

THE DETERMINANTS OF PROFITABILITY IN PROCESSED FOOD INDUSTRY IN INDONESIA

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Abstract

This research is aim 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 research uses quantitative research method by using secondary data. The population in this research are 17 processed food companies listed in Bursa Efek Indonesia from 2013 until 2019.

The research results showed: 1) working capital has significant positive effect on profitability of processed food industry in Indonesia; 2) Sales growth has significant negative effect on profitability of processed food industry in Indonesia; 3) the debt to equity or leverage does not have any profitability of processed food industry in Indonesia; 4) operating efficiency ratio has significant negative effect on profitability of processed food industry in Indonesia.

Keywords: *Working Capital, Sales Growth, Debt to Equity, Operating Efficiency Ratio, Return on Equity*

INTRODUCTION

Indonesia is the fourth most populous country in the world which has 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.

According to the above data, although the processed food industry market in Indonesia is huge. But the competitiveness of this industry is also increasing year by year. In this huge competition market, the company want survive, they must get the enough profit. Different size company, they will get different profit. In order to assess their profit, we can from the profitability.

Previous researchers study the factors effect on profitability. They concentrate on the other industry or another country. Bobby Chandra and Dadan Rahadian (2019) had study about the determinants of profitability in water company. Didik Susilo (2020) had study about

the factors affect profitability in retail companies. Matthijs C. T. Kant (2018) had research about the factors of the profitability of manufacturing in New York Stock Exchange.

But In Indonesia, the processed food industry is very important, and the competitiveness is also very huge. In order to the company long-tern running, the business should maximize the profitability.

According to the situations, the researcher will concentrate the year 2013- 2019, and because of the company financial information disclosure, the researcher just can choose the return on Equity as the tool to measure the profitability. Because this study using the secondary data from the Bursa Efek Indonesia, there are data limitation, so we just according to the data, just can choose the return on equity. What's more, for the independent variables choosing, the researcher can according to the data to choose the sales growth and operating efficiency ratio. For liquidity and solvency, the research just can choose working capital turnover debt to equity as the measure tools.

Based on the above background and problem identification, the researchers will use several variables in this study. It leads to some problems, such as:

1. Does the Working Capital (WC) effect on Return on profitability in processed food industry in Indonesia?
2. Does the Sales Growth (SG) have a significant influence on profitability in processed food Industry in Indonesia?
3. Does Debt to Equity (Leverage) provide an important effect on profitability in processed food Industry in Indonesia?
4. Does Operating Efficiency Ratio (OER) make a great impression on profitability in processed food I Industry in Indonesia?

LITERATURE REVIEW AND HYPOTHESIS

Definition Profitability

Profitability is the ability of a business to earn profit from its operations. It is the sovereign criterion of the enterprise (Peter, 2013). Profitability reflects the ability of companies to earn profits in relationship with sales, total assets and own capital (Sartono,2014). This study uses return on equity as the accounting tool to measure the profitability.

Return on equity as an important ratio for investors used 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).

Definition Working Capital

Working capital is a measure of a company's liquidity, operational efficiency, and short-term financial health (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.

Definition Debt to Equity

Debt to equity is a tool to measure a degree of a company 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 (Purnamasari, 2017). The funding policy reflected in the Debt-to-Equity Ratio (DER) affect the ability of the company to earn profit.

Definition Sales Growth

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).

Definition Operating Efficiency Ratio

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, Del, Vecchio, 2020).

Literature Review

This table 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

No.	Study by	Variables	Sample	Time limit	Data Resource	Method	Results
1	Matthijs C. T. Kant (2018)	sales growth, debt to equity, return on equity	250	2012-2017	secondary data	Techniques and moderated multiple regression analysis	Sales growth and debt to equity both have significant on profitability in manufacturing firms listed in New York Stock Exchange
2	Bobby Chandra and Dadan Rahadian (2019)	Working capital, return on equity	21	2010-2017	secondary data	techniques and moderated multiple regression analysis	Working capital has a Positive and significant effect on profitability.
3	Didik Susilo, Sugeng Wahyudi, Irene Rini Demi Pangestuti (2020)	working capital, operating efficiency ratio and return on equity	350	2010-2017	secondary data	Description statistics and regression	working capital, company size, and firm growth positive affect profitability. Operating efficiency ratio has negative effect on profitability.
4	EN Simorangkir (2019)	Debt to equity ratio, and working capital turnover ratio, return on equity	69	2014-2018	secondary data	techniques and moderated multiple regression analysis	debt to equity ratio has no effect on profitability, working capital turnover has a significant positive effect on profitability.
5	Gregorius Paulus Tahu, Dominicius Djoko Budi Susilo (2017)	liquidity, leverage and profitability	30	2010-2014	secondary data	techniques and moderated multiple regression analysis	liquidity has not significant positive effect on profitability, leverage is not significant negative effect on profitability, Profitability has significant positive effect on profitability.

Source: Author, 2021

Theoretical Framework

This study establishes a theoretical framework through the set of relationships between these data to illustrate and explain the interrelationship between these variables.

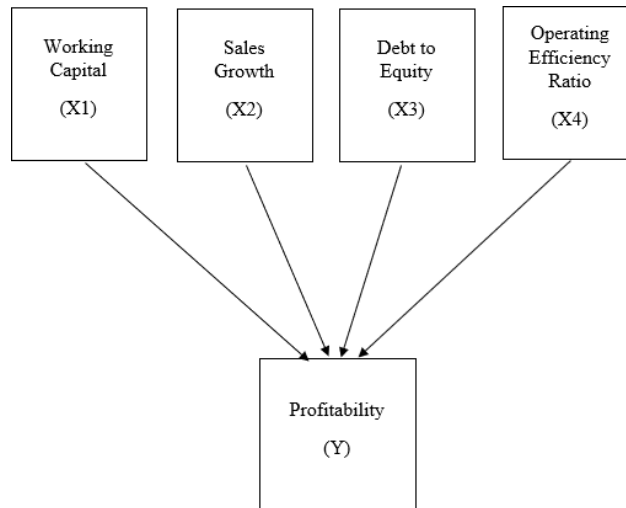


Figure 1. Theoretical Framework

Hypothesis

Based on these, this research as well as analysis, do the assumptions following:

Hypothesis 1: Working Capital (WC), Sales Growth (SG), Debt to Equity (Leverage) and Operating Efficiency Ratio (OER) all have significant effect on profitability of processed food industry in Indonesia.

Hypothesis 2: Working Capital (WC), Sales Growth (SG), Debt to Equity (Leverage) and Operating Efficiency Ratio (OER) partial have significant effect on profitability of processed food industry in Indonesia

Hypothesis 3: Working Capital (WC) and Sales Growth (SG) have significant positive effect on profitability of the processed food Industry in Indonesia

Hypothesis 4: Debt to Equity (Leverage) and Operating Efficiency Ratio (OER) partial have significant negative on profitability of the processed food Industry in Indonesia.

RESEARCH METHODOLOGY

The research worker chooses the most appropriate research method, that is, quantitative method. After selecting the method, researchers began to collect data from various sources, for example the company finance statements obtained from the company official website. The collected data is imported into Microsoft Excel 2013 then further processed using EViews to obtain the results. Then, according to the literature review, the results are analyzed and explained to draw verdicts. The verdict will sum up the keynote of this research as well as replying the study problem. Advice will be provided to interested parties.

Sample and Population Size

This study used quantitative research method by using secondary data for seventeen processed food companies listed in Bursa Efek Indonesia from 2013 until 2019.

A specimen is a gather of data and selects from a statistical population through a defined process. Taking sample is the process of gaining information from a part (sample) of a larger group (population). The results of the samples are then used to estimate larger groups. It's faster and more inexpensive than asking about the entire population.

The researcher uses some criteria in determining sample used in this study. Those criteria can be detailed as follows:

1. Companies are listed in Bursa Efek Indonesia;
2. Companies published their quarter or a year financial report on official website during 2013 until 2019;
3. Companies do not have negative equity during 2013-2019;
4. Companies do not have negative current assets during 2013-2019.

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	$ROE = \frac{\text{Net Income}}{\text{Total Equity}}$		Harahap (2007) Dia Rekhi (2016) Matthijs C.T. Kant (2011)

Source: Author, 2021

Table 3. Independent Variable Definitions and References

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	$WC = \frac{\text{Current Asset}}{\text{Current Liabilities}}$	+/-	Jason Fernando (2021) Hirsch and Hartmann (2014) Ian Varley (2019) Wasantha Perera (2010)
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.	$\text{Sales Growth} = \frac{\text{Current year Total Revenue} - \text{Last year Total Revenue}}{\text{Last year Total Revenue}}$	+/-	Vidyanita Hestinoviana Suhadak (2012) Siti Ragil Handayani (2013) 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= $\frac{\text{Total Debt}}{\text{Total Equity}}$	+/-	Brigham and Houston (2010) Ryan (2008) Matthijs C.T. Kant (2011) Gregorius Paulus Tahu, Dominicius Djoko Budi Susilo (2017)
Independent Variables	Acronyms	Definition	Formula	Effect	References
Operating Efficiency Ratio	OER	Operational efficiency measures the proportion of costs incurred during an economic or financial activity	OER= $\frac{\text{Operating expense} + \text{Cost of Goods Sold}}{\text{Total Revenue}}$	+/-	Chron Contributor (2021) Peter_Baskerville (2016)

Source: Author, 2021

Methods of Panel data model

The research usually uses three models: common effect model, fixed effect model and random effect model

- a. Common effect model (CEM) is also called Pooled Least Square and it is the simplest approach. The assumption contained in this model is that there is no difference between the value of intercepts and slopes in the regression results. In other words, the coefficient is constant to both individual and time (K Yunitaningtyas,2019).
- b. Fixed effect model (FEM) is the variables that are constant across individuals; these variables, like age, sex, or ethnicity, don't change or change at a constant rate over time. They have fixed effects; in other words, any change they cause to an individual is the same (Skrondal, A., 2010).
- c. Random effect model (REM) will estimate panel data where interference variables may be interconnected between time and between individuals. In the Random Effect model, the difference between intercepts is accommodated by the error terms of each company (Rizka Zulfikar, STp, MM,2019).

The Test for Determining the Regression Model

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

- a. 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.
- b. 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.

Classical Assumption Test

This research Classical Assumption Test using the following tests: normality test, multicollinearity test, heteroskedasticity examination and autocorrelation 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.
- b. Multicollinearity test is used to test the correlation between dependent variables. The result value below 0.8 which means the dependent variables have no correlation.

- c. Heteroskedasticity examination can test 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.
- d. Autocorrelation test is using Durbin Watson statistic to test 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.

Panel Data Regression

This research the Panel Data Regression mainly 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:

$$ROE = \beta_1 x_{1t} + \beta_2 x_{2t} + \beta_3 x_{3t} + \beta_4 x_{4t} + C \dots \text{(Equation 1)}$$

β_i = 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.
 X_n, t = Independent Variable X, company n, time t
 C = Intercept term

RESULTS AND DISCUSSION

Chow Test Result

Chow test is the comparison of the common effect model and fixed effect model, the results show as following:

Table 4. Chow Test Result

Redundant Fixed Effects Tests

Equation: Untitled

Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section square	Chi-106.990674	16	0.00000

Source: Data processed by researchers using Eviews 10, 2021

From the table 4 results, can get the P-value is 0.000 less than 5%, so the fixed effect model was chosen to continue the research.

Hausman Test Result

Hausman test is the comparison of the fixed effect model and random effect model, the results show as following:

Table 5. 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	4.0000	0.0000

Source: Data processed by researchers using Eviews 10, 2021

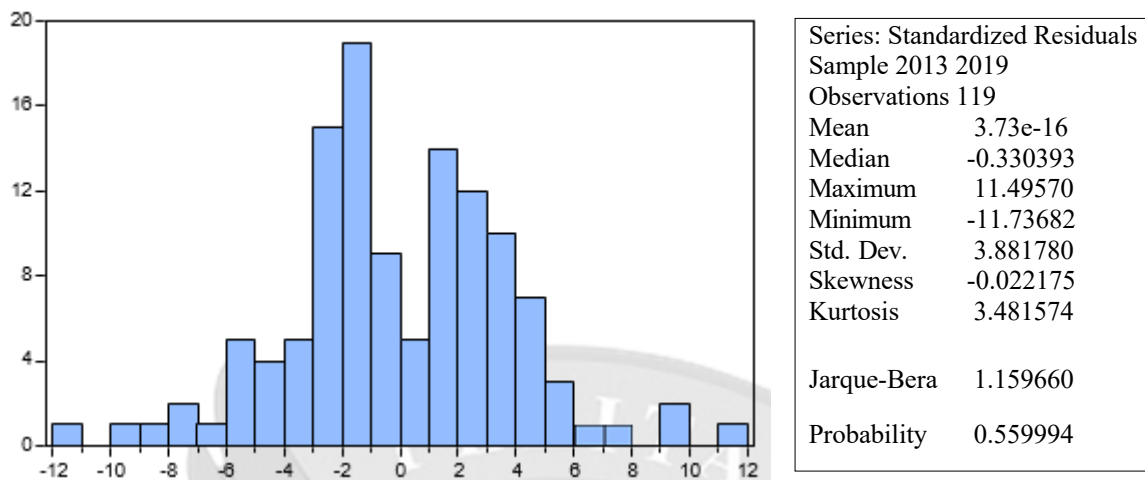
The table 5 shows the Hausman test result, the Statistic of Cross-section random value is 71.408867.

The P-value of Cross-section random is 0.00000, the P-value $0.00000 < 5\%$. It means the Fixed Effect Model (FEM) is chosen as the method for this data panel.

Normality Test Result

Assumption normality test in residual data from Fixed Effect Model on Indonesian ROE data performed using the Jarque-Bera test. Normality assumption test results displayed as follows:

Table 6. Normality Test Result



Source: Data processed by researchers using Eviews 10, 2021

According to the table shows the Jarque -Bera is 1506.026, the probability is 0.559994, probability $0.00000 > 0.05$. It states the material distribution is normal. The data can be accepted.

Multicollinearity Test Result

Multicollinearity Test is testing the correlation among working capital, sales growth, Debt to equity and operating efficiency ratio. The results display like following:

Table 7. 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

Source: Data processed by researchers using Eviews 10, 2021

From the table states, the Working capital (WC) correlation coefficient with Sales Growth (SG) is positive 0.0710, the correlation coefficient value with Debt to Equity (Leverage) and Operating Efficiency Ratio (OER) are negative 0.4817 and 0.1183, all of the correlation coefficient value less than 0.8, it means Working Capital (WC) has no correlation with the other independent variables.

The Sales Growth (SG) correlation coefficient value with the Debt to Equity (Leverage) and Operating Efficiency Ratio (OER) are negative 0.0890 and negative 0.0993.

The correlation coefficient value between Debt to Equity (Leverage) and Operating Efficiency Ratio is positive 0.0666.

The maximum correlation coefficient value between all independent variables is negative 0.4817 less than 0.8, which indicates there is no multi-collinearity problems and the model passes the multi-collinearity test.

Heteroscedasticity Test Result

Heteroscedasticity tests whether the variance of the errors from a regression is dependent on the values of the independent variables.

Table 8. 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

Source: Data processed by researchers using Eviews 10, 2021

From the results of the Heteroscedasticity test in Table 4.7, it is seen that the probability value of all independent variables, the highest P-value is Working Capital (WC), the value is 0.5790, the lowest P-value is Operating Efficiency Ratio (OER), the value is 0.0990. The P-value of the Sales Growth and Debt to Equity (Leverage) are 0.5378 and 0.2790. All of the independent variable P-value are more than 0.05. It means the data does not have heteroscedasticity towards the variables. And fixed effect model can be accepted.

Autocorrelation Test Result

Autocorrelation analysis measures the relationship of the observations between the different points in time, and thus seeks for a pattern or trend over the time series.

Table 9. Autocorrelation test result

Dependent Variable: ROE

Method: Panel Least Squares

Date: 08/17/21 Time: 10:10

Sample: 2013 2019

Periods included: 7

Cross-sections included: 17

Total panel (balanced) observations: 119

Variable	Coefficient	Std. Error	t-Statistic	Prob.
WC	17.42292	9.703976	1.795442	0.0752
SG	44.32459	23.40722	1.893629	0.0608
LEVERAGE	28.63814	45.14792	0.634318	0.5271
OER	-110.8285	18.68041	-5.93287	0.0000
C	149.3581	51.95261	2.874891	0.0048
R-squared	0.295912	Mean dependent var		-1.922605
Adjusted R-squared	0.271207	S.D. dependent var		106.6985
S.E. of regression	91.08785	Akaike info criterion		11.90263
Sum squared resid	945857.7	Schwarz criterion		12.0194
Log likelihood	-703.2068	Hannan-Quinn criter.		11.95005
F-statistic	11.97788	Durbin-Watson stat		1.946875
Prob(F-statistic)	0.00000			

Source: Data processed by researchers using Eviews 10, 2021

The results show the Durbin-Watson stat (DW) value is 1.946875. From the DW- table we can get the independent variables are 4 and the observations are 119, the dL value is 1.6321, and the dU value is 1.7709. The DW value 1.946875 is more than dU (DW table) value 1.7709, less than 2.2291 which equal to four minus dU value. It means there is no auto-correlation problem. The data of the test is accepted.

Panel Data Regression Result

The research selected the Fixed effect model, from the EViews test, the data states as following:

Table 10. 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	using
S.E. of regression	62.67103	Akaike info criterion	11.27246	2021
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			

Source: Data processed by researchers Eviews 10,

using 2021

According to the table, the researcher gets the Working capital ratio's correlation coefficient value is 16.23939, sales growth's correlation coefficient value is -32.58107, debt to equity 's correlation coefficient value is 57.6528, but its P-value is 0.2316 more than 10%. And operating efficiency ratio's correlation coefficient value is -308.7366. The C value is 494.0206. As the results the equation can be states as following:

$$ROE=16.23939WC-32.58107SG-308.7366OER+494.0206$$

Discussion

From all of the tables, can get the results show like following:

1. Working Capital (WC) P-value 0.0764, the value 0.0764 is less than 10%, and coefficient value 16.23939, the 16.23939 is more than 0. The relationship between Working Capital (WC) and the dependent variable Return on Equity (ROE) is positive. As the result, Working Capital (WC) has significant positive effect on profitability processed food industry in Indonesia.

2. The Sales Growth (SG) P-value 0.0723 is less than 0.1, coefficient value is - 32.58107 less than 0. it means Sales Growth (SG) has negative relationship with the Return on Equity (ROE). As the result, the Sales Growth (SG) has negative significant on profitability processed food industry in Indonesia.
3. The independent variable Debt to Equity (Leverage) coefficient value is 28.63814 which is more than 0, it states Debt to Equity (Leverage) have positive relationship with dependent variable Return on Equity (ROE). But the probability value is 0.2316 more than 10%, it means Leverage has no significant effect on profitability processed food industry in Indonesia.
4. Operating Efficiency Ratio (OER) probability value is 0.0000<0.1, the coefficient value is -308.7366 less than 0, as the result the Operating Efficiency Ratio (OER) has negative significant on profitability processed food industry in Indonesia.

Compare this research and previous researches, the Working Capital all had positive effect on the profitability. their results are same. More liquidity of the company, the running is more fluently, it will motivate the company running.

This research stated the Sales Growth have negative effect on profitability, but the previous researches stated the Sales Growth have positive effect on the profitability. maybe in this research period, the sales growth rate is less than the cost or expense growth rate, this leads to sales growth make negative effect on profitability

And in some previous researches the Debt to Equity had negative effect on the profitability, in this research the Debt to Equity has no significant effect on profitability, which is because the different industries studied. If for the commercial, the debt to equity must have negative on profitability.

Lastly, the Operating Efficiency ratio had negative effect on profitability both this research and previous researches. The high cost and expense will lead to low profit. Which will affect the profitability.

CONCLUSION AND RECOMMENDATION

Conclusion

According to the research on the determinants of profitability in processed food industry Indonesia, this study has four independent variables, the working capital, sales growth, debt to equity and operating efficiency ratio. The working capital and sales growth and operating efficiency ratio have significant effect on the profitability in processed food industry Indonesia.

The conclusion can be summarized as follows:

1. Working Capital (WC), Sales Growth (SG), Debt to Equity (Leverage) and Operating Efficiency Ratio (OER) partial have significant effect on profitability of processed food industry in Indonesia
2. 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.
3. 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.
4. 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. 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.

Recommendation

Through the findings of this research, the author suggests the following:

Further studies can compare determinants of the profitability in processed food industry in Indonesia and another country.

1. The further can do the determinants of the probability in other industry, not just in processed food industry.
2. The further studies can add more sample companies in processed food industry in Indonesia.
3. There are some different results between this research and previous research, like the Sales Growth in this research had negative effect, but in previous researches, the Sales Growth had positive effect on profitability.
4. The further studies can find the relationship between the sales and cost & expense.
5. 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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