
STICKY COST BEHAVIOR OF INDONESIA STOCK EXCHANGE MANUFACTURING COMPANIES

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ABSTRACT

When activity levels fluctuate, sticky costs tend to increase rather than decrease. The testing of a sticky cost model is used in this study to illustrate the behavior of sticky costs on the selling expenditures, general and administrative costs, and product costs that are incurred by manufacturing firms. This study makes use of secondary data collected from 164 industrial companies that were listed on the Indonesia Stock Exchange between 2018 and 2019. Multiple regression evaluated data. According to this study, selling expenses, administrative and general expenditures, as well as the cost of things sold, are all considered sticky costs. This finding confirms all previous forecasts.

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1. INTRODUCTION

Business activity influences cost behavior [1]. This information helps managers plan and make cost decisions by anticipating future expenses more precisely. Managers use cost behavior to forecast operational activity costs (Banker dan Chen, 2006 in [2]. The pricing pattern is uneven and has a tendency to be persistent [3]. According to Weiss (2010), A cost is said to be sticky when there is a rise in that cost that is an equal amount more than there is a drop in that cost as a result of a change in activity. When sales drop, companies that behave with sticky costs make only minor modifications to their costs, which results in little cost reductions. Because of this, when there is a drop in sales and there is no change in the expenses, the profit that is made is affected negatively. When the degree of sticky costs increases, the minimum amount of sales activity required by the firm in order to turn a profit also increases.

When a rise in the volume of an organization's activity does not lead to a corresponding increase in costs, but when there is a fall in the amount of corporate activity, there does not lead to a reduction in costs, we refer to this phenomenon as "sticky costs" [5]. In addition to occurring in the manufacturing industry such as sticky costs, it also occurs in the agricultural sector [6], aviation industry [7], service sector, namely hospitals [5] and bank [8]. Research results by Anderson and Banker (2003), de Medeiros and Costa (2011), He et al. (2010), Weiss (2010), Windyastuti (2005) and Subramaniam & Watson (2003) Determine whether or if there are any "sticky costs" associated with the administrative and general sales charges as well as the cost of items sold. Research results by Paskah Ika Nugroho (2013) and Hidayatullah (2011) discovered no evidence of sticky cost behavior in relation to sales, administrative and general expenses, or cost of products sold. The behavior of cost stickiness, which is particularly prevalent in the chemical industry, has a direct impact on the process of making choices, which are directly tied to important problems in cost management, such as budgeting, pricing, control, and estimate of deviations.[16]

Under the circumstances of the Covid-19 Pandemic, in which limitations on community activities are carried out, which have an effect on limiting economic activities, this will obviously result in a reduction in the level of activity and sales volume of all businesses operating in all industrial sectors. In this research, sticky cost behavior was investigated in relation to sales, administrative, and general expenses, as well as the costs of items that were sold to manufacturing businesses on the Indonesia Stock Exchange prior to the COVID-19 epidemic. Since the COVID-19 outbreak is gone and activity and sales are on the rise, businesses need to identify expenditures that are particularly

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 difficult to cut in order to optimize their cost planning. Both before and after the financial crisis, SG&A was a burdensome expenditure [16]

The Deliberate Decision Theory

A fee will be sticky due to decisions made by managers intentionally. Managers deliberately make the decision to adapt the resources owned to the activities of the company [9]. The author of the theory of deliberate choice makes a difference between the possible drivers of cost stickiness originating from managers' decisions and the drivers connected to the company. This distinction is based on the assumption that cost stickiness is caused by managers' actions. In addition, there is a possibility that the cost will become fixed as a result of the inability of costs to keep up with falling sales. [17] Managers with various management skills may make resource choices that affect cost stickiness. Cost stickiness is seen in organizations managed by incompetent management. Less skilled managers maintain resources rather than making expensive changes. Environmental unpredictability increases cost stickiness in enterprises with poor management. Poor managers keep resources as sales drop.[18]

Delay Theory

Managers postponing cost adjustments may hinder firm operations, making expenses sticky.[19]. Cost adjustment delay theory says that managers should keep unused resources until they are sure that demand will continue to drop or they expect to sell them in the future. However, in the long run, prices, wages, and expectations are fully adjusted to the state of the markets and economy, which reduces cost stickiness.[17]

Cost Theory

Introduced by Lucas (1967), When unplanned things happen, the company can't just change the amount of production factors without paying to make the change. Changing the level of production requires costs. Adjustment costs occur due to discrepancies between planned costs and costs that occur as a result of volume changes. Many studies have been adapted from this concept such as changing investment or capital, changing the workforce [21] and changing inventory levels [22]. Adjustment costs are presented implicitly in the financial statements. If the manager wants to increase or decrease the utilization, the adjustment cost will occur. E-commerce enterprises are more flexible than conventional retail firms in changing other operational expenses when activity declines.[23]

Asset Intensity

The logical picture of sticky cost indications on asset intensity is that when sales increase, the company must buy a machine again to adjust for the increase in sales [12]. Sticky expenses occur when sales rise and maintenance and depreciation do not reduce. [12].

Sticky Cost

In cost accounting, it is stated that costs and activity volumes have a symmetrical relationship. But Malcom (1991) found that there are some costs that tend to be fixed and stay the same when action goes up or down. This is because some costs don't change in the same way as the amount of action. This is called a "sticky cost." Cost changes that aren't proportional to changes in sales activity are a sign of sticky cost behavior [2].

Anderson, Banker, Huang (2006), asserts that sticky costs emerge from management delaying resource reduction until they know demand is dropping. Managers postpone decisions and modifications, creating sticky costs [19]. Cost adjustment delay theory was used to test the study problem. Managers who think sales will go up in the future will decide to keep resources that aren't being used instead of lowering prices when demand goes down. So, this will lead to set costs that make it hard to change the total costs. This is a sign of sticky cost behavior.

Research results by Mark and Rajiv (2003) gives clear proof that changes in sales, management, and general costs are less likely to happen when sales activity goes down than when sales activity goes up. These are called "sticky" costs. Since the uneven cost reaction doesn't fit the standard cost accounting model, which says that costs are either set or changeable depending on the activity, the authors think that their results show that managers are using open cost management.

According to Anderson and Banker (2003) The sticky behavior of administrative costs and sales costs when sales are reduced in such a way that sales will increase, will not change. In another sense with an increase in sales, administrative costs and sales will increase but with a decrease in sales, administrative costs and sales will not decrease proportionally. Behavioral rigidity arises from two main features of pricing behavior. First, most costs are created through the awareness of committed managers. Secondly, changing the level of resources carried out does create costs for the company. Some of these costs can be reused for employees and costs for installation and restarting of the machine[9].

According to Balakrishnan & Gruca (2008) The cost is sticky if it increases with the company's activity but doesn't decrease with it. First, resource imbalances may cause sticky costs. Second, managers preserve leftover resources instead of cutting them as activity drops [12]. The decision of managers to continue to use these unused resources can lead to high costs despite a decrease in company activity. When managers are given incentives to avoid losing money or seeing their profits go down, they will make changes more quickly when sales go down. Managers deliberately decide to reduce the amount of stickiness instead of holding those unused resources which will lead to stickiness costs [26]. In earlier study, it was also found that costs on units directly linked to the company's main activities were more stable than costs on units that helped the main activities [5]. Serdaneh (2014) Find cost behavior that isn't the same on both sides, where some costs tend to stay the same when action changes. This happens because

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there are some prices that don't change in the same way as the amount of action. This is called a "sticky cost." Cost changes that aren't proportional to changes in sales activity are a sign of sticky cost behavior [2]

Research Hypothesis

According to Anderson, Banker, and Huang (2006) There are times when the biggest part of sales, management, and general costs is made up of set costs, which makes it hard for costs to move with sales. It can also be said that when sales go up, sales, management, and general costs go up more than the same number goes down. When resource adjustment errors cause sticky costs, costs don't change in the same way as activities do. Managers choose to put off making changes to resources when activity goes down, but they make changes to resources when activity goes up. Costs happen because managers keep using resources that aren't being used, instead of making changes when the amount of work goes down [15].

Windyastuti (2005) states that the constituent components of sales, administrative and general costs include the cost of salaries of office employees, the cost of depreciation of office buildings and the cost of maintaining office assets. The termination of office employees when sales decrease will result in a shortage of labor when sales increase, thus making the cost of replacing labor or the cost of office employees' salaries increase. In this case, the sticky cost behavior will become higher. Sticky cost behavior also occurs when sales increase, asset maintenance costs also increase along with an increase in asset usage capacity. But when sales decline, the company also incurs asset maintenance costs to maintain assets if at any time the sale increases and it is impossible to simply terminate the assets.

Research results by Windyastuti (2005) found that when net sales went down by 1%, general management costs went down by 0.8%. Also, sales costs will go up by 0.68 percent if net sales go up by 1 percent. The change in sales costs when net sales go up is bigger than the change in sales costs when net sales go down. From these comments, the following claim can be made.

H₁: The amount by which sales expenses rise in response to an increase in net sales is greater than the amount by which sales costs decline in response to a drop in net sales

Subramaniam & Watson (2003) says that costs for sales, administration, and general costs went up by 0.7% for every 1% rise in income. Sales and general and administrative costs, on the other hand, went down by 0.58 percent for every 1 percent drop in sales. These results are consistent with the study Anderson, Banker (2003) It has a sticky cost behavior with regard to sales, administrative, and general expenses. When there is a drop in activity, managers often make the conscious choice to postpone making resource changes, in contrast to the situation when resource adjustments are made when there is a rise in activity. The reason why there are costs is because managers continue to utilize resources even when they are not needed, rather than making changes when the amount of activity drops [15].

The relationship between the organization's costs and the amount of work it does is complicated in another way. Therefore, the findings of the research demonstrate that immovable costs correspondingly for the degree of activity have played a vital role in gaining an awareness of this field of accounting. This is especially true when looking at the costs of the things that need to be put in and the value of the things that come out. It also has to do with the growth of the cost accounting system, which helps managers make better decisions so they can improve efficiency, which will lead to better results in the long run. Eventually, this will bring in more money. Serdaneh (2014) Management accounting requires a clear understanding of how costs behave so that data can be used to make many decisions, including those about costs. Also, in today's world, where globalization is becoming more and more common, there is fierce competition between businesses in different countries, which need to understand how costs change in order to stay in business.[28]

Research results by Hidayatullah (2011) indicates that sales, administrative, and general expenditures decline 0.329 percent when net sales fall 1 percent. Sales, administrative, and general expenses rise 0.501 percent every 1 percent net sales. Sales, administrative, and general expenditures grow more than decrease as net sales decline. Hypothesis derived from above sentence.

H₂: Administrative and general expenditures rise more when activity rises than when activity falls

According to Hidayatullah (2011) The calculation of cost of goods produced is one of the important factors in determining the COGS that must be done by streamlining the costs needed to produce finished goods [29]. Efficiency is closely related to profit, so managers are required to be efficient and effective in preparing cost planning and resource adjustments due to uncertainty in future demand. In manufacturing enterprises, COGS is determined by several elements of cost of goods produced such as raw material costs, direct labor costs and factory overhead costs (indirect labor costs, auxiliary costs, depreciation costs, maintenance or repair costs, electricity, water, telephone and others). These costs arise when the company carries out the production process from the inventory of raw materials which is then managed with auxiliary materials to produce finished goods that are of selling value.

Weiss (2010) It says that when demand goes up, managers decide to make more things, so the number of things that make up the HPP will also go up. But when demand goes down, managers will try to keep production costs as low as possible, but not all costs will go down when production goes up. Research by Subramaniam & Watson (2003) COGS went up by 1.01 percent for every 1 percent rise in sales, but went down by 0.94 percent for every 1 percent drop in sales. These results show that costs tend to stay the same on COGS. From what has been said, the following hypothesis can be made.

H₃: COGS increased more when net sales grew than when they declined.

2. RESEARCH METHOD

This research examines 2018 IDX-listed manufacturing businesses. This research uses secondary data. Sales, administrative, general, and cost of goods sold data from 2018–2019 were utilized for study. Mechanical observation collects data. Independent variables:

$$1) \log \left[\frac{Revenue_{i,t}}{Revenue_{i,t-1}} \right]$$

Explanation:

\log = Logarithmic

$Revenue_{i,t}$ = Net sales of the company i period t

$Revenue_{i,t-1}$ = Net sales of the company i period t-1

$$2) DECRDUM_{i,t} * \log \left[\frac{Revenue_{i,t}}{Revenue_{i,t-1}} \right]$$

Explanation :

$DECRDUM_{i,t}$ = A dummy variable of the sales period that is worth 1 if sales fall and is worth 0 if sales go up

The dependent variables in this study are:

$$1) \log \left[\frac{Sales_{i,t}}{Sales_{i,t-1}} \right]$$

Explanation :

\log = Logarithmic

$Sales_{i,t}$ = Selling cost the company i period t

$Sales_{i,t-1}$ = Selling cost the company I period t-1

$$2) \log \left[\frac{A\&G_{i,t}}{A\&G_{i,t-1}} \right]$$

Explanation:

\log = Logarithmic

$A\&G_{i,t}$ = Administrative and general expenses of the company i period t

$A\&G_{i,t-1}$ = Administrative and general expenses of the company i period t-1

$$3) \log \left[\frac{HPP_{i,t}}{HPP_{i,t-1}} \right]$$

Explanation :

\log = Logarithmic

$HPP_{i,t}$ = Cost of goods sold of the company i period t

$HPP_{i,t-1}$ = Cost of goods sold of the company i period t-1

Anderson and Banker (2003) Using a model by the names of Anderson, Banker, and Janakirama (abbreviated as ABJ), one may search for evidence of sticky cost behavior on sales expenses in addition to administrative and general costs. After that, we will use this model to analyze the behavior of sticky expenses such as sales, administrative, and general costs in addition to COGS in relation to shifts in net sales, and we will differentiate between times of increasing sales and periods of decreasing sales based on how these costs behave. The interaction between a reduced dummy variable (DECRDUM) that takes a value of 1 if sales revenue falls during periods t-1 and t (years), and a value of 0 if the opposite is true, and a variable called an increase dummy variable (INCRDUM). [15].

Hypothesis Testing 1:

$$\log \left[\frac{Sales_{i,t}}{Sales_{i,t-1}} \right] = \beta_0 + \beta_1 \log \left[\frac{Revenue_{i,t}}{Revenue_{i,t-1}} \right] + \beta_2 * DECRDUM_{i,t} * \log \left[\frac{Revenue_{i,t}}{Revenue_{i,t-1}} \right] + \varepsilon_{i,t} \dots \dots (1)$$

Explanation:

$Sales_{i,t}$ = Selling cost the company i period t

$Revenue_{i,t}$ = Net sales of the company i in the period t

$DECRDUM_{i,t}$ = A dummy variable of the sales period that is worth 1 if sales fall and is worth 0 if sales go up

β_1 dan β_2 = Regression coefficient

If the cost of sales (sales) is sticky, then the variation in sales costs with net sales (revenue) increasing must be greater than when net sales decrease. The β_1 coefficient measures the percentage increase in sales costs due to a 1 percent increase in net sales. Meanwhile, the number of presentations of the coefficient $\beta_1 + \beta_2$ measures the percentage decrease in sales costs due to a decrease in net sales by 1 percent. Hypothesis 1 is based on the assumption $\beta_1 > 0$, $\beta_2 < 0$, or if $\beta_1 + \beta_2 < \beta_1$, which suggests that the increase in sales costs at the time when net sales rise will be higher than the decrease in sales costs at the time when net sales fall. This means that the cost of selling is sticky.

Hypothesis Testing 2:

$$\log \left[\frac{A\&G_{i,t}}{A\&G_{i,t-1}} \right] = \beta_0 + \beta_1 \log \left[\frac{Revenue_{i,t}}{Revenue_{i,t-1}} \right] + \beta_2 * DECRDUM_{i,t} * \log \left[\frac{Revenue_{i,t}}{Revenue_{i,t-1}} \right] + \varepsilon_{i,t} \dots \dots (2)$$

Explanation:



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- $A\&G_{i,t}$ = Administrative and general expenses of the company i period t
 $Revenue_{i,t}$ = Net sales of the company i in the period t
 $DECRDUM_{i,t}$ = A dummy variable of the sales period that is worth 1 if sales fall and is worth 0 if sales go up
 β_1 dan β_2 = Regression coefficient

If administrative and general costs are sticky, then the variation in administrative and general costs with increased net sales (revenue) should be greater than when net sales declined. The β_1 coefficient measures the percentage increase in administrative and general expenses due to a 1 percent increase in net sales. Meanwhile, the number of presentations of the $\beta_1 + \beta_2$ coefficient measures the percentage decrease in administrative and general costs due to a 1 percent decrease in net sales. Hypothesis 2 is based on the assumption of $\beta_1 > 0$, $\beta_2 < 0$, or if $\beta_1 + \beta_2 < \beta_1$, which indicates that the increase in administrative and general costs at the time when net sales rise will be higher than the decrease in administrative and general costs at the time when net sales fall. This means administrative and general expenses are sticky.

Hypothesis Testing 3:

$$\log \left[\frac{HPP_{i,t}}{HPP_{i,t-1}} \right] = \beta_0 + \beta_1 \log \left[\frac{Revenue_{i,t}}{Revenue_{i,t-1}} \right] + \beta_2 * DECRDUM_{i,t} * \log \left[\frac{Revenue_{i,t}}{Revenue_{i,t-1}} \right] + \varepsilon_{i,t} \dots \dots (3)$$

Explanation:

- $HPP_{i,t}$ = Cost of goods sold of the company i period t
 $Revenue_{i,t}$ = Net sales of the company i period t
 $DECRDUM_{i,t}$ = A dummy variable of the sales period that is worth 1 if sales fall and is worth 0 if sales go up
 β_1 dan β_2 = Regression coefficient

If the cost of goods sold doesn't change substantially with increasing net sales, revenue must be larger than when net sales dropped. The variable β_1 represents the percentage rise in cost of products sold owing to a 1 percent increase in net sales, while the sum of the coefficients $\beta_1 + \beta_2$ reflects the percentage drop related to a 1 percent fall in net sales. Hypothesis 3 assumes that the rise in cost of products sold at net sales was greater than the reduction at net sales. Sales prices are sticky.

3. RESULTS AND ANALYSIS

Results of First Hypothesis Testing

Table 1. First Equation Regression Test Results

		Coefficients ^a				
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	-.018	.011		-1.560	.126
	X ₁	1.232	.138	1.012	8.901	.000
	X ₂	-1.596	.419	-.433	-3.812	.000

a. Dependent Variable: Y2

Source : Data processed (2021)

Based on table 1 above, the regression equation is obtained as follows:

$$Y_1 = -0,018 + 1,232X_1 - 1,596X_2 + e$$

Based on the first equation regression test, $\beta_1 = 1,232$ and $\beta_2 = -1,596$. If $\beta_1 + \beta_2 < \beta_1$, the cost of sales will rise more when net sales rise than when they decline. ($\beta_1 + \beta_2 = 1,232 - 1,596 = -0,364$) is 1.232 less than β_1 . This supports hypothesis 1 since the cost of sales rises more when net sales rise than when they fall.

Second Hypothesis Testing Results

Table 2. Second Equation Regression Test Results

		Coefficients ^a				
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	.027	.010		2.683	.010
	X ₁	.885	.085	1.191	10.438	.000
	X ₂	-.660	.130	-.578	-5.066	.000

a. Dependent Variable: Y2

Source : Data processed (2021)

Based on table 2 above, the following regression equation is obtained :

$$Y_2 = 0,027 + 0,885 X_1 - 0,660 X_2 + e$$

The second equation regression test yielded β_1 values of 0,885 and -0,660. If $\beta_1 + \beta_2 < \beta_1$, administrative and general expenditures will climb more when net sales rise than when they decline. ($\beta_1 + \beta_2 = 0,885 - 0,660 = 0,225$) is 0,885 less than β_1 . This suggests that when net sales increase, administrative and general expenditures grow more than when net sales decrease, supporting hypothesis 2.

Third Hypothesis Testing Results

Table 3. Regression Test Results

		Coefficients ^a				
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	-.003	.003		-.880	.384
	X ₁	.941	.025	1.090	38.136	.000
	X ₂	-.187	.038	-.140	-4.883	.000

a. Dependent Variable: Y2

Source : Data processed (2021)

Based on table 3 above, the regression equation is obtained as follows:

$$Y_3 = -0,003 + 0,941 X_1 - 0,187 X_2 + e$$

From the second equation regression test, β_1 was 0,941 and β_2 was -0,187. If $\beta_1 + \beta_2 < \beta_1$, the cost of products sold increased more when net sales grew than when net sales declined. ($\beta_1 + \beta_2 = 0,941 - 0,187 = 0,754$) is 0,941 less than β_1 . Hypothesis 3 is accepted because the cost of products sold increases more when net sales grow than when net sales decline.

Sticky Cost on Selling Costs

The results showed that there was a sticky cost on sales costs. This is inconsistent with the results of the study by Mark Anderson, Rajiv Banker, Rong Huang (2006) which states that the increase in stickiness in the company's sales costs does not occur due to too low sales costs. This may happen because when sales increase, the cost of sales increases, and when sales costs decrease, sales costs decrease. Thus the cost of selling is sticky.

Sticky Cost on Administrative and General Expenses

The results showed that there were sticky costs in administrative and general costs. The research by agrees Anderson & Banker (2003) if the largest component in administrative and general expenses is fixed costs that do not readily follow the movement of sales, then this indicates that sales, administrative, and general costs are considered to be sticky. As a direct consequence of this, the rise in sales, administrative, and general expenditures that accompany an increase in sales is larger than the corresponding decline in the activity's volume. In addition, the research findings are also consistent with the research results by Hidayatullah (2011) according to this theory, fluctuations in sales, administrative, and general expenses during periods of rising net sales are more significant than cost reductions during periods of falling net sales. Consequently, both administrative and general costs are problematic. According to the findings, sales and general administration charges (SGA), in addition to the costs of items sold, substantially exhibit sticky behaviors.[30]

Costs That Don't Move on the Cost of Goods Sold

According to the results, there is evidence that sticky costs are included in the price of the products that are sold. According to the results of the study conducted by, this is really the case Subramaniam & Watson (2003) It indicates that the cost of products sold rises more when net sales rise than when net sales decline. This test supports cost adjustment delay hypothesis. Managers keep idle resources because they expect sales to rise in the future. Fixed expenses make overall costs hard to modify, indicating sticky cost behavior. Research results by Weiss (2010) asserts that the cost of products sold is sticky when demand rises because managers will expand production capacity to match the rising cost of goods sold components. When demand drops, managers reduce manufacturing costs, but not all

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expenses. So selling prices are sticky. The data show that sales and general administration charges (SGA) and item costs are sticky.[30]

4. CONCLUSION

According to the findings, expenditures associated with sales, administration, and general business operations, as well as the cost of the commodities supplied, are all sticky. During the Covid-19 epidemic, the economic circumstances were quite comparable to the crisis conditions that were faced by all enterprises in all other types of industrial sectors. Because of this scenario, management is compelled to make judgments about the acceptable conduct towards costs in order for the firm to survive the crisis. This decision might change sticky costs from pre-crisis to post-crisis. The study found that overall costs were sticky before the financial crisis but anti-sticky during and after. After the financial crisis, goods prices became anti-sticky. [16]. In order for management to be able to be prompted into making better judgments about cost behavior when crisis situations arise. On the other hand, there is also a cost behavior that is fixed and cannot be altered. Additionally, SG&A expenses have acted as sticky expenditures both before and after the financial crisis [16]. The behavior of costs is significantly impacted by the presence of organized labor. After undergoing new union certification, businesses see a reduction in the stickiness of their SG&A costs. Companies who are in better financial shape, have stronger analyst coverage, and have larger net operating assets are the ones that are going to see the influence of labor union power on SG&A cost stickiness play out in a way that is more evident [31].

Due to the fact that the scope of this research is restricted to manufacturing enterprises that are listed on the Indonesia Stock Exchange, the findings cannot be compared with those of other businesses or organizations that are active in various industries. It is anticipated that researchers will prolong the duration of the study in order to get superior research outcomes and will carry out research in a variety of organizations operating in a variety of industries. In further study, it is anticipated that more factors that are thought to have sticky costs will be investigated. Take, for instance, the expenses of labor and the overhead of the plant.

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