The Effect of Sticky Cost to Profit Prediction using the Cost Variability and Stickiness Model at Manufacturing Industry

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Abstract. This study aims to examine the effect of sticky cost on profit prediction using the cost variability and cost stickiness (CVCS) model. This study also tries to look at the relationship between sticky cost behavior on profit predictions. In this study sticky costs are calculated with variables, namely sales, administration and general costs. While profit predictions are measured by the model of cost variability and cost stickiness (CVCS). Cost behavior has traditionally been an important aspect of management accounting for analyzing profit for managers. This cost behavior study is important, because of the uncertain future demand faced by managers. The type of data used in this study is secondary data. This research was conducted by taking a sample of 62 companies from 144 companies on the manufacturing industry listed on the Indonesia Stock Exchange from 2014-2016. Sampling is done by purposive sampling method. Processing data is done by multiple linear regression techniques and has met the classical assumption test requirements. This study shows the results that the cost of sales (X_1) does not affect the profit prediction (Y), The second hypothesis testing X_2 has a significant effect on Y. The results of this study indicate the amount of increase in sales, administrative and general costs when net sales rise is higher than the magnitude of decrease in sales, administrative and general costs when net sales fall. This means that there are sticky cost behaviors in sales, administration and general costs in IDX manufacturing industry companies.

Keywords: Sticky cost · Sales cost · General and administrative costs · Profit prediction

1 Background

Cost behavior has traditionally been an important aspect of management accounting for analyzing profit for managers. The cost accounting literature explains 2 basic types of cost behavior patterns, namely variable costs and fixed costs. These variable costs and fixed costs can be used as components to analyze costs, volumes and profits (Garrison and Noreen, 2002 in Banker and Chen, 2006). If this model is valid then estimation

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using past data can be used as a basis for predicting future profit (Banker and Chen, 2006).

Several companies listed on the Indonesia Stock Exchange (IDX) are many that link the decline or increase in profits with production, sales and efficiency activities. As PT Mayora Indah Tbk (MYOR) decided to cut its net profit target this year (2014). Based on public exposures, MYOR predicts profit will drop 20% compared to 2013. MYOR said there are three obstacles that will be faced, namely the global economic situation, competition and stability of supply and prices of raw materials. This study tries to look at the relationship between sticky cost behavior on profit predictions. In this study sticky costs are calculated with variables, namely sales, administration and general costs. While profit predictions are measured by the model of cost variability and cost stickiness (CVCS).Related to research on profit predictions, there have been several studies analyzing them, some of them analyzing the Effect of Sticky Cost Behavior on Profit Prediction Using the Model Variability and Cost Stickiness (CVCS) conducted by Hidayatullah I. J (2011). The results showed that the effect of sticky cost on profit predictions using the cost variability and cost stickiness (CVCS) models was very small, but the accuracy of the model was better than the simple ROE model.Research conducted by Susilo (2016) which analyzes Sticky Cost Behavior and Its Effect on Profit Prediction Using Cost Variability and Cost Stickiness (CVCS) Models on Issuers on the IDX for Manufacturing Industry . The test results show that the variation in administrative and general marketing costs (PA&U) when net sales have increased is greater than when net sales have decreased. This means marketing, administrative and general costs are sticky . This gives a signal that sticky cost behavior needs to be considered in predicting profit. Variation in cost of goods sold (COGS) when net sales have increased slightly smaller than when net sales have decreased. This means that the cost of goods sold is not sticky . This is because the cost component of cost of sales is largely are variable costs which rise and decline greatly influenced by the volume of sales. The effect of sticky cost on profit predictions using the costvariability and cost stickiness (CVCS) models is very small, but the accuracy of the model is better than the simple ROE model.

Based on the above phenomenon, the researcher is interested in reexamining **"The Effect of Sticky Cost on Profit Prediction Using the Model Variability and Cost Stickiness (CVCS). (For Issuers on the Indonesia Stock Exchange for Manufacturing Industry for the 2014-2016 Period) ".**

Prior Research. There are several previous studies that have tried to reveal the effect of sticky cost behavior on profit predictions using the model of cost variability and cost stickiness (CVC). In the first study conducted by Susilo (2016), with the title Effect of Sticky Cost Behavior on Profit Prediction Using the Cost Variability and Cost Stickiness (CVCS) Models . With the results of the study show that the variation in marketing, administrative and general costs (PA&U) when net sales have increased is greater than when net sales have decreased. This means the marketing, administrationand general costs are sticky .In the second study conducted by Ratnawati and Nugrahanti (2015), with the title Sticky Cost Behavior in Sales, Administration and General Costs and Cost of Sales in Manufacturing Companies. With the results of the study that Based on the results of the first hypothesis test that has been done, it is concluded that there are indications of sticky cost behavior in sales, administration and general costs of manufacturing companies on the Indonesia Stock Exchange. The third

study was conducted by Apriliawati and Nugrahanti (2015), with the title Sticky Cost Behavior on Sales, Administration and General Costs. With the results of research that show that the results of the first hypothesis testing, found indications of sticky cost behavior in sales, administrative and general costs in manufacturing companies in Indonesia 2009-2012. The fourth study was conducted by Hidayatullah, et al (2011), with the title Effect of Sticky Cost Behavior on Profit Predictions Using Cost Variability and Cost Stickiness (CVCS) Models . With the results of the study show that the variation in marketing, administrative and general costs (PA&U) when net sales have increased is greater than when net sales have decreased. This means the marketing, administration and general costs are sticky.

Conceptual Framework. Relationship of Sticky Cost Behavior (sales, administrative and general costs) to the variable predicted profit. can be described as follows:

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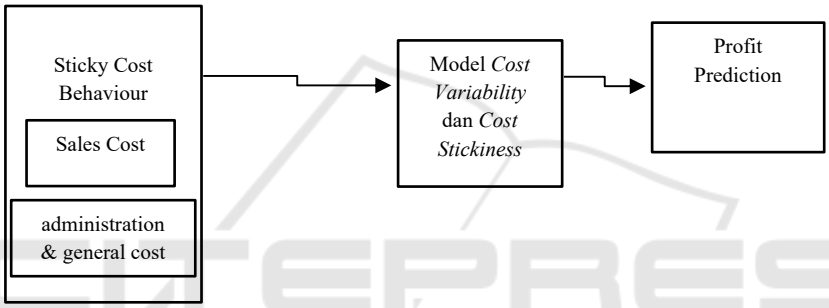

Fig. 1. Conceptual Framework.

Hypothesis. Based on the theoretical basis and the results of previous studies that have been described, the hypotheses formulated are as follows:

- Sales costs affect the earning prediction.
- Administrative and general sales costs affect profit predictions.

Research Sites. The location of this research is for manufacturing industry companies listed on the Indonesia Stock Exchange in the 2014-2016 period.

Population and Sample. The population used in this study are all manufacturing industry companies listed on the Indonesia Stock Exchange (BEI) from 2014 to 2016, with the aim of knowing how the company's profit prediction development over time. The company issued financial statements for the period ended December 31, 2014 to December 31, 2016.

Data Collection Technique. The data collection method in this research is by conducting a documentation study on the audited financial statements of manufacturing industry companies in the 2014-2016 period.

Data Types and Sources. The type of data used in this study is secondary data. This study obtained necessary data from food and beverage sector companies manufacturing companies listed on the Indonesia Stock Exchange (IDX), namely the annual financial statements of companies that have been audited and listed in 2014-2016. Data obtained by accessing the Indonesia Stock Exchange's website (www.idx.co.id).

2 Operational Definitions of Research Variable

The definitions of each variable are as follows:

Cost Behavior. Garrison and Noreen (2002) in Banker and Chen (2006) define boarding behavior which is defined as how the boarding will change in the level of activity that occurs. Managers who understand boarding behavior will be better at predicting what will happen to the boarding path in several operating situations, making it easy to plan their activities, results and profits. One of the causes of stickycost on sales, administration and general costs arises because of decisions taken by managers whose aim is to maximize profits but are seen as inefficient from the owner's side (Jensen and Meckling, 1976).

Profit Prediction. Profit prediction is an estimate of the amount of profit or excess income over costs in return for producing goods and services over an accounting period for the future. To know the profit prediction, the cost variability and cost stickiness (CVCS) models are used . Banker and Chen (2006) make a CVCS model based on accounting profit (Et) assumptions in period t , measured from sales revenue (St) minus costs (Ct):

$$Et = St - Ct$$

Information:

Et: accounting profit
St: sales revenue
Ct: costs

Classic Assumption Test. Testing of classical assumptions aims to find out whether a regression model is good or not if used to do the assessment. A model is said to be good if it is BLUE (Best LinearUnder Estimator), which fulfills classical assumptions or avoids problems of normality, multicollinearity, heteroscedasticity and autocorrelation. Therefore in this study a classical assumption is tested, whether deviations occur or not, so that the research model is feasible to use. The classic assumption tests used in this study are the normality test, the multicollinearity test, the autocorrelation test, and the heterokedasticity test.

Normality Test. The normality test aims to test whether in the regression model, confounding or residual variables have a normal distribution. We can see from the normal probability plot that compares the cumulative distribution with the normal distribution. The normal distribution forms a diagonal straight line, and plotting

residual data will be compared with the diagonal line. If the data is normally distributed, then the lines that describe the actual data will follow the normal line, Ghozali (2011: 110). There are two ways to detect whether residuals are normally distributed or not, namely by graphical analysis and statistical tests, Ghozali (2011: 111).

Graph Analysis. One of the easiest ways to see residual normality is to look at the histogram chart. A more reliable method is to look at the normal probability plot that compares the cumulative distribution from the normal distribution. The normal distribution will form a straight diagonal line and the ploting of residual data will be compared with the diagonal line. If the distribution of residual data is normal, then the line that represents the actual data will follow the diagonal line, Ghozali (2011: 161).

Statistic Analysis. Tests for normality with graphs can be misleading if you are not careful visually it looks normal, even though statistically it can be the opposite. Therefore it is recommended in addition to the graph test equipped with statistical tests, Ghozali (2011: 163). Another statistical test that can be used to test residual normality is the Kolmogorov-Smirnov (KS) non-parametric statistical test, namely by first determining the testing hypothesis, namely:
If the significance is> 0.05, then the data is normally distributed
If the significance is <0.05, then the data is not normally distributed.

Multicollinearity Test. This test was conducted to test whether the regression model found a correlation / relationship between independent variables . A good regression model should not occur correlation between independent variables . If there is a correlation, then these variables are not orthogonal . Variable orthogonal are variables independent the correlation values between the members of variables independently equal to zero, Ghozali (2005: 91).

In this study, to detect the presence or absence of multicollinearity in the regression model used a correlation matrix of independent variables , and see the value of Tolerance and Variance Inflation Factor (VIF) with calculations using SPSS program assistance. Testing the presence or absence of multicollinearity symptoms is done by taking into account the value of the correlation matrix produced during data processing and the value of VIF and tolerance . If the value of the correlation matrix between independent variables has a fairly high correlation (generally above 0.90) then this is an indication of multicollinearity problems, and vice versa. And the cut-off value that is generally used to indicate the absence of multicollinearity problems is Tolerance > 0.10 or equal to VIF value <10, Ghozali (2005: 92-93).

3 Heteroscedasticity Test

This test aims to test whether in the regression model there is a similarity in variance from the residuals of one observation to another. If the variance shows a fixed pattern, it can be stated that there was no heteroscedasticity. If the variance of the residuals from one observation to another is fixed, then it is called homokedasticity, and if it is different is called heteroscedasticity, Ghozali (2005: 105). To detect the presence or absence of heteroscedasticity, it can be done using a Scatterplot chart . A good regression model

is a homokedastisitas or heteroscedasticity does not occur.The basis of the analysis is, Ghozali (2005: 105):

If there are certain patterns, such as dots that form a regular pattern (wavy, widened and then narrowed), then it indicates heteroscedasticity has occurred.

If there is no clear pattern, and the points above and below the number 0 (zero) on the Y axis, then there is no heteroscedasticity.

Autocorrelation Test. This test aims to test whether in the linear regression model there is a correlation of confounding errors in period t, with confounding errors in period t-1 (previous period). If there is a correlation, then there is a problem called autocorrelation. Autocorrelation arises because observations that aim all the time are related to one another, Ghozali (2005: 95).

Data Analysis Method. This study uses a calculation model developed by Anderson et al. (2003), and used in the research of Subramanyan and Weidenmier (2003), Windyastuti and Biyanto (2005), Hidayatullah et al. (2011) to find stickycost indications on sales, administrative and general costs. The explanation of the regression model is as follows:

$$Y = a + b_1 X_1 + b_2 X_2 + e$$

Information:

Y = Profit Prediction
A = constant
b_1-b_2 = Regression coefficient for each variable
X_1 = Cost of Sales
X_2 = Administrative and General Costs
e = standard error

Hypothesis Testing. Statistical tests on multiple linear regression aim to prove the hypothesis of the presence or absence of a significant or strong influence then it is performed by t test.

Partial Test (t-test). This test is based on a comparison of the $_{calculated}$ t value of each regression coefficient with the value of t_{table} with a significant level of 5% with degrees of freedom df = (nk), where n is the number of observations and k is the number of variables.

If $t_{arithmetic} < t_{table}$ (nk), then the independent variable has no effect on the dependent variable .

If $t_{arithmetic} > T_{table}$ (nk), then the independent variable influences the dependent variable

Statistical Testing. The analysis in this study uses multiple regression analysis which functions to analyze the presence or absence of influence between the two variables, namely the independent variable and the dependent variable. To determine the effect of the theme of environment and energy, social themes, the theme of labor and consumer and product of the k inerja k euangan p ompany used the regression equation:

$$Y = a + b_1 X_1 + b_2 X_2 + e$$

Data testing was performed with the help of the SPSS (Statistical Package for the Social Sciences) computer program . After processing the data, the results of the regression analysis are as shown in the following table:

Table 1.

Model	Unstandardized Coefficients		Standardized Coefficients
	B	Std. Error	Beta
1 (Constant)	9,305	.869	
X_1	-.032	122	-.031
X_2	.923	.118	.948

Dependent Variable: Y

4 Results of Multiple Regression Analysis

Source: research results, 201 6

Based on the results of the analysis of the regression model shown in Table 4. 4 above, it can be arranged into multiple linear regression as follows:

$$Y = 9.305-0.032X1 + 0.923 + e$$

From the regression equation it can be seen that the magnitude of a constant value of 9 , 305 (930.5%) means that if the influence variables X_1 and $X_{2\ are}$ considered constant, then the magnitude of Y is 930.5% . Regression coefficient value X_1 of -0.032 indicates negatifyang relationship meant that any drop of X_1 by 1 00 % then causes Y m en urun amounted to -3 , 2%, assuming other independent variables constant.

Regression coefficient value X_2 for 0, 923 shows the relationship positive which gives the sense that any increase in X_2 for 1 00 % then causes Y m eningkat by 92 , 3% assuming other independent variables constant.

4.1 Correlation Analysis and Determination

Table 2. Correlation and Determination Analysis Results.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.919 [a]	.845	.840	2.14823

Source: Research Results, 2018

Based on the table above can be seen the value of the correlation coefficient (R) of 0.919 indicates that there is a relationship which is significant / strong among independent variables on the dependent variable amounted to 91.9% , while the value of adjudted R^2 is 0.840, this shows that the variation of the independent variable

capable explain the variation of the dependent variable by 84%, while the remaining 16% is explained by other variables outside the model.

Hypothesis Testing. To prove the hypothesis in this study whether the independent variables affect the dependent variable, then several tests are used, namely:

Partial Influence (t test). Partial effect was carried out using t test statistics. This test aims to determine whether the independent variables included in the model are able to explain the dependent variable individually. The test results can be seen in the table below:

Table 3. Partial Analysis Results (t test).

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9,305	.869		10,704	.000
	Sales fee	-.032	122	-.031	-.260	.796
	Administration and general fee	.923	.118	.948	7,842	.000

Source: Research 2016

From the above table it can be seen that the $_{calculated}$ t value of X_1 is -0 , 260 with a significant value of 0.796, while the value of t_{table} with (df) = nk (62 - 3 = 59) at α = 0.05 obtained values amounted to 1,671. Thus $t_{count} < t_{table}$ is -0.260 <1.671 and 0.796 significant level, then X_1 no effect on Y .

The first hypothesis testing X_1 does not significantly influence Y. The magnitude of the increase in sales, administrative and general costs when net sales rise is higher than the magnitude of the decrease in sales, administrative and general costs when net sales fall. This means that there are sticky cost behaviors in sales, administration and general costs in BEI manufacturing industry companies, Anderson, et al (2003). However, the results of this study indicate that the increase in sales, administrative and general costs when net sales fluctuate compared to the magnitude of the decrease in sales, administrative and general costs when net sales rise, so there is no sticky cost behavior in sales, administration and general costs.

This study shows the results that the cost of sales (X_1) does not affect the earning prediction (Y), this is in accordance with research conducted by

From Table 4.6 it can be seen that the value of $t_{arithmetic}$ of X_2 is equal to 7 , 842 with significant value is 0,000, while the value of t_{table} with (df) = nk (62-3 = 59) at α = 0.05 was obtained a value of 1.671 . Thus the $t_{count} > t_{table}$ is 7.842> 1.671 and significant level of 0.000, then X_1 influence on Y . This is according to research conducted by Susilo (201 6) X_2 effect on Y .

The second hypothesis testing X_2 has a significant effect on Y. The results of this study indicate the amount of increase in sales, administrative and general costs when net sales rise is higher than the magnitude of decrease in sales, administrative and general costs when net sales fall. This means that there are sticky cost behaviors in

sales, administration and general costs in BEI manufacturing industry companies, Anderson, et al (2003).

This study shows the results that administrative and general costs (X_2) affect profitpredictions (Y), this is consistent with research conducted by Susilo (2016) where administrative and general costs affect profit predictions , with the title of his research " Effect of Sticky Behavior Cost Against Profit Prediction Using the Cost Variability and Cost Stickiness (Cvcs) Model ". Also in accordance with research conducted by Nugrahanti (2015) where the results of the study showed indications of behavior at administrative and general costs, with the research title " Sticky Cost Behavior in Sales, Administration and General Costs and Cost of Sales in Manufacturing Companies".

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