

Significance Effect Cost of Goods Sold and Inventory on Sales PT. Nippon Indosari Corpindo Tbk

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Abstract—The purpose of this study is to examine and analyze the influence between cost of goods sold and inventory to Sales at PT. Nippon Indosari Corpindo Tbk. both partially and simultaneously from 2009 to 2018. The technical analysis in this study uses correlation and multiple regression from secondary data, in 10 years period. This type of research uses hypothesis test it means explanatory research, with the SPSS-22 statistical program. The conclusion from the results discussion this study is, partially and simultaneously there is a significant effect, between the cost of goods sold and inventory on sales of PT. Nippon Indosari Corpindo Tbk.

Keywords: *cost of goods sold, inventory, sales, significance effect*

I. INTRODUCTION

According to a new report the Asia Pacific region has come out on top in terms of expected growth for multiple food and beverage (F & B) markets globally is expected to become the biggest F&B region in 2030 for consumption worldwide. The flour-based food industry in reality is still largely determined by the availability of wheat staples. When the rupiah weakness against the exchange rate of the United States dollar, the material prices for the food industry become increasing (PR Newswire :2012). According to APTINDO (The Wheat Flour Producers Association) helped increase the selling price because it was triggered by an increase in wheat imports from Australia [1], which became a component of the cost of production [2]. External factors such as natural conditions also affect the rise in prices of these materials, namely drought in the dry season of 2018 that hit Australia. Likewise, wheat-producing countries that are oriented to export markets such as Russia maintain domestic supply by charging certain fees for each export of these commodities to other countries.

The quality of product development is influenced by one of the quality of production, it is closely related to the cost of goods sold. Determination of cost of goods sold can save other costs [3]. Mr. Adhi Lukman the chairman of GAPMMI (The Indonesian Food and Beverage Entrepreneurs Association) says to maintain raw material supplies for this type of industry there must be integration of both upstream and downstream entrepreneurs, so that the industry continues to operate continuously. The upstream industry is expected to provide material supplies for downstream industrial production supplies, so that the supply chain is overcome in meeting the growing needs of the community [4].

Industry Minister Airlangga Hartarto predicts optimistically that investment growth in the food and beverage industry will increase approximately 11 percent on 2019 this year, equivalent to Rp. 63 trillion compared to last year [5,6]. And economic growth from this industry is predicted to reach 9 percent. It should be underlined that the success of this sector is highly dependent on integration between upstream and downstream industry players [6].

"Sari Roti" brand is one of food product manufacturers established in 1995 and operating commercially at the Cikarang factory in 1996. Increasing bread sales and companies need cheap capital, so in 2010 the Company made an initial public offering or IPO and was effectively traded on the Indonesia Stock Exchange on June 28, 2010. Inventory of goods continues availability of materials import. The standard greatly determines the distribution of goods to consumers, so that uncertainty in supplying imported materials continues to be improved [7].

Maximizing profits by utilizing the inventory model for all items in good condition to be sold to all stores both primary and secondary stores by a single management by using the variable demand formula is very profitable for the company [8].

The cost of goods sold has experienced a percentage increase in sales, because the amount of return on goods makes the company inefficient, this is because the company has experienced it in 2017. However, in 2017 there was a decline because the return factor was high enough to reduce the 1.22 percent increase from 2016, only this time it happened throughout history. This factor was a misunderstanding when a demonstration took place in the run-up to the election of the Jakarta governor's palace with a peaceful protest 212 against Basuki Tjahaja Purnama the incumbent, coincidentally there were several Sari Roti carts selling free at the location, and this was beyond the Company's control.

The decline in bread sales of Sari Roti in 2017 also resulted in a high percentage of cost of inventory, meaning that the higher sales returns will increase the inventory of finished goods. This risk is very high considering that food companies have the properties of goods that are sold quickly out of date.

The accurate data supporting, attached is included the growth of sales performance of PT. Nippon Indosari Corpindo Tbk for the past 10 years as follow table 1.

TABLE I. PT. NIPPON INDOSARI CORPINDO TBK SALES GRWOTH PERIODE 2009 – 2018 (IN IDR.MIN)

| Year | Net. Sales | Increasing (decreasing) (%) |
|------|--------------|-----------------------------|
| 2009 | 349.951,40 | - |
| 2010 | 612.192,40 | 74,94 |
| 2011 | 813.342,10 | 32,86 |
| 2012 | 1.190.825,90 | 46,41 |
| 2013 | 1.505.519,90 | 26,43 |
| 2014 | 1.880.262,90 | 24,89 |
| 2015 | 2.174.501,70 | 15,65 |
| 2016 | 2.521.920,90 | 15,98 |
| 2017 | 2.491.100,20 | (1,22) |
| 2018 | 2.766.546,00 | 11,06 |

Resource: PT. Nippon Indosari Corpindo Tbk. (processed)

The company's perception of political involvement has been denied by the company. Control of the availability of production materials is due to the increase in prices of imported raw materials and supervision of production expense, with improvised way of their working to improve operational efficiency, customer service, inventory levels and profit margin [9] so that in 2018 the company experienced a sales performance increase 11.06 percent or Rp. 2,766 trillion.

A. The Problems of the Research

The problems that can be determined from this research after considering the background description are:

- How much influence the Cost of Goods Sold (X_1) on Sales (Y) PT. Nippon Indosari Corpindo, Tbk.?
- How much influence Inventory (X_2) on Sales (Y) PT. Nippon Indosari Corpindo, Tbk.?
- How much influence the Cost of Goods Sold (X_1) and Inventory (X_2) on Sales (Y) of PT. Nippon Indosari Corpindo, Tbk.?

B. Objectives of the Research

Based on the problems of this study, the objectives can be described as follows:

- To discuss and analyze the effect of Cost of Goods Sold (X_1) on Sales (Y) PT. Nippon Indosari Corpindo, Tbk
- To discuss and analyze the effect of Inventory (X_2) on Sales (Y) PT. Nippon Indosari Corpindo, Tbk.
- To discuss and analyze the effect of Cost of Goods Sold (X_1) and Inventory (X_2) on Sales (Y) PT. Nippon Indosari Corpindo, Tbk

II. LITERATURE REVIEW

The grand theory used in this study is Financial Management and Accounting, and supported by other interrelated theories. The foundation of this theory is obtained from literature, books, and scientific works downloaded through internet media or academic Libraries. In era 4.0 data

was easily obtained from online media, according to what needed for scientific writing.

Quality is a measure of the success of a company that is the responsibility of all parties involved in the company. Quality problems caused by most companies have an adverse effect on company growth. Food companies are classified as labor-intensive companies. Some claims are conveyed to consumers. Losses to the company both material and nonmaterial. Impact material consists of returns and the reimbursement of costs they have incurred. Non-material impacts consist of company performance that is comparable to similar companies [10].

An accountability is a process that is always oriented to the result so that the process can improve employee performance in a company [9]. Financial Management Theory and Accounting Theory Financial Management, it is one of the fields of management that discusses how a company seeks sources of funds and uses it as activist financing and obtains business results That benefit of the company. According to interpreting financial management as a Study of company policies related to financial control, so that the investment spent produces results effectively [11].

Accounting the process of collecting, grouping, and verifying data evidence in accordance with the account number of each part, and financial statements are made in the form of Balance Sheet and Profit and Loss. Reports by companies or institutions are used as investment decision making to bring profits in the future [12]. Financial Management and Accounting has a related, where accounting data is material of financial statements for decision making in Financial Management [13].

- Cost of Goods Sold (GOGS): Cost of Goods Sold (COGS) in accounting is the form of costs incurred to produce and sellout of products in the market, is a part of business activity. Another meaning of COGS is all costs incurred directly to obtain merchandise, which will be sold to customers or consumers [13]. Wiwik and Dhyka [14] in their book explain the cost of goods sold is a formula from the beginning balance of finished goods plus the cost of production minus the ending balance of finished goods [14,15].
- Inventory: Experts define inventory, is a component of current assets is an investment, with the hope that profits are obtained through sales activities in the future. Then the supply of minimum inventory of finished goods, materials in the process, and raw materials is always maintained in a certain percentage of the amount of sales to maintain the continuity of its business. The inventory is divided into three parts, are [16,17]: a). The companies of trading's good are a routine business every day, there are as generally trading companies that are ready to sell their goods directly to buyers. b). Goods in transit according the agreement with the supplier. c) Raw materials, goods in process, and finished goods are ready for sale.
- Sales Revenue: Sales can be accurately predicted a fixed percentage, if it can provide an estimate of how much the company's funding needs, and sources of

funding are reasonable to create sales [18]. Kusnadi in his book explains that sales is the charging of money to consumers or buyers of products are goods or services sold [19]. The sales is also the core operating activity of entering assets, distribution of goods and services to customers or settlement liabilities of the company are either concurrent or individual [16]. The approach highlights the calculations of revenues and expenses in order to derive net income [20].

A. Framework of the Research

The study framework of thinking, is a matter that describes the relationship between the independent variables X_1 and X_2 to the dependent variable Y are:

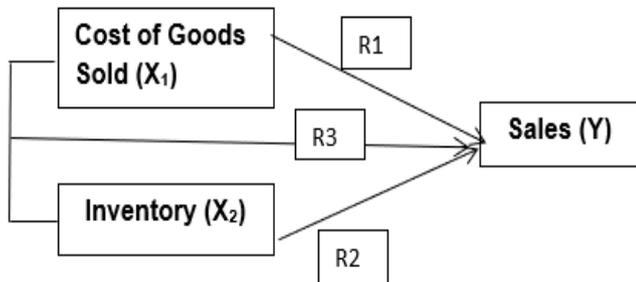


Fig. 1. Framework of the study.

B. Hypothesis

The research hypothesis is an initial conclusion and not final, which still has verified through statistical tests [21]. The hypothesis of each business research should use a hypothesis to hold while the researchers, in the form of temporary conclusions [22]. The hypothesis of this study are:

- Suspected there is a significant influence between Cost of Goods Sold on Sales
- Suspected there is a significant influence between Inventory on Sales
- Suspected there are significant influence between Cost of Goods Sold and Inventory on Sales

III. METHODS

Based on the book written by Sri Mulyono explained, testing is proof of about unknown population parameters the basis of information and samples taken from the population [23]. While the current opinion of Sekaran Uma explains, that explanatory research as a scientific discipline that explains the use of variables that are interconnected with one another, to test a research hypothesis [24]. This study uses time series secondary data with internet down load from Annual Report PT. Nippon Indosari Corpindo Tbk. 2009 up to 2018, $n = 10$. The time for research is three months from March 2019 until May 2019.

A. Research Variables and Variable Operational Limit

Argues, research variables can be grouped into, independent variables, dependent variables, moderator

variables and intervening variables [25]. The variables used in this study are:

- The independent variable given the symbol (X_1) is the Cost of Goods Sold and symbol (X_2) is Inventory.
- Dependent variable, which is given the symbol (Y), is Sales.

B. Variable Operating Limits

The operational limits of the variables used in this paper:

- Cost of goods sold stated in the income statement of PT. Nippon Indosari Corpindo Tbk. 2009 until 2018: Financial Report, audited.
- Inventory of raw materials, auxiliary materials, materials in the process and finished goods of PT. Nippon Indosari Corpindo Tbk. 2009 up to 2018: Financial Report, audited.
- Sales is net sales are total consolidated sales minus sales returns listed in PT. Nippon Indosari Corpindo Tbk. 2009 up to 2018: Financial Report, audited.

C. Population and Samples

The population referred to in this study is the same as the sample, namely all data on cost of goods sold, inventory and net sales of the company.

D. Analysis Method

- Classic assumption test, the data research requirements, and data is not biased, it is necessary to test the classical assumptions, in line with the opinion of Gujarati [26].
- Correlation test, this test is given a symbol (R) is an analysis to determine the correlation between one variable with another variable that has a linear relationship [25]. This study used a simple and multiple correlation test.
- Coefficient Determination test, the determination of the coefficient test is indicated by the symbol R-square, which is a measure to determine the effect of independent variables on the dependent variable, whether partially or simultaneously. In this study, it is always underlined about Yuyun Wirasamita's opinion [27], a good study and can be used to predict a future conditions if the R^2 results are $> 50\%$.
- Regression Test, this study used simple linear regression test, namely: X_1 (Cost of Goods Sold) to Y (Sales), and X_2 (Inventory) to Y (Sales). And used multiple regression tests: X_1 (Cost of Goods Sold) and X_2 (Inventory) to Y (Sales).

IV. RESULTS AND DISCUSSION

A. Description of the Research Object

The original data is made in Ln form and presented as follows table 2.

TABLE II. COGS, INVENTORY AND SALES (2009 – 2018)

| No. | Year | Ln COGS | Ln Inventory | Ln Sales |
|-----|------|-------------|--------------|-------------|
| 1 | 2009 | 12,15772134 | 8,988493546 | 12,76554957 |
| 2 | 2010 | 12,68592573 | 9,026525604 | 13,32480189 |
| 3 | 2011 | 12,98065741 | 9,699280445 | 13,60890709 |
| 4 | 2012 | 13,35999806 | 10,02565518 | 13,99015766 |
| 5 | 2013 | 13,60097684 | 10,50571664 | 14,22464885 |
| 6 | 2014 | 13,79412491 | 10,61633343 | 14,44692217 |
| 7 | 2015 | 13,83483405 | 10,67288788 | 14,59231009 |
| 8 | 2016 | 14,01504364 | 10,83460542 | 14,74053143 |
| 9 | 2017 | 13,98370724 | 10,82504937 | 14,72823502 |
| 10 | 2018 | 14,05793346 | 11,08410585 | 14,83311017 |

Sources: Financial Report of PT. Nippon Indosari Corpindo Tbk. (Processed)

B. Model 1 Analysis, $Y = f(X_1)$

Statistical calculations using the SPSS-version 22 program are as follows:

TABLE III. COST OF GOODS SOLD (X_1) TO SALES (Y) PT. NIPPON INDOSARI CORPINDO TBK

| Model Summary | | | | |
|---------------|-------------------|----------|-----------------|----------------------------|
| Model | R | R Square | Adjust R Square | Std. Error of the Estimate |
| 1 | ,998 ^a | ,996 | ,996 | ,04445 |

Predictors: (Constant), X_1 (COGS)

Table 3, shows the results that the relationship based on a simple correlation analysis test is equal to $R = 0.998$, meaning that the relationship of Cost of Goods Sold (X_1) to Sales (Y), X_1 and Y is very strong and positive. Table 3 above also shows the results that the coefficient of determination (R^2) is = 0.996, which means that the magnitude of the influence between the Cost of Goods Sold variable (X_1) on Sales (Y) = 99.60% and the rest 0.40% is influenced by other factors outside this research.

TABLE IV. REGRESSION EQUATION $Y = F(X_1)$ PT. NIPPON INDOSARI CORPINDO TBK

| Coefficients ^a | | | | | | |
|---------------------------|--------------|-----------------------------|------------|---------------------------|--------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -,339 | ,309 | | -1,097 | ,305 |
| | X_1 (COGS) | 1,076 | ,023 | ,998 | 46,836 | ,000 |

^a. Dependent Variable: Y (Sales)

Equation: $Y = a + b X_1 + \epsilon$

$Y \wedge = - 0,339 + 1,076 X_1$

The regression equation shown in table 4, has a negative effect of the Constant (C) and the positive effect of the Cost of Goods Sold (X_1) and has a parameter in line with the change of Sales ($Y \wedge$). Interpretation of the model from the same table, if the value of Constant (C) = 0, then the prediction of Sales ($Y \wedge$) becomes = 1.076 * Cost of Goods Sold (X_1). However, if the

Cost of Goods Sold (X_1) = 0, then Sales ($Y \wedge$) is predicted = - 0.339 or decreases by the value of the constant. Assume other factors as equal to baribus.

C. T Test

The partial hypothesis of this model must be proven through the t test. This study uses the 2-Tailed system (Sulianto, 2011: 304) with the following results: The initial data is known to be $n = 10, k = 1, \alpha = 0.05$, then t table $(n-k) = t_{(10-1)} = 2,262$. Table 4 explains, that the results obtained t count = 46,836 > t table = 2,262 The number of probability significance shows the value = 0.00 < from p Value Alpha 0.05 is significant. **Then the research hypothesis of this model, Ho is rejected Ha accepted, there is a significant influence between Cost of Goods Sold (X_1) on Sales (Y) PT. Nippon Indosari Corpindo Tbk.**

D. Analysis of Model 2, $Y = f(X_2)$

Statistical calculations using the SPSS-version 22 program are as follows:

TABLE V. INVENTORY (X_2) AGAINST SALES (Y)

| Model Summary | | | | |
|---------------|-------------------|----------|-----------------|----------------------------|
| Model | R | R Square | Adjust R Square | Std. Error of the Estimate |
| 1 | ,979 ^a | ,958 | ,953 | ,15133 |

^a. Predictors: (Constant), (X_2) Inventory

1) *Correlation test*: The simple correlation test used to test this designated model is presented in table 5. The correlation test result $R = 0.979$ shows a correlation or a very strong, and positive correlation between Inventory (X_2) and Sales (Y)

2) *Determination coefficient test*: The results of the analysis of determination coefficient test given a symbol (R^2) of = 0.958, meaning the magnitude of fluence partial between Inventory (X_2) to Sales (Y) = 95.80% and the rest 4.20% is influenced by other factors outside of this study.

3) *Regression test*

TABLE VI. REGRESSION EQUATION $Y = F(X_2)$ PT. NIPPON INDOSARI CORPINDO TB

| Coefficients ^a | | | | | | |
|---------------------------|-------------------|-----------------------------|------------|---------------------------|--------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 4,957 | ,682 | | 7,273 | ,000 |
| | X_2 (Inventory) | ,896 | ,066 | ,979 | 13,487 | ,000 |

^a. Dependent Variable: Y (Sales)

Table 6 above, shows the simple linear regression analysis in the form of equations as follows:

Equation: $Y = a + b_2 X_2 + \epsilon$

$Y \wedge = 4.957 + 0.896 X_2$

The regression equation in above, explains the positive influence of the constant on the prediction of changes in Sales ($Y \wedge$), and the positive effect of Inventory (X_2) on predictions

of Sales (Y^{\wedge}). The equation of this model 2, can be interpreted as such, if the constant value is 0, then the Sales prediction (Y^{\wedge}) will change to $0.896 * (X_2)$ Inventory. If Inventory (X_2) = 0, then (Y^{\wedge}) will change according to predictions = 4.957 in the similar with the constant. Assumption of other factors outside the model is equal to paribus.

E. Test t (Partial Hypothesis Test)

The t test was performed using the statistical method 2 T-tittle showing the results as follows: It is known: $n = 10, k = 1, \alpha = 0.05$, value t two tilled t table $(n-k) = t (10-1) = 2,262$. In table 6 shows t count = 13,487. In a fact t count = $13,487 > t$ table = 2,262. And the level of significance of the Prob. shows the number = $0,000 < \text{from } p\text{-Value } \alpha = 0.05$, is significant influence. **Then the hypothesis model 2, Ho is rejected Ha accepted, that is partially there is a positive effect, significant between the variables Inventory (X_2) to Sales (Y).**

F. Analysis of Model 3, $Y = f(X_1, X_2)$

The SPSS-22 program was used in this study and the following results are:

TABLE VII. CORRELATION X_1, X_2 AGAINST Y

| Model Summary | | | | |
|---------------|-------------------|----------|-----------------|----------------------------|
| Model | R | R Square | Adjust R Square | Std. Error of the Estimate |
| 1 | ,998 ^a | ,996 | ,995 | ,04728 |

^a. Predictors: (Constant), Inventory (X_2), COGS (X_1)

1) *Multiple correlation test:* Table 7 in above is a presentation of the results of multiple correlation test of this model, these results are Cost of Goods Sold (X_1) and Inventory (X_2) to Sales (Y), amounting to $R = 0.998$, means simultaneous relations X_1 and X_2 to Y are **very strong and positive** relation.

2) *Determination coefficient test:* From the statistical calculation in table 7, showing the aquisition of the determination coefficient (R^2) = 0.996 means that the magnitude of the effect simultaneously between Cost of Goods Sold (X_1) and Inventory (X_2) on Sales (Y) = 99.60% and the rest is only a little that is 0.30% is influenced by other factors outside of this study.

3) *Multiple regression tests*

TABLE VIII. REGRESSION EQUATION $Y = F(X_1, X_2)$ PT. NIPPON INDOSARI CORPINDO TBK

| Coefficients ^a | | | | | | |
|---------------------------|---------------------|-----------------------------|------------|---------------------------|-------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | | | |
| 1 | (Constant) | -,198 | ,632 | | -,313 | ,764 |
| | COGS (X_1) | 1,045 | ,121 | ,970 | 8,657 | ,000 |
| | Inventory (X_2) | ,027 | ,103 | ,029 | ,261 | ,801 |

^a. Dependent Variable: Sales (Y)

Equation: $Y = a + b_1 X_1 + b_2 X_2 + \epsilon$

Sales a = C (constant)

X_1 = Cost of Goods Sold

ϵ = Error standard

X_2 = Inventory

$Y^{\wedge} = - 0,198 + 1,045 X_1 + 0,027 X_2$

The results of multiple regression analysis shown in table 8, explain the existence of a joint positive effect between Cost of Goods Sold (X_1) and Inventory (X_2), the parameter of the relationship is in line with the prediction of Sales (Y^{\wedge}). While the prediction of changes in Sales (Y^{\wedge}) is the opposite of the constant. The interpretation of model 3 is shown in table 8, if the magnitude of the constant (C) = 0, then the prediction of sales (Y^{\wedge}) becomes = $\{(1.045 * X_1) + (0.443 * X_2)\}$. If the Cost of Sales (X_1) = 0, and Inventory (X_2) = 0, then the prediction of the Total Assets (Y^{\wedge}) = - 0.198 decreases by the constant. This applies if other variables outside of this study are equal to paribus.

G. F Test

TABLE IX. THE SIMULTANEOUS HYPOTHESIS TEST X_1 AND X_2 AGAINST Y

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|--------------|----------------|----|-------------|---------|-------------------|
| 1 Regression | 4,333 | 2 | 2,167 | 969,101 | ,000 ^b |
| Residual | ,016 | 7 | ,002 | | |
| Total | 4,349 | 9 | | | |

The simultaneous hypothesis test commonly called F test in this study is as follows: Known $df = 10, d = 2, \alpha = 0.05$, then $F_{table} = 4.103$. The results of the statistical analysis of table 9, obtained F count = $969.101 > F_{table} = 4.103$. The results of the significance of the Prob. shows = $0.00 < \text{of } p \text{ Value } \alpha = 0.05$, explaining the effect is significant. The conclusion is that model 3, Ho is rejected Ha accepted, that is there is a positive simultaneous effect, significant between the variable Cost of Sales (X_1) and Inventory (X_2) towards Sales (Y) PT. Nippon Indosari Corpindo Tbk.

V. CONCLUSION

Based on the results of the study and analysis above, this research can be concluded as follows:

- There is a significant effect between Cost of Goods Sold on Sales PT. Nippon Indosari Corpindo Tbk.
- There is a significant effect between Inventory on Sales (Y) PT. Nippon Indosari Corpindo Tbk.
- There is a significant effect between Cost of Goods Sold and Inventory on Sales PT. Nippon Indosari Corpindo Tbk.

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