

Does CSR increase cost stickiness?

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Abstract

The purpose of this study is to provide evidence of corporate social responsibility (CSR) commitment and cost stickiness. Cost stickiness is an asymmetric cost behavior in which the rate of increase in cost with increasing activity tends to be greater than the rate of decrease in cost with decreasing activity. The pattern of cost change depends not only on the scale of activity, but also on the direction of change. The research hypothesis states that CSR efforts require long-term commitment to corporate value-adding activities, and that constrained resources are difficult to curb immediately. The survey uses employee benefits and donations as a proxy for her CSR. The survey sampled is Indonesian manufacturing companies with observation years from 2017 to 2020. Research has shown that there is cost containment in selling, general and administrative expenses, and that adding CSR costs to his research model increases the level of cost containment. The results also confirm that changes in activity levels and changes in costs are not necessarily the same. These results provide new evidence for understanding how CSR affects cost containment for manufacturing.

Keywords : corporate social responsibility; sticky costs; selling, administrative and general expenses;

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1. INTRODUCTION

Understanding cost behavior is important for management. Cost behavior shows the relationship between changes in the total volume of company activities. Cost behavior is a description of a company's performance, where performance shows the company's activities. Management needs to pay attention to the increase or decrease in activity costs. When the costs incurred are too high from these activities, it will be a loss for the company in the future. Cost management needs to be considered because it is one of the components that make up a profit.

Cost management is difficult because costs do not always change symmetrically and proportionally with changes in activity. The pattern of cost change depends not only on the scale of activity, but also on the direction of the change. Asymmetric cost behavior is proposed by Anderson et al. (2003). The costs are persistent, according to many recent studies, as they rise more when sales volumes rise than when they fall. Asymmetric cost

conduct refers back to the extraordinary reaction of variable charges in case of will increase or decreases withinside the stage of a firm's working interest due to managerial dedication selections to hold idle assets whilst interest volumes decline (Banker et al., 2018). Resources (determined at the beginning of operations) and variable resources are determined mechanically .

As revenue change, managers must decide whether and by how much the resource rate of change will remain constant, taking into account the associated adjustment costs. According to Golden et al. (2020), cost stickiness differs from the conventional notion of symmetric cost behavior in that it represents the economic asymmetries in cost responses to both increases and decreases in sales. Costs become sticky because reducing capacity will be more difficult than increasing it. The phenomenon of sticky costs is usually related to resources with commitments and costs of adjusting resources.

Resources with commitment and resource adjustment costs that is when resources are used and when resources are pooled when activities return to previous levels. Resources with high adjustments will cause a large cost stickiness. Cost stickiness captures asymmetry in managers' decisions about resources when faced with uncertainty about future activity levels and costs of adjusting resources (Karampinis et al., 2021).

The existence of uncertainty in the future will affect decision-making by management, including regarding resource decisions. Uncertainty can arise from various situations and external factors of the company. Companies obtain assets and additional benefits from the public and are expected to be able to participate in managing certain social responsibilities. For example, when sales decrease CSR costs will be reduced to maintain profits. Meanwhile, when sales increase, CSR costs will be incurred by the company as a form of response to the company's responsibility to the environment.

Social responsibility (CSR) is the focus of the company in increasing value in the eyes of stakeholders. Commitment to CSR is one of the factors weakening flexibility in cost adjustments. Therefore, it is necessary to investigate how CSR behavior will affect a firm's cost management. Several previous studies regarding CSR related to company performance, government regulation, tax avoidance, and diversity of CSR objectives (Afifah & Syafruddin, 2021; Bulan & Yuyetta, 2014; Cai et al., 2019; Faisal et al., 2020; Pratami & Juliarto, 2020; Yarram & Adapa, 2022) but not much has been researched on the impact of CSR on cost stickiness.

CSR is an integral part of business operations around the world. The company allocates large amounts of funds for activities related to CSR. CSR has a strategic and practical impact on companies (Habib & Hasan, 2019). The study of CSR is related to stakeholder theory and agency theory. Stakeholder theory argues that CSR can safeguard interests and meet institutional pressures by stakeholders. Meanwhile, agency theory argues that CSR can provide better access to information for stakeholders, maintain quality human resources (employees), and access to other resources (Greening & Turban, 2020).

In particular, managerial and authorities proprietors may also have economical, analytical, or political reasons to invest in CSR decisions. From a reputation perspective, there is an argument that managers may over-spend money on CSR activities to build their reputation and prove themselves to reveal that they are suitable worldwide citizens (Dhoraisingam Samuel et al., 2022; Sarhan & Al-Najjar, 2022). The response to these costs is often a reflection of the response to external pressures. The amount of resources a company uses in relation to their CSR activities in the short term depends on the availability

of resources that are not needed for other purposes (Habib & Hasan, 2019a). Although CSR is a voluntary activity, but it comes at a immense cost.

Previous research on sticky costs is related to agency conflicts and corporate governance (Ali et al., 2021; Riegler & Weiskirchner-Merten, 2021; Zonatto et al., 2018); certain industries (Cohen et al., 2017; Kartikasari et al., 2018; Lusiana & Kristianti, 2020; Safitri & Kristianti, 2022); managerial characteristics (Krisnadewi et al., 2022; Restuti et al., 2022); also CSR (Fan et al., 2021; Golden et al., 2020; Habib & Hasan, 2019b). There is also research using employee costs as an independent variable in research on cost stickiness (Laffranchini et al., 2020; Prabowo, Hooghiemstra, & Van Veen-Dirks, 2018). However, in previous studies it was rare to use employee costs and donations as proxies for CSR in sticky cost research. Moreover, there is still limited research on sticky costs and CSR in Indonesia, so this research is testing companies in Indonesia.

This study aims to investigate whether CSR can cause cost stickiness. Exploration of the costs of CSR, especially about cost behavior is interesting to do. In Indonesia, employees benefit from the welfare system which is also supported by government regulations. Centralized regulation by the government is stipulated in Undang-undang No. 13 of 2003 concerning Manpower. Employment costs, including remuneration and training, are part of the company's CSR to internal parties, especially employees. When sales increase, the company is expected to improve employee welfare and the workload is expanded. On the other hand, when business volume decreases, companies rarely reduce employee welfare because of negative indications. Thus, companies tend to delay the reduction of welfare costs which in turn will increase cost stickiness. From a cost-behavior perspective, it is attractive to examine whether managers change the resources allocated to CSR activities in response to changes in activity levels at the enterprises level. This is an estimated cost bearing phenomenon. The theoretical view of cost stickiness is based on the idea that several costs and investments in their CSR-related activities, arise from a managers' conscious decisions about resource usage (Habib & Hasan, 2019b; Restuti et al., 2022).

Based on this, this study uses employee welfare costs in Indonesia. This study uses data from manufacturing companies from 2015-2020 and the results are expected to show that CSR can lead to cost stickiness. The contribution of this research is this paper considers cost stickiness from a view that is not limited to economic motives but also based on CSR analysis. This paper analyzes the impact of social responsibility objectives in Indonesia so that managers understand cost behavior, and seeks that managers do not ignore the impact of CSR on cost behavior. Next, there is still limited research related to the stickiness of CSR costs in Indonesia and provides insight into future research opportunities.

2. HYPOTHESES DEVELOPMENT

The behavior of costs in the traditional view distinguishes between fixed costs and variable costs. Variable costs change in proportion to the level of production activity. The concept of costing explains the symmetrical relationship between costs and services. The imbalance in response to costs is called sticky costs. Signs of cost stability can be seen in disproportionate changes in costs changes with increasing or decreasing sales (Aurenz & Magnusson, 2021; Lusiana & Kristianti, 2020).

Sticky costs occur when costs increase proportionally when sales increase but are not followed by a proportional decrease in costs when sales decrease. This happens because the company cannot reduce costs indirectly in the short term. Anderson et al. (2003) found that increasing sticky cost behavior is the result of management decision-making, which

tend to defer efforts to reduce resources until it is certain that demand will decline in the future.

Traditionally, increasing value ratios have been attributed to cost inefficiencies and considered a sign of a negative future earnings amendment (Prabowo, Hooghiemstra, & Veen-dirks, 2018). This study uses theoretical approach of cost asymmetry theory. The theory of cost asymmetry states that costs respond asymmetrically to changes in activity because managers make deliberate decisions in adjusting resources (Ibrahim et al., 2022). Resources with higher customization costs have higher sticky costs (Eltivia et al., 2019). Sticky costs will increase when reducing capacity is difficult to avoid compared to increasing capacity, especially for committed resources. Managers have contracts for the use of resources, and these contracts are typically difficult to cancel or change.

Cost stickiness is the exception to this and the evidence has been shown in several studies (Cheung et al., 2018; Eltivia et al., 2019; Lusiana & Kristianti, 2020; Murty et al., 2021). Sticky costs on administrative and general costs will occur if there is a conflict of interest between management in adjusting costs. Management should be able to see when costs should be adjusted or left the same, to make costs efficient (Lusiana & Kristianti, 2020). This statement is supported by Setiawati et al. (2017) show that managers decided to defer cost adjustments until they believed sales volumes had declined permanently. Based on these arguments, the first hypothesis proposed is as follows:

H1: There are indications of sticky costs on general and administrative costs in manufacturing companies in Indonesia

Business developments and increasing stakeholder awareness of the company's role in social and environmental aspects have led to increased attention to the issue of social responsibility (CSR). Social responsibility is the company's ongoing commitment to participate in development based on economic, social, and environmental principles. At present, CSR has advanced as a company method to preserve business continuity (Bulan & Yuyetta, 2014). It may be stated that CSR has become a main enterprise practice worldwide. CSR is a mechanism for businesses to voluntarily combine environmental and social worries into their operations and interactions with stakeholders, past the organization's legal responsibilities. Positive assessment and publication of CSR activities by the general public are predicted that allows you to gain favorable regulatory remedy and gain support from social activists, and legitimacy from the community

In general, the disclosure of CSR activities will be in line with its social responsibility activities. Disclosure is carried out through annual reports and sustainability reporting. Disclosure of CSR has various benefits for companies, including increasing the company's reputation and support from stakeholders. Corporate Social Responsibility is basically a form of company attention towards the network and environment. But in general, CSR activities refer to how organizations get worried withinside the answer of social, economic, and environmental problems going through stakeholders and society (Zarefar & Sawarjuwono, 2021). Positive evaluation and publication of CSR activities by the public are expected to be able to obtain favorable regulatory treatment and gain support from social activists, and legitimacy from the community (Castello & Lima, 2006).

The Global Reporting Initiative (GRI) develops guidelines and standards for social responsibility reporting and disclosure. In Indonesia, disclosure of social responsibility activities is also regulated in Bapepam LK Decree No. 431/BL/2012 regarding the obligation to submit information on social responsibility activities and costs in annual

reports. However, PSAK 1 of 2013 still stipulates that social responsibility reporting is voluntary disclosure.

A study by Fan et al. (2021) stated that companies in China also experience cost stickiness based on CSR disclosure and social goals. Cost stickiness considerations are not limited to economic motives, but are also based on CSR disclosure factors. Habib & Hasan's research (2019) shows that companies that perform better in terms of CSR-related activities that are more strategic show a higher level of cost stickiness. A similar study conducted by Golden et al. (2020), show evidence that certain CSR-related activities may be associated with more cost stickiness.

H2: Corporate social responsibility affects sticky costs.

3. METHOD, DATA, AND ANALYSIS

This study employs a quantitative approach using secondary data obtained from the Indonesia Stock Exchange website (www.idx.co.id). The data used in this study are panel data. The population consisted 178 IDX listed manufacturing companies. Meanwhile, there are 110 companies that publish financial reports consecutively and have the completeness of the data needed in the study according to the variables studied. There were 5 companies that became outliers in this study so that they were removed from the research sample. The total sample that met the criteria was 105 companies, with a total of 420 observations for fiscal years 2017-2020 . The sampling technique used was purposive sampling with the following criteria: (1) IDX-listed manufacturing companies; (2) publishing of full annual financial reports for 2017-2020 period; (3) use of Rupiah currency; (4) no loss in observation year, and (5) complete data on variables used.

Hypothesis testing that tests cost stickiness in manufacturing companies for the 2017-2020 period. Cost stickiness model by Anderson et al. (2003) used log linearity between costs with sales and sales decline. This model includes control variables, namely asset intensity and GDP growth. The model used is as follows:

$$\Delta \text{Log SG\&A}_{i,t} = \beta_0 + \beta_1 \Delta \text{Log Sales}_{i,t} + \beta_2 \text{Dec}_{i,t} \Delta \text{Sales}_{i,t} + \beta_3 \text{AsInt}_{i,t} * \text{Dec}_{i,t} \Delta \text{Sales}_{i,t} + \beta_4 \text{GDP}_{i,t} * \text{Dec}_{i,t} \Delta \text{Sales}_{i,t} + \beta_5 \text{AsInt}_{i,t} + \beta_6 \text{GDP}_{i,t} + \varepsilon_{i,t}$$

Where $\Delta \text{Log SG\&A}_{i,t}$ is the log of change in selling, general, and administrative expenses and $\Delta \text{Log Sales}_{i,t}$ is the log of change in sales for firm i and year t . $\text{Dec}_{i,t}$ is a variable index that is one if the sales in year t is less than the sales revenue in year $t-1$, and zero otherwise. AsInt is total assets divided by net sales, and GDP is the GDP growth rate ($\text{GDP}_t - \text{GDP}_{t-1}$). A symmetric costs is evidenced by a significantly positive coefficient of sales and a significantly negative coefficient of Decrease $\times \Delta \text{Sales}$ (Chen et al., 2012; Weiss, 2010).

Testing the second hypothesis is the impact of CSR on cost stickiness. The model for testing this second hypothesis still uses Anderson et al. (2003) and extends it to estimate the effect of CSR:

$$\Delta \text{Log SG\&A}_{i,t} = \beta_0 + \beta_1 \Delta \text{Log Sales}_{i,t} + \beta_2 \text{Dec}_{i,t} \Delta \text{Sales}_{i,t} + \beta_3 \text{CSR}_{i,t} * \text{Dec}_{i,t} \Delta \text{Sales}_{i,t} + \beta_4 \text{AsInt}_{i,t} * \text{Dec}_{i,t} \Delta \text{Sales}_{i,t} + \beta_5 \text{GDP}_{i,t} * \text{Dec}_{i,t} \Delta \text{Sales}_{i,t} + \beta_6 \text{EU}_{i,t} + \beta_7 \text{AsInt}_{i,t} + \beta_8 \text{GDP}_{i,t} + \varepsilon_{i,t}$$

$\text{CSR}_{i,t}$ is the level of CSR as measured by three indicators: 1). $\text{CSR1} = \text{Log}(\text{employee welfare costs/sales})$, $\text{CSR2} = \text{Log}(\text{donation costs or donations/sales})$, and $\text{CSR3} = \text{Log}(\text{employee$

welfare costs+contributions/sales). As for the control variables in this study, AsInt and GDP will be used.

4. RESULTS

The main variable in the calculation of cost stickiness is the regression result between Log SG&A with Log Sales and Dec interaction with log Sales. The mean value SG&A log is 0.03133. This means that the logarithmic changes in SG&A costs from total observations averaged 3.133%. The maximum value is 0.90000 obtained by PT. Aneka Gas Industri Tbk. The minimum value of -0.84000 was obtained by PT. Jembo Cable Company Tbk. The mean value of logSale is 0.02483 with a standard deviation of 0.38201 and minimum and maximum values of -1.08000 and 1.12000. On average, higher sales indicate a higher rate of increase in SG&A expenses compared to a rate of decrease. Furthermore, the dummy decrease in sales is a dummy variable with a value of 1 if there is a decrease in sales this year and a value of 0 for others. The mean value of 0.39792 means that the sales decreased in 39.792% of the observations.

Table 1. Descriptive Statistic

	Minimum	Maximum	Means	Std. Deviation
LogCost	- 0.84000	0.90000	0.03133	0.30313
LogSales	- 1.08000	1.12000	0.02483	0.38201
CSR1	- 6.90780	8.25500	- 1.91885	2.27893
CSR2	- 11.86510	- 1.79160	- 7.48167	2.15534
CSR3	- 6.90780	8.27400	- 1.87214	2.26985
Dec	-	1.00000	0.39792	0.48998
AssetInt	- 1.21880	11.83370	3.28677	2.62947
GDP	- 0.02557	0.09129	0.05469	0.05477

Source: Processed data

This study uses control variables for GDP growth and Asset Intensity (AsInt). The average GDP growth rate is 0.05469, which means that during the observation period the mean GDP growth was 5.469%. The minimum value of GDP growth is -0.02557. This indicates that there has been a decline in GDP during the observation period. The average value of asset intensity is 3.28677, which means that, on average, the number of company assets is 328.677% greater than sales. While the lowest value is -1.21880 and the highest is 11.83370.

The next step that must be taken in using panel data is selecting the best model. The results of the model specification test are shown in Table 2. Based on these test results, this study uses a fixed effect model.

Table 2. Model Specification Test Results

Chow Test Panel	Model 1		Model 2	
	Prob.	Results	Prob.	Results
Breusch and Pagan Lagrangian	1.00000	pls	1.00000	pls
Hausman test	0.00870	Fixed Effects	0.03060	Fixed Effects

Source: Processed data

Prior to performing panel data regression, a preliminary test was performed to determine whether the model used was the best model for measuring the effect of the independent variables on the dependent variable. The preliminary tests carried out were multicollinearity and heteroscedasticity tests. A variable indicates multicollinearity if the VIF value is greater than 10. The test results show that there are no variables indicating multicollinearity because the VIF value is less than 10 for both research models. Heteroscedasticity testing was carried out using the Breusch-Pagan/Cook-Weisberg test. The results of the heteroscedasticity test in models (1) and (2), show a significant p-value at the 1% level. This means that both research models experience heteroscedasticity. To overcome heteroscedasticity, treatment is carried out using model estimates that have a constant (robust) error variance. The results of hypothesis testing can be seen in table 3:

Table 3. Hypothesis 1 Test Result

Y	Coef.	St.Err.	t-value	p-values	[95% Conf	intervals]	Sig
Sales Log	.241	.076	3.19	.002	.092	.391	***
Dec *Sales _	-.09	.148	-0.61	.545	-.384	.204	*
AsInt	.094	.043	2.17	.032	.008	.18	**
GDP	1.452	.272	5.34	0	.913	1.99	***
Constant	-.374	.147	-2.54	.012	-.666	-.083	**
Mean dependent var		0.031		SD dependent var		0.301	
R-squared		0.152		Number of obs		480	
F-test		17,942		Prob > F		0.000	
Akaike crit. (AIC)		2,921		Bayesian crit. (BIC)		19,616	

*** p<.01, ** p<.05, * p<.1

The results of testing the first hypothesis indicate the occurrence of cost stickiness, which can be shown in the $\Delta \log$ Sales variable showing the number 0.241, significant at the 1% level and showing a positive direction. The coefficient of the interaction variable Dec* Δ sales shows a significant figure of -0.09 at the 10% level and shows a negative direction. These results confirm that there is cost stickiness in manufacturing companies in Indonesia. The R squared value is 0.152 indicating that the independent variable can explain 15.2% of the variation in selling, administrative and general expenses.

The second hypothesis aims to test that cost stickiness increases with high CSR costs. The second hypothesis was tested using model (2) using panel data regression. Table 4 shows the results of testing the second hypothesis. Test results show the following coefficients: the $\Delta \log$ Sales variable shows the number 0.242, significant at the 1% level, and shows a positive number. The coefficients of the interaction variables Dec* Δ sales and CSR*Dec* Δ sales are -0.144 and -0.027 respectively and have a negative direction. The second hypothesis in this study states that cost stickiness increases with the presence of CSR. In the test, it is indicated by $\beta_3 < 0$. The significance value of β_2 from testing the first hypothesis shows the number -0.09 while the value of β_2 from testing the second hypothesis shows the number -0.144. The coefficient numbers have increased by including the CSR variable.

Table 4. Hypothesis Test Result 2

Y	Coef.	St. Err.	t-value	p-values	[95% Conf interval]	Sig
ΔSales logs	.242	.075	3.23	.002	.094 .39	***
Dec * Δ Sales	-.144	.149	-0.96	.338	-.439 .152	
CSR*Dec * Δ Sales	-.027	.027	-1.00	.319	-.08 .026	
AsInt	.082	.047	1.76	.082	-.011 .175	*
GDP	1,458	.273	5.34	0	.917 1998	***
Constant	-.339	.158	-2.15	.033	-.651 -.027	**
Mean dependent var		0.031	SD dependent var		0.301	
R-squared		0.154	Number of obs		480	
F-test		15,078	Prob > F		0.000	
Akaike crit. (AIC)		4,040	Bayesian crit. (BIC)		24,909	

*** p<.01, ** p<.05, * p<.1

The second hypothesis is supported, that cost stickiness increases with the company's CSR. The test results show that the control variable for GDP growth has an effect on cost stickiness. Likewise with the value of asset intensity with a p value of 0.082, which means that asset intensity statistically significant to cost stickiness.

5. DISCUSSION

Based on the results, shows that there are sticky costs in manufacturing companies for the 2017-2020 period. Cost stickiness increases when CSR costs are included in model two to prove that CSR increases cost stickiness in manufacturing companies. A cost is considered sticky if the increase in cost is greater than the decrease in activity change by an equivalent amount. The results of the first hypothesis test show that SG&A costs increased by 0.241% for each 1% increase in sales, but decreased only 0.09% for each 1% decrease. Likewise, the second hypothesis test shows that SG&A costs increased by 0.242% per 1% but only decreased by 0.144% per 1%. SG&A has been shown to decrease by as much as 0.027% per 1% of this, especially when CSR costs are added to the panel test. This suggests that the CSR costs involved in cost management can lead to cost stickiness. There is a positive correlation between welfare expenses and the degree of sticky cost on companies.

The degree of cost stickiness will increase if the company devotes more financial resources to employee welfare which can make it difficult for the company to adjust for decreasing costs when sales decline. The company's investment in employee welfare and donations increases cost stickiness. This study is following Golden et al. (2020) who examined performance factors and sustainable disclosure. Previous research provides evidence that cost stickiness is influenced by management policies, regarding the use of resources to adjust costs when sales decline (Prabowo, Hooghiemstra, & Van Veen-Dirks, 2018; Restuti et al., 2022). The Determinant of CSR costs is also shaped by management policies in the use of resources. CSR and cost stickiness are interrelated and integrated into achieving operational goals.

CSR engagement is long-term and has the goal of satisfying various stakeholders (Habib & Hasan, 2019a). Companies tend not to scale back their CSR investments even as

activity levels decline. However, as activity levels increase, managers can make additional investments in their CSR-related activities. The fact that an increase in activity leads the manager to expand CSR activity, but a decrease in activity leads to the manager not reducing her CSR activity. This causes CSR activities to have the possibility of cost stickiness.

Many stakeholders highly value corporate social responsibility and many studies show that companies with better performance (Aurenz & Magnusson, 2021). Companies that have good CSR performance will tend to best perform financially. Social performance has an impact on the larger social side, such as better social work, increased income and community empowerment. Responses to company activities will be a prerequisite in determining a good CSR cycle and used to improve economic and social performance (Luo et al., 2020). Few companies want to reduce CSR costs based on stakeholder satisfaction.

GDP growth reflects a country's macroeconomic conditions, which influences managers' optimism about future sales prospects (Chen, 2020). A higher GDP growth rate is a good opportunity to see the asymmetric behavior of corporate costs. The literature argues that commitment costs can increase when the economy is growing or stable. Increasing GDP conditions will create positive managerial expectations and vice versa if the economy is in a recession, managers will have negative expectations. Optimistic managers will tend to hold back on resources even when production is down (Ali et al., 2021; Zonatto et al., 2018)

Asset intensity increases the presence of cost stickiness. Prabowo, Hooghiemstra, and Van Veen-Dirks (2018) state that cost adjustments are related to corporate assets. Reducing assets when sales decline is costly because the company pays for sales and loses business-specific investments. Assets serve as a proxy for asset adjustment costs that increase stickiness cost (Mahrani & Soewarno, 2018).

6. CONCLUSION, LIMITATIONS, AND SUGGESTIONS

Conclusion

This article describes how sticky costs occurs manufacturing companies and investigates whether the involvement of corporate CSR costs causes cost stickiness. Research on the implications of the value of CSR, and controversy regarding the benefits and activities of CSR have been widely studied. There is a view that CSR has a positive impact on firm value because it provides an advantage for the company by reducing information asymmetry and conflicts between stakeholders. As companies focus on CSR costs and other costs associated with CSR activities, managers need to understand the behavior of CSR investment costs.

From the findings, we can conclude that there are sticky costs in selling, administrative and general costs, and they increase when CSR costs are added to the research model. The results also show that changes in activity levels with changes in costs are not always the same. Although the conventional view suggests that CSR changes in proportion to change in activity, in reality there are more complex patterns of cost behavior.

Limitation and suggestions

The limitation of this study is the sticky cost measurement used (Anderson et al., 2003). This model uses the interaction variable decrease (Dec) with $\Delta \log \text{Sales}$ so that measurements with the Anderson et al. model. (2003) were only able to measure the sample as a whole, not per observation. Improvements to this model have been made by He et al. (2020). The measurement model of He et al. (2020) determined the value of each

observation. The next limitation relates to the object of research. Not all manufacturing companies in Indonesia have the necessary variables for research. Future research can examine comparisons between companies in Asian countries or between developing or developed countries.

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