

## Sticky Cost Behavior in Agricultural Sector Companies in Indonesia



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**ABSTRACT:** This study aims to analyze sticky cost behavior of agricultural sector industry in Indonesia and the effect of capital intensity, current ratio, profitability, employee intensity, tax, and leverage on sticky cost in agricultural sector industry. There are seven agricultural sector industries used as the sample. The data used in this study was obtained from yearly financial reports of agricultural sector industries from 2015 to 2019. The analysis technique used in this study is panel data regression. The Current ratio, Profitability and Leverage has a positive and significant effect towards the sticky cost, whereas Capital intensity, Employee intensity, and Tax have no significant effect towards the sticky cost.

**KEYWORDS:** cost behavior, sticky cost, capital intensity, current ratio, profitability, employee intensity, tax, leverage

### INTRODUCTION

During the 2020 COVID-19 pandemic, many companies have a lower Gross Domestic Product (GDP) than last year. However, this is not the case for agricultural sector companies, reported in *Bisnis Ekonomi* (<https://www.ekonomi.bisnis.com>) in August 2020. In the second quarter of 2020 the agricultural sector was a sector that contributed significantly to Indonesia's GDP of 15.46 % of which the total GDP is greater than in 2019. This can be because even during this pandemic, all people will still fulfill their basic needs, namely clothing, food and shelter. However, people will be more concerned with food than clothing and shelter during this COVID-19 pandemic.

In maintaining the value of GDP, companies must be able to make the right decisions so that the profits are maximized. In making this decision, companies must be able to understand cost behavior, because cost behavior can describe the relationship between costs and company activities. In the traditional concept, there are fixed costs and variable costs. In general, fixed costs have a constant value and are not affected by changes in the volume of activity, while variable costs have a value that changes proportionally to changes in the volume of activity. However, Anderson et. al. (2003) found that costs do not change in proportion to changes in activity,

The disproportionate change in costs is one of the managers' mistakes in making decisions. This happens because managers will tend to maintain costs until they believe that sales will continue to fall (Anderson, 2003). Sticky cost behavior is found to occur in America and can reduce the accuracy of profit forecasting (Weis, 2010). This can happen if income decreases but the costs incurred are fixed or sticky, so that it has an effect on reducing the profits generated by the company. Therefore, when there are sticky costs, management must be able to reduce sticky costs to maintain company profits. Sticky costs are found in manufacturing industrial companies as in Hidayatullah's research (2011). In addition, sticky costs are also seen in the aviation industry (Cannon, 2011) and the agricultural sector (Argiles and Balndon, 2009). The service sector such as hospitals (Balakrishnan and Gruca, 2008), and in the financial sector, namely banks (Porporato and Werbin, 2011) also found cost stickiness behavior. The difference between this study and previous research is the independent variables used.

### THEORETICAL REVIEW

#### Sticky Cost

Some costs tend not to be easily adjusted because of the sticky cost behavior, (Malcom, 1991). This will cause problems when activity increases and is followed by rising costs, but when activity decreases, the decrease in costs is disproportionate. Cost stickiness is a cost behavior that occurs if the increase in costs due to an increase in activity is greater than the decrease in costs due to a decrease in activity when sales conditions decline (Anderson et. al., 2003). Costs that are difficult to adjust are fixed

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costs, because fixed costs tend to stick and are difficult to change even though the company's activities are experiencing a decline. The nature of these costs that cause costs to be said to be sticky.

From the description that has been explained, costs are said to be sticky if the decrease in costs when activity decreases is not proportional to the increase in costs when activity increases. So to overcome the behavior of costs in the form of sticky costs that can reduce company profits, managers must be able to analyze which costs are sticky. In addition, companies must also be able to predict sales in the future by looking at current trends and be able to read current market conditions and be able to find opportunities that can be done to increase company sales.

### Capital Intensity

Capital intensity ratio reflects the amount of capital needed by a company to generate income, the increase in company capital can be obtained from the sale or purchase of fixed assets. Fixed assets in this case include buildings, factories, equipment, machinery and other properties that can support the company's operational activities and can be used for the provision of goods and services or leased to other parties where the use is more than one period (Mulyani et. al., 2013).

The greater the capital intensity ratio, the higher the assets used in obtaining sales. Companies with high capital intensity ratios require a large number of assets to generate additional sales, and therefore require greater external financing for the maintenance of company assets. With the high value of fixed assets, fixed asset costs such as depreciation costs, maintenance costs, and so on will also trigger behavior high cost. The cost attachment to operating costs will be higher in companies that use more company assets in carrying out their operations (Nugroho and Enderwati, 2013). Research by Nelmidia and Siregar (2016) found that there is an indication of sticky costs on capital intensity. Then the proposed hypothesis is:

**H<sub>1</sub>:** Capital Intensity has a positive effect on Sticky Cost

### Current Ratio

The current ratio is a comparison between the number of current assets and current liabilities, where current assets are used as payment instruments with the assumption that all current assets can actually be used to pay, (Kasmir, 2014). Meanwhile, current liabilities are obligations that must be paid in less than one year.

If the value of the ratio is higher, the company is able to pay its current obligations. Meanwhile, if the value of the ratio is getting smaller, it can be said that the company has liquidity problems, (Walsh, 2012). Saleem and Rehman (2011) in Nelmidia and Siregar (2016) found that the liquidity ratio has an impact on profitability because costs in the income statement use accrued costs. So even though it has a current ratio that shows good conditions, if cash and cash equivalents cannot meet the payment of the company's short-term obligations, it will be risky for management to maintain costs when sales decline.

The higher the current ratio, the better the company's ability to meet its obligations, making it easier for management to control short-term costs when sales decline. Nelmidia and Siregar (2016) found an indication of the effect of the current ratio on sticky costs. Where the greater the current ratio, the more visible the sticky cost behavior. Then the proposed hypothesis is:

**H<sub>2</sub>:** Current Ratio has a positive effect on Sticky Cost

### Profitability

Profitability ratio (profitability ratio) is the ratio used to calculate the company's ability to earn profits in relation to sales, total assets, and own capital (Sartono, 2010). One of the ratios in the profitability ratio is return on assets (ROA). The higher the return on assets generated by the company, the company's management will be more effective in utilizing assets to be able to generate targeted profits, so that company owners will be satisfied with management's performance and will encourage management to maintain and improve the company's performance. So, if the return on assets is greater, it will increase the sticky cost behavior. This is supported by research conducted by Sidabutar, Harahap, and Nasution (2018) show that there is an indication of sticky cost behavior on return on assets. Then the proposed hypothesis is:

**H<sub>3</sub>:** Profitability has a positive effect on Sticky Cost

### Employee Intensity

Employee intensity is the ratio of the number of employees to net sales. Employee intensity is measured by the number of employees/sales, which causes the greater the number of workers used, the greater the labor costs incurred by the company (Pichetkun and Panmanee, 2012). The more employees are employed, the more labor costs are incurred so that it will increasingly affect the company's adjustment costs and cost stickiness behavior (Venieris et. al., 2015). Salary costs are said to be sticky because when terminating employees will require a lot of costs because the company needs to incur additional costs, namely severance pay. This is also proven by Kartikasari et al. (2018) which found indications of sticky cost behavior on labor costs in agricultural sector companies listed on the IDX for the period 2012-2015. The proposed hypothesis is:

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H<sub>4</sub>: Employee Intensity has a positive effect on Sticky Cost

### Tax

Tax ratio is the ratio between tax revenue and the total gross domestic product (GDP), (Parmadi, 2011). So that it can be interpreted that the tax ratio is the government's ability to collect its tax revenues, or the government's ability to reabsorb GDP from the community in the form of taxes. The level of tax effectiveness is a component of the political cost (Kern and Morris, 1991 in Pitchechun, 2012). The tax system in Japan is related to the financial reporting system, so that taxes have an effect on management decisions, (Inoue and Thomas, 1996 in Pitchekun, 2012). The higher the tax ratio, the sticky cost will likely occur, because management will maintain the company's profit at an optimal level to reduce wealth transfer. So it will be difficult for the company to reduce costs when sales decline. This has been proven from research conducted by Pitchekun (2012). Then the proposed hypothesis is:

H<sub>5</sub>: Tax has a positive effect on Sticky Cost

### Leverage

Leverage is the solvency ratio or leverage ratio is the ratio used to measure the extent to which the company's activities are financed with debt (Kasmir, 2014). This leverage ratio compares the company's overall debt burden to its equity. The higher the leverage value, the greater the company's debt, so that the greater the funds from third parties that enter the company. The third party funds (debt) will be used by management to improve the company's performance. The more debt, the greater the costs in the form of interest that will be issued by the company. The more difficult it is for managers to keep costs down in the form of interest when sales decline. So the higher the leverage, the sticky costs will likely occur. This has been proven from research conducted by Calleja ET. al. (2006), Nelmidia and Siregar (2016), and Jazuli, Azhar, and Endang (2020). Then the proposed hypothesis is:

H<sub>6</sub>: Leverage has a positive effect on Sticky Cost

## RESEARCH METHODS

The population in this study are all agricultural sector companies listed on the Indonesia Stock Exchange. According to data on the IDX, there are 24 listed agricultural sector companies as of September 2020. The sample is part of the number and characteristics possessed by the population (Sugiyono, 2018). The research sample was selected using a purposive sampling technique based on predetermined criteria. Based on predetermined criteria, there are 7 companies that meet these criteria, so the number of research observations is 35 research samples.

In this study, the type of data used is quantitative data. The technique used to analyze quantitative data is statistical technique. The source of data in this study is secondary data. In this study, secondary data were obtained from agricultural sector companies listed on the Indonesia Stock Exchange during the 2015-2019 period. In collecting data in this study using data collection methods, namely documentation.

In this study, the data analysis method used is the multiple linear regression method. Data analysis was carried out by processing data through the Econometric Views (Eviews) version 9.0 program because the data in this study was panel data. Panel data is a combination of cross section and time series data (Winarno, 2015). The data analysis method used in this study is descriptive statistics, classical assumption test, multiple linear regression analysis, and statistical tests.

Dependent variables are variables that are influenced or are the result, because of the presence of independent variables (Sugiyono, 2018). The dependent variable used in this study is sticky cost. In determining the presence or absence of sticky cost behavior, this study uses the reference variable of changes in sales and selling, administrative and general costs as has been done by previous studies.

A company can be said to have sticky cost behavior if it meets the following criteria if the coefficient value  $1 > 0$  and  $2 < 0$ , or if the coefficient value  $1 > 1 + \beta_2$ . The coefficient 1 shows the percentage increase in selling, general and administrative costs to the increase in net sales by one percent. While the sum of the coefficients  $1 + 2$  shows the percentage decrease in selling, general and administrative costs to the decrease in net sales by one percent. Independent variable The factors in this study are capital intensity, current ratio, profitability, employee intensity, tax, and leverage.

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**Table 1. Variable Operation**

Variable Operation	Formula
Sticky Cost Indication (Y)	$STICKINESS_{it} = \log\left(\frac{SG\&A_{it}}{SG\&A_{it-1}}\right)$
Sales Changes (SALES)	$SALES_{it} = \log\left(\frac{Sales_{it}}{Sales_{it-1}}\right)$
Dummy Sales Change (SALESCHG)	$SALESCHG_{it} = \text{Dummy} * SALES_{it}$
Capital Intensity Ratio (X1)	$CIR_{it} = \log\left(\frac{\text{Total Aset Tetap}_{it}}{\text{Total Sales}_{it}}\right)$
Current Ratio (X2)	$CR_{it} = \log\left(\frac{\text{Current Asset}_{it}}{\text{Current Liabilities}_{it}}\right)$
Profitability (X3)	$ROA_{it} = \log\left(\frac{\text{Earning After Tax}_{it}}{\text{Total Asset}_{it}}\right)$
Employee Intensity Ratio (X4)	$EIR_{it} = \log\left(\frac{\text{Salaries exp}_{it}}{\text{Total Sales}_{it}}\right)$
Tax(X5)	$TR_{it} = \log\left(\frac{\text{Tax expense}_{it}}{\text{Earning Before Tax}_{it}}\right)$
Leverage(X6)	$LEV_{it} = \log\left(\frac{\text{Debt}_{it}}{\text{Equity}_{it}}\right)$

To see the relationship of the variables Capital Intensity Ratio, Current Ratio, Profitability, Employee Intensity, Tax, and Leverage to Sticky Costs in companies on the Indonesia Stock Exchange, in determining the indication of sticky costs, this study uses the model from ABJ (Anderson, Banker, and Janakiraman) which has been modified as follows:

$$STICKINESS_{it} = \beta_0 + \beta_1 CIR_{it} + \beta_2 CR_{it} + \beta_3 ROA_{it} + \beta_4 EIR_{it} + \beta_5 TR_{it} + \beta_6 LEV_{it} + \epsilon_{it}$$

Description:

STICKINESS <sub>it</sub>	: Behavioral indication sticky cost
CIR <sub>it</sub>	: Capital Intensity
CR <sub>it</sub>	: Current Ratio
ROA <sub>it</sub>	: Profitability
EI <sub>it</sub>	: Employee Intensity
TR <sub>it</sub>	: Tax
LEV <sub>it</sub>	: Leverage

## RESULTS AND DISCUSSION

### Descriptive Statistical Analysis

Descriptive statistics are statistics used to analyze data by describing the collected data as they are without intending to make generally accepted conclusions (Sanusi, 2011). Descriptive statistics will show the results of the highest value (maximum), lowest value (minimum), average value (mean) and standard deviation. The descriptive statistics of each of the variables studied are as follows:

**Table 2. Descriptive Statistics**

	Degrees of Sticky Cost	Capital Intensity	Current Ratio	Profitability (ROA)	Employee Intensity	Tax	Leverage
mean	0.0246	-0.2833	0.2907	-1.4123	-1.1941	-0.1899	-0.1442
median	0.0308	-0.2316	0.1652	-1.2584	-1.3129	-0.5517	-0.0058
Maximum	0.1369	0.7511	0.8307	-0.4143	-0.4884	5.8366	1.0937
Minimum	-0.1095	-1.6556	-0.2383	-2.9914	-2.3574	-1.6316	-0.8696
Std. Dev.	0.0605	0.3847	0.3103	0.5178	0.3725	1.5079	0.4779
Observations	35	35	35	35	35	35	35

(Source: Eviews 9) Panel Data Regression Output Results

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**Table 3. Common Effect Model**

Dependent Variable: Y				
Method: Least Squares Panel				
Sample: 2015 2019				
Periods included: 5				
Cross-sections included: 7				
Total panel (balanced) observations: 35				
Variable	Coefficient	Std. Error	t-Statistics	Prob.
C	0.095499	0.047417	2.014007	0.0537
Capital Intensity	-0.003653	0.035486	-0.102945	0.9187
Current Ratio	0.132804	0.047241	2.811214	0.0089
Profitability	0.061101	0.021229	2.878136	0.0076
Employee Intensity	0.007872	0.035842	0.219641	0.8277
Tax	0.006949	0.006403	1.085296	0.2870
Leverage	0.093697	0.036647	2.556765	0.0163
R-squared	0.396002	F-statistics		3.059623
Adjusted R-squared	0.266573	Prob(F-statistic)		0.019789
SE of regression	0.051808	Durbin-Watson stat		1.920952

(Source: Eviews 9) Panel Data Regression Output Results

The panel data regression model in this study uses the Common Effect Model. In determining whether the hypothesis is accepted or rejected, it can be seen from the probability value in the table for each variable. If the probability value  $< 0.05$ , then the independent variable has a significant influence on the dependent variable. Meanwhile, the direction and magnitude of the influence of the independent variable on the dependent variable can be seen from the coefficient value.

#### **H<sub>1</sub> : Capital Intensity has a positive effect on Sticky Cost**

Probability value for capital intensity is 0.9187. The value is greater than 0.05, then the capital intensity has no effect on the sticky cost. This means that hypothesis one (H<sub>1</sub>) for capital intensity is rejected. Capital Intensity does not have a significant effect because the fixed assets in the company come from leasing which when there is a decrease in sales, the company will reduce the cost of maintaining and maintaining these fixed assets so that it will reduce selling, administrative and general costs.

#### **H<sub>2</sub>: Current Ratio has a positive effect on Sticky Cost**

Probability value for current ratio is 0.0089. With the regression coefficient value 0.132804. This value is smaller than 0.05 and the coefficient value is positive, so the current ratio has a significant and positive effect of 0.132804 on sticky costs. This means that the second hypothesis (H<sub>2</sub>) for the current ratio is accepted. The point is that for every one unit increase in the current ratio, the sticky cost will increase by 0.132804 units, on the contrary if the current ratio decreases by one unit, the sticky cost will decrease by 0.132804 units.

#### **H<sub>3</sub> : Profitability has a positive effect on Sticky Cost**

Probability value for profitability is 0.0076. With a regression coefficient value of 0.061101. This value is less than 0.05 and the coefficient is positive, so profitability has a significant and positive effect on sticky costs. This means that the third hypothesis (H<sub>3</sub>) for profitability is accepted. This means that for every one unit increase in profitability, the sticky cost will increase by 0.061101 units, on the other hand, if profitability decreases by one unit, the sticky cost will decrease by 0.061101 units.

#### **H<sub>4</sub> : Employee Intensity has a positive effect on Sticky Cost**

Probability value for employee intensity is 0.8277. The value is greater than 0.05, so employee intensity has no effect on sticky costs. This means that hypothesis four (H<sub>4</sub>) for employee intensity is rejected. Employee Intensity does not have a significant effect because the company uses more temporary employees than permanent employees. When a company hires temporary employees, the cost of adding and removing employees will be lower than hiring permanent employees.

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### H<sub>5</sub>: Tax has a positive effect on Sticky Cost

Probability value for tax is 0.2870. The value is greater than 0.05 then the tax has no effect on the sticky cost. This means that hypothesis five (H<sub>5</sub>) for tax is rejected. Tax does not have a significant effect on sticky costs because management does not make any decisions based on the tax ratio when the company experiences an increase so that it does not have an impact on sticky costs.

### H<sub>6</sub> : Leverage has a positive effect on Sticky Cost

Probability value for capital intensity is 0.0163. With a regression coefficient value of 0.093697. This value is smaller than 0.05 and the coefficient value is positive, so leverage has a significant and positive effect on sticky costs. This means that hypothesis six (H<sub>6</sub>) for leverage is accepted. The point is that for every increase of one unit of leverage, the sticky cost will increase by 0.093697 units, on the contrary if the leverage decreases by one unit, the sticky cost will decrease by 0.093697 units.

The multiple linear regression model produced in this study based on table 3 is:

$$\text{Degree Sticky Cost} = 0.095499 - 0.003653 \text{ Capital Intensity} + 0.132804 \text{ Current Ratio} - 0.061101 \text{ Profitability} + 0.007872 \text{ Employee Intensity} + 0.006949 \text{ Tax} + 0.093697 \text{ Leverage} + 0.051808$$

## CONCLUSION

Based on the results of the analysis and discussion of the data that has been done, it can be concluded that Current Ratio, Profitability, and Leverage have a positive and significant effect on Sticky Cost, while Capital Intensity, Employee Intensity and Tax have no effect on Sticky Cost. However, when viewed as a whole from the R<sup>2</sup> value, the independent variables above explain the dependent variable (Sticky Cost) of 26.66%, while the remaining 73.34% is explained by other factors. This study has several limitations, it is hoped that further research can consider adding other variables that are thought to affect the possibility of sticky cost behavior, conducting research on other company sectors, such as the mining, finance, property, and others sectors.

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