure of a company's liquidity, operational efficiency, and short-term financial health. According to Ginting (2018), the higher working capital turnover the better performance of a company where the percentage of working capital there can generate sales with a certain amount. The greater this ratio indicates the effective utilization of working capital available in increasing the profitability of the company.

Debt to equity is a measure of the degree to which a company is financing its operations through debt versus wholly owned funds. More specifically, it reflects the ability of shareholder equity to cover all outstanding debts in the event of a business downturn. According to Purnamasari (2017), The funding policy reflected in the Debt-to-Equity Ratio (DER) affect the ability of the company to earn profit.

Sales growth is the percent growth in the net sales of a business from one fiscal period to another. Net sales are total sales revenue less returns, allowances and discounts (Manasa Reddigari,2019).

The operating efficiency ratio shows a company's management by comparing the total operating expense (OPEX) plus total COGS of a company to its net sales; it can help small business owners and managers conduct business better. (Lyle DelVecchio, 2020).

# LITERATURE REVIEW

The Table 1 summarizes the literature in the past that are related to the topics of profitability, in particular in the context of manufacturing industry.

Table 1. Summary of Previous Relevant Research on Profitability in Manufacturing Companies in Indonesia.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Study by** | **Variables** | **Sample** | **Time limit** | **Data Resource** | **Method** | **Results** |
| 1 | Ayu Karnulis Setiyorini (2018) | Price Book Value, Company Value, return on asset, Total  Asset Growth | 11 | 2017-2018 | secondary data | techniques and moderated multiple regression analysis | profitability and investment decisions (TAG) have a positive and significant impact on firm value (PBV). |
| 2 | Didik Susilo, Sugeng Wahyudi, Irene Rini Demi Pangestuti (2020) | productivity | 350 | 2010-2017 | secondary data | Description statistics and regression | working capital, firm size and firm growth were positively related to profitability. Meanwhile, capital structure and non-debt tax shield did not affect profitability. |
| 3 | Gregorius Paulus Tahu, Dominicius Djoko Budi Susilo (2017) | liquidity, leverage and profitability, dividend policy | 30 | 2010-2014 | secondary data | techniques and moderated multiple regression analysis | liquidity not significant positive effect on firm value, dividend policy is not able to significantly moderate the effect of liquidity on the value company, leverage not significant negative effect on firm value, dividend policy is not able to significantly moderate the effect of leverage on firm value, 5) Profitability significant positive effect on firm value, 6) dividend policy is not able to significantly moderate the effect of profitability on firm value. |
| 4 | Bobby Chandra and Dadan Rahadian (2019) | Return on Equity, Net Profit Margin, Total Asset Turn Over, Equity Multiplier. | 21 | 2010-2017 | secondary data | techniques and moderated multiple regression analysis | Net Profit Margin (NPM), Total Asset Turn Over (TATO), and Equity Multiplier (EM). This study aimed to determine how significant the influence of NPM, TATO and EM factors had on profitability (ROE). |
| 5 | EN Simorangkir (2019) | Firm Size, Debt to Equity Ratio, and Working Capital Turnover Ratio, return on asset | 69 | 2014-2018 | secondary data | techniques and moderated multiple regression analysis | Debt Equity Ratio has a negative effect on profitability,  Working Capital Turnover has a positive effect on profitability, firm size have no effect on profitability. |

# DATA AND RESEARCH METHOD

* 1. **Panel Data Regression**

This paper takes 4 factors that affect the profitability of enterprises as the research object, selects 2013-2019 related financial indicators of 17 listed companies to construct a panel model, and conducts an empirical analysis of the factors affecting the profitability of food processing enterprises. This article builds the following model:

*ROE …. (Equation 1)*

= Correlation coefficient of each explanatory variable, Beta 1 is Working capital ratio, Beta 2 is sales growth, Beta 3 is debt to equity and Beta 4 is operating efficiency ratio.

Xn, t = Independent Variable X, company n, time t

*C* = Intercept term

* 1. **Sample and Population**

This study used quantitative research method by using secondary data for seventeen processed food companies listed in Bursa Efek Indonesia from 2013 until 2019. The sample were chosen listed in Bursa Efek Indonesia which have completed financial statements from 2013 until 2019.

* 1. **Operationalization of Research Variables**

This research is to use return on asset and return on equity as the explained variable Y of the food processing industry listed companies, and other related influencing variables as the explanatory variable X, and use the panel data model to perform regression analysis on the variables to study the factors that affect the profitability of the company.

Dependent Variable is Profitability which is used accounting measure of the return on equity (ROE).

Below is the definition and related references for the operationalization of the variables.

Table 2. Dependent Variable Definitions and References

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Dependent Variables** | **Acronyms** | **Definition** | **Formula** | **Effect** | **References** |
| Return on Equity | ROE | Return on Equity is a comparison on the net profit of an issuer with its own capital | ROE= Net Income /Total Equity |  | Harahap (2007)  Dia Rekhi (2016)  Matthijs C.T. Kant (2011) |

Table 3. Independent Variable Definitions and References

Independent Variables are working capital, debt to equity, free cash flow and gross profit margin.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Independent Variables** | **Acronyms** | **Definition** | **Formula** | **Effect** | **References** |
| Working Capital | WC | Working capital is a measure of a company's liquidity, operational efficiency, and short-term financial health | WC=Current Asset/  Current Labilities | + | Jason Fernando (2021)  Hirsch and Hartmann (2014)  Ian Varley (2019)  Wasantha Perera (2010)  Didik Susilo, Sugeng Wahyudi, Irene Rini Demi Pangestuti (2020) |
| Sales Growth | SG | Sales growth rate measures the rate at which a business is able to increase revenue from sales during a fixed period of time. | Sales Growth=  (Current year Total Revenue- Last year Total Revenue)/Last year Total Revenue | + | Vidyanita Hestinoviana  Suhadak  Siti Ragil Handayani (2013)  [Lestraundra Alfred](https://blog.hubspot.com/sales/author/lestraundra-alfred)  (2019)  Manasa Reddigari (2019) |
| Debt to Equity | Leverage | Debt to equity is a ratio which is the ratio between total debt with its own capital | Debt to Equity ratio= Total Debt/ Total Equity | + | Brigham and Houston (2010);  Ryan, 2008)  Matthijs C.T. Kant (2011)  Gregorius Paulus Tahu, Dominicius Djoko Budi Susilo (2017) |
| Operating Efficiency Ratio | OER | Operational efficiency measures the proportion of costs incurred during an economic or financial activity | OER= (Operating expense +Cost Goods Sold)/Total Revenue | - | Chron Contributor (2021)  [Peter Baskerville](https://www.skillmaker.edu.au/author/peter-baskerville/) (2016) |

* 1. **The test for determining the regression model to be used: Chow Test and Hausman Test**

Chow test is the result can compare common effect model and fixed effect model. If the P-value ＞5%，will choose the common effect model, if the p-value ＜5%，it’s better to choose fixed effect model.

Hausman test is the result which compare the fixed effect model and random effect model. If the P-value is less than 5%, will choose the fixed effect model.

* 1. **Classical Assumption Test**

A normality test is used to determine whether sample data has been drawn from a normally distributed population (within some tolerance). The Probability result is more than 5% can continue, if the probability is less than 5%, will reject, use another test.

Multicollinearity Test, which tested the correlation between dependent variables.

The result value below 0.8 which means the dependent variables have no correlation.

Heteroscedasticity Test, which tested whether the variance of the regression error depends on the value of the independent variable or not. In the results, if the P-value >5%, which means there is no heteroscedasticity problem.

Durbin Watson statistic which tests the auto-correlation in residuals, where when the DW<dl (T-dw table), it will be positive auto-correlation problem. When the dl<DW<du, cannot be sure the relationship. du (T-dw table)<DW<4-du(T-dw table), there is no auto-correlation problem, but when 4-du<DW<4, there will be negative auto-correlation problems.

1. **RESULTS AND DISCUSSION**
   1. **Panel Data Regression Result**

Table 4: Panel data regression result

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Independent Variable: ROE | | | |  |
| Method: Panel Least Squares | | | |  |
| Date: 08/17/21 Time: 10:11 | | | |  |
| Sample: 2013 2019 | | |  |  |
| Periods included: 7 | | |  |  |
| Cross-sections included: 17 | | | |  |
| Total panel (balanced) observations: 119 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| WC | 16.23939 | 9.068213 | 1.790804 | 0.0764 |
| SG | -32.58107 | 17.93498 | -1.816621 | 0.0723 |
| LEVERAGE | 57.65284 | 47.89745 | 1.203672 | 0.2316 |
| OER | -308.7366 | 23.59557 | -13.08452 | 0.0000 |
| C | 494.0206 | 55.02487 | 8.978134 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Effects Specification | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section fixed (dummy variables) | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.713476 | Mean dependent var | | -1.922605 |
| Adjusted R-squared | 0.655002 | S.D. dependent var | | 106.6985 |
| S.E. of regression | 62.67103 | Akaike info criterion | | 11.27246 |
| Sum squared resid | 384910.5 | Schwarz criterion | | 11.76289 |
| Log likelihood | -649.7114 | Hannan-Quinn criter. | | 11.47161 |
| F-statistic | 12.20153 | Durbin-Watson stat | | 2.012688 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

ROE=16.23939WC-32.58107SG+57.65284LEVERAGE-308.7366OER+494.0206

**4.2 Chow Test Result**

Table 5: Chow Test Result

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Redundant Fixed Effects Tests | | | |  |
| Equation: Untitled | | |  |  |
| Test cross-section fixed effects | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Effects Test | | Statistic | d.f. | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section F | | 8.926235 | (16,98) | 0.0000 |
| Cross-section Chi-square | | 106.990674 | 16 | 0.0000 |
|  |  |  |  |  |

The P-value is 0.000 less than 5%, so the fixed effect model was chosen to continue the research.

**4.3 Hausman Test Result**

Table 6: Hausman Test Result

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Correlated Random Effects - Hausman Test | | | | |
| Equation: Untitled | | |  |  |
| Test cross-section random effects | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Test Summary | | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section random | | 71.408867 | 4 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |

The P-value is 0.000 less than 5%, so the research will choose the fixed effect model.

**4.4 Normality Test**

Table 7: Normality Test Result



The probability is 0.000 less than 5%. it means will use another tests to continue analysis.

**4.5 Multicollinearity Test Result**

Table 8: Multicollinearity Test Result

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | WC | SG | LEVERAGE | OER |
| WC | 1.0000 | 0.0710 | -0.4817 | -0.1183 |
| SG | 0.0710 | 1.0000 | -0.0890 | -0.0993 |
| LEVERAGE | -0.4817 | -0.0890 | 1.0000 | 0.0666 |
| OER | -0.1183 | -0.0993 | 0.0666 | 1.0000 |

From the results of these tests, it can be seen that there is no correlation coefficient value above 0.8, this proves that the data do not occur multicollinearity.

**4.6 Heteroscedasticity Test Result**

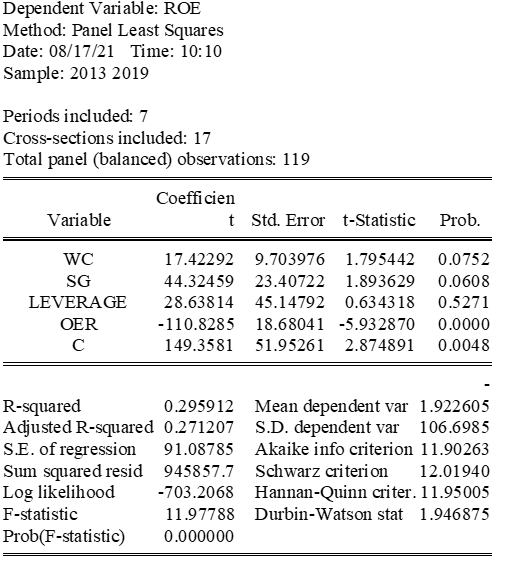
Table 9: Heteroscedasticity Test Result

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: RESABS | | | |  |
| Method: Panel Least Squares | | | |  |
| Date: 08/17/21 Time: 10:02 | | | |  |
| Sample: 2013 2019 | | |  |  |
| Periods included: 7 | | |  |  |
| Cross-sections included: 17 | | | |  |
| Total panel (balanced) observations: 119 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| WC | 0.113228 | 0.203480 | 0.556460 | 0.5790 |
| SG | -0.303306 | 0.490819 | -0.617959 | 0.5378 |
| LEVERAGE | 1.029848 | 0.946694 | 1.087837 | 0.2790 |
| OER | 0.651495 | 0.391704 | 1.663232 | 0.0990 |
| C | 0.206209 | 1.089379 | 0.189290 | 0.8502 |

From the results of the Heteroscedasticity test in Table 9, it is seen that the probability value of each variable is above 0.05 so that the data does not have heteroscedasticity towards the variables.

**4.7 Autocorrelation Test Result**

Table 10: Autocorrelation test result



From the result, the DW value is 1.95, more than Du (DW table) value 1.7709, less than 2.2291, this test is accepted.

**4.8 Discussion**

From the results, the study variable Working Capital (WC) P-value 0.0764<0.1, coefficient value 16.23939>0, it means WC has significant positive effect on profitability processed food industry in Indonesia.

The Sales Growth (SG) P-value 0.0723<0.1, coefficient value -32.58107<0. it means Sales Growth (SG) has negative significant on profitability processed food industry in Indonesia.

The variable Debt to Equity (Leverage) probability value is 0.2316 more than 0.1, it means Leverage has no effect on profitability processed food industry in Indonesia.

Operating Efficiency Ratio (OER) probability value is 0.0000<0.1, the coefficient value -308.7366<0, as the result the Operating Efficiency Ratio (OER) have negative significant on profitability processed food industry in Indonesia.

1. **Conclusion and Suggestion** 
   1. **Conclusion**

- The results showed that Operating Efficiency Ratio (OER) has negative significant influence on profitability, and Operating Efficiency Ratio (OER) also has the high coefficient. This should be considered for the processed food companies, the way to decrease Operating Efficiency Ratio (OER) is to reduce the cost of goods sales.

- The results showed the Working Capital has positive significant influence on ROE, means the WC has positive significant effect on profitability of processed food companies, the way to increase the Working Capital can be increase the currents assets or decrease the current liability. In my opinion decrease the short-term debt is better.

-From the results, the Sales Growth has negative significant influence on profitability of processed food companies, the way to increase the profitability of processed food companies is better to control the Sales Growth.

- Debt to Equity has no significant effect on ROE, it means the debt to equity has no significant on profitability of process food companies just in this research.

**5.2. Suggestions**

- Further studies should add more dependent variables that affect the processed food company’s profitability in Indonesia in order to find other factors to determine the profitability of processed food companies.

- The importance of Working Capital (WC) in this study may have led to further studies on the determinants of the working capital in this industry.

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