

# The Impacts of Cost Stickiness on the Profitability of Indonesian Firms

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**Abstract**—The objectives of this study is to investigate the existence of the sticky cost behavior of firms listed in the Indonesia Stock Exchange (IDX) and to find evidence on the effects of sticky operating expenses (SG&A expenses) on profitability of firms. For the first objective, this study finds that the sticky cost behavior does exist. For the second objective, this study finds that the stickier the operating expenses the lesser future profitability of the firms. This study concludes that sticky cost affects negatively to the performance and, therefore, firms should include flexibility in designing the cost structure of their firms.

**Keywords**—Operating Expenses, Profitability, SG&A, Sticky Costs, Indonesia Stock Exchange (IDX).

## I. INTRODUCTION

MANAGERS spend their precious times to control costs of doing businesses to ensure the growth or even the survival of their companies. To have an effective control, however, manager must understand the behavior of costs in doing businesses. Traditionally, costs are classified into variable and fixed costs depending whether they change relative to activity volume or time. Proportional adaptation of costs to sales changes guarantees superior financial performance of firms [9]. The degree of adaptability, therefore, can be used as an indicator for cost control quality of firm management and firm competitiveness in the market place.

Reference [2], however, argued that the changes in costs were not as straight forward as once believed. The costs are sticky such that costs increase more for increases in sales than they decrease for decreases in sales due to their fixity components and managers deliberately intervene with the resource-adjustment process[3]. Due to these two roots of the phenomenon, they argued that cost stickiness in the face of sales declines could be viewed as a positive signal. Investors and financial analysts may find that the sales increase in the next period will results in higher financial performance for firms that have sticky costs behavior during sales reductions in the previous period. This higher financial performance is due to higher operating leverage and information held by managers that led toward only a partial adjustment in the face

of sales reductions.

As mentioned earlier, this study has two objectives to accomplish. The first one is to investigate whether the sticky cost behavior exists in firms listed in the Indonesia Stock Exchange (IDX). The second one is to find evidence on the impact of the sticky cost on financial performance of firms. Using non-financial listed in the IDX from year 2007 to 2012 and methodology influenced by [10], it is found that the sticky cost behavior does exist and the sticky costs negatively effects the financial performance the firms.

Five sections comprise the rest of this study. Section II briefly explains the development of the hypotheses, while Section III contains the research designs used in this study. Section IV presents the empirical results. Section VI concludes the study.

## II. DEVELOPMENT OF THE HYPOTHESES

### A. Sticky Cost Behavior

Sales in one period may increase or decrease relative to previous period. When companies adjust their costs of doing business to this innovation in sales, firms must absorb adjustments costs to reduce and to increase committed resources[2]. Adjustment costs in the reduction of committed resources may include severance pay when employees are dismissed, loss of morale among surviving employees, and reduction in desired output attributes due to work team disruption, as well as disposition costs of fixed assets. When sales go back to or higher than the original level, firm must restore or even increase their eroded resources. The adjustment cost to recover resources may include the ones deal with new human resources such as hiring, learning, and development costs as well as set up costs for new fixed assets.

Reference [2] and [4] argued that costs stickiness might occur when managers deliberately decided to retain unutilized resources rather than incur adjustment costs when volume declines. Managers have tendency to assume that the sales drop is only temporary and the sales increase is permanent because in general sales is more likely to increase than decrease [5]. Consequently, firms are quicker in adding committed resources than cutting them. When volume falls managers must be sure that drops is not temporary before adjusting committed resources, otherwise they will incur adjustment costs for resource reduction and for resource recovery in a short period of time. Therefore, first hypothesis in this study relates the variability of SG&A costs with sales increases and decreases. Following [2] and [4], the first hypothesis is expressed as follows:

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H1. The relative magnitude of an increase in SG&A costs for an increase in sales is greater than the relative magnitude of a decrease in SG&A costs for a decrease in sales.

### B. Sticky Cost and Profitability

Reference [10] argued that management should incorporate the cost behavior in profit analysis while financial analysts use the behavior for estimating more accurately future costs in forecasting future earnings. Reference [1] argued that future performance of firms can be forecasted by some observable firm-specific indicators that include the ratio of SG&A costs to sales.

Changes in SG&A ratio to sales can be used as an indicator for cost control quality of firm management [9]. An increase in the ratio indicates that management is unable to adjust costs of doing business in the face of sales decline. Failure to include flexibility factor in designing operating cost structure hurts firm financial performance in the long-run. The increase in the ratio can also be interpreted that firms have difficulty in competing with their counterparts. Firms have to spend more resources in conducting their sales activities and, thus, reduce their profitability. Accordingly, investors and analysts see an increase in the cost ratio as an evidence of inefficient operations, whereas decreases in this ratio are viewed as positive signal on managerial quality and firm competitiveness.

Reference [3], however, argued that cost stickiness in the face of sales declines can be viewed as a positive signal. As mentioned earlier, cost of doing business can be characterized into variable and fixed costs. Fixed costs is relatively harder to adjust during the sales declines, thus a firm experiences an increase in the ratio of SG&A costs to sales. The higher the fixed component in the cost structures of a firm the higher is the operating leverage of that firm. Consequently, during the sales increases, greater operating leverage will be translated in greater profitability.

A partial adjustment of costs of doing business can also be a deliberate decision due to economic reasons [3]. They argued that an increase in the cost ratio is not always a sign of managers' inability to control costs. Managers keep excess capacities with an intention to maximize firm value. In general, sales are more likely to increase than decreases [5] and the adjustment costs are higher in the downward direction than in upward direction [8]. By keeping unutilized resources, managers in fact are managed their firms properly and sending positive signals regarding managers' expectations of future firm performance.

Based on the arguments above there are two competing effects of cost stickiness to profitability. The first one states that the effect is negative and the second one is positive. Which effect is the stronger one is an empirical question. Therefore, the hypotheses regarding the effects on cost stickiness on firm profitability is as follows:

H2. An increase in the ratio of SG&A costs to sales is related with a decrease in future firm profitability.

H3. An increase in the ratio of SG&A costs to sales is related with an increase in future firm profitability.

### III. DATA & METHODOLOGY

There were 476 firms listed in the IDX by the end of 2012 and 74 of them were financial company. The initial sample in this study only consists of non-financial firms. Annual reports of these 402 non-financial firms for year 2007, 2008, 2009, 2010, 2011, and 2012 must be available to be firms could be included in the sample. There were 154 firms whose annual reports were complete for the entire 6-year period. To be in the final sample, firms must also experience sales decrease and increase for the period between 2007 and 2011. There were 77 firms whose sales kept increasing and 6 firms whose consistently decrease for the entire period. This last reduction resulted in the sample consists of 165 firms. For analysis, the data taken from the annual reports of these firms were net sales, SG&A expenses, total assets, total liability, and earnings per share (EPS), share price.

Stickiness of operating expenses of each firm was estimated by a variation of measurement proposed in [10] as follows:

$$\text{Sticky}_i = (\text{SG\&A/Sales})_{i\check{T}} - (\text{SG\&A/Sales})_{iT}, \check{T}, T \in \{t-5, \dots, t\}$$

where:

SG&A = sales, general, and administrative expenses of firm i

Sales = net sales of firm i

t = year 2011

$\check{T}$  = the closest year to 2012 (time t+1) where sales decreases from the previous year

T = the closest year to 2012 (time t+1) where sales increases from the previous year

The first test in this study was conducted to investigate the existence of sticky cost behavior in the sample firms. If the cost is sticky then the measurement above is a positive number. The stickiness measure is tested using the univariate tests.

The second test in this study was conducted to assess the relevance of signals through sticky cost behavior during the sales decrease in the sample firms. The statistical model for the test was derived to reflect the findings in [6] that inclusion of different cost behavior during periods in which revenue increases and when revenue decreases improves profitability forecasting. The dependent variable in the model is the future changes in a ratio of EPS to share price in 2012 (NEPS). The main independent variable is the cost stickiness (Sticky) measurement above. The model also includes some control variables. Those control variables are ratio of EPS to share price in 2011 (PEPS), Leverage, Size, and Dummy variables to represent firms' industries. The formal model is expressed as follows:

$$\text{NEPS}_i = C + \beta_1 \text{Sticky}_i + \beta_2 \text{PEPS}_i + \beta_3 \text{Leverage}_i + \beta_4 \text{Size}_i + \sum B_j \text{Industry}_i + \varepsilon_i$$

where:

NEPS = a ratio of EPS/share price in year 2012

Sticky =  $(\text{SG\&A/Sales})_{i\check{T}} - (\text{SG\&A/Sales})_{iT}$

PEPS = a ratio of EPS/share price in year 2011

Leverage = a ratio of total liability/total asset in year 2011

Size = log of total assets in year 2011

Industry = a dummy that represent a firm's industry.  
There are 8 non-financial industries in the IDX  
 $\varepsilon_i$  = error term  
j = a notation for the dummy that goes from 5 to 11  
(7 dummy variables)

In conducting the univariate tests and estimating the parameters of the regression models above, the extreme observations for each variable were eliminated [7]. To do so, the highest and the lowest observations were excluded from the analysis. This procedure resulted in a further reduction of 10 sample firms. Thus, the final sample used in this study consisted of 155 firms.

#### IV. EMPIRICAL RESULTS

Table I shows descriptive information about main variables in this study. The mean value of a ratio of EPS to share price in 2012 (NEPS) and 2011 (PEPS) were -0.04 (median = 4%, standard deviation = 0.38) and -0.03 (median = 0.04, standard deviation = 0.44) respectively. Table I also show that the ratio of SG&A is 0.06 (median = 0.01, standard deviation = 0.02), which means on average this expense ratio is higher during sales decrease than sales increase. These figures provide a preliminary indication that the SG&A cost is sticky that the cost adjustment is not symmetric across sales changes. The table shows that around half of companies' assets was financed by using debt (mean = 0.50, median = 0.48, standard deviation = 0.30). Finally, the mean value of total assets of firms in the sample was IDR 5,037.57 billions (median = IDR 1,561.254 billions, standard deviation = 8,235.00 billions).

Table II presents the results of the univariate tests on the difference between SG&A ratio during sales decreases and increases. The mean difference in the ratios is 0.06 which means the ratio is higher when firms experience sales decreases. The t-test results in the statistics of 3.45, which indicates the difference is statistically significant at less than the 1% level. Table II also shows that 78% of the difference is positive numbers and the rest (22%) is negative figures.

TABLE I  
DESCRIPTIVE STATISTICS

Variable	Mean	Median	Standard Deviation
NEPS	-0.04	0.04	0.38
PEPS	-0.03	0.04	0.44
Sticky	0.06	0.01	0.02
Leverage	0.50	0.48	0.30
Size, IDR billion	5,037.57	1,561.25	8,235.00

The binomial test on the difference in the proportion reveals that it is also statistically significant at less than the 1% level. Both tests confirm that firms in the sample have higher SG&A ratio during sales decreases than increases. Previous study provides an explanation to the phenomenon of the cost stickiness such that fixity components and managers deliberately intervene with the resource-adjustment process resulted in costs increase more for increases in sales than they decrease for decreases in sales [3].

The second test is to find the relationship between the

tendency of firms to have sticky costs in their cost structure and the future profitability forecasting. The regression model was constructed to include proxy for cost stickiness along with some control variables that might affect the future profitability. Table III contains the results of the OLS regression analysis using next year EPS scaled by share price as the dependent variable. The F-statistic for the model is 6.29, which is statistically significant at less than the 1% level.

TABLE II  
UNIVARIATE TESTS ON COST STICKINESS

N	Test	Desc.	Value	Stat.	Sig.
155	t-test	Mean	0.06	3.45	0.00
		Standard Deviation	0.22		
	Binomial Test	Positive	0.78	0.00	
		Negative	0.22		

These results reveal that the model has been designed properly. The adjusted R-squared showed that the independent variables in the model have a power to explain around 28% of the variations in the ROA, which means that the model is quite powerful given that the model employed cross-sectional data.

TABLE III  
REGRESSION ANALYSES ON COST STICKINESS

Variable	Expected Sign	Coeff.	t-stat
Constant	?	.99**	2.22**
Sticky	+/-	-.17*	-1.32*
PEPS	+	.18***	2.76***
Leverage	-	-.31***	-3.58***
Size	+	-.03*	-1.845*
Agriculture	?	-.08	-.66
Mining	?	.06	.58
Basic Industry	?	-.07	-.76
Miscellaneous	?	-.04	-.35
Construction	?	-.04	-.31
Infrastructure	?	-.34***	-2.95***
Trade	?	-.02	-.265
<i>F-statistic</i>		6.29***	
<i>Adjusted R-squared</i>		0.28	

\*, \*\* and \*\*\* denote statistical significance at the 10%, 5% and 1% level respectively and is based on a one-tailed test if the sign of the coefficient is as expected, and is based on a two-tailed test otherwise.

Table III also presents results of estimating the parameters of each independent variable. The estimated coefficient on the cost stickiness ( $\beta_1$ ) is -0.17 with the t-statistic of 1.32. The sign is negative and the one-tailed test reveals that it is statistically significant at the 10% level. These results provide evidence that failure to proportionately adjust SG&A costs downward to decrease in sales is unfavorable indicator for future profitability. This finding implies that cost stickiness in the sample firms reflect inability on the part of managers to adapt to changes in their environment. The findings that cost stickiness provides negative signal regarding future profitability is in support of the second hypothesis that an increase in the ratio of SG&A costs to sales is related with a decrease in future firm profitability as implied in [9].

With regard to the estimated coefficients on the other

variables, the coefficients of previous year EPS (PEPS) and Leverage have signs as expected and statistically significant at the 1% level. The sign of Size, however, is negative and significant at the 10% level. This finding implies that bigger firms have lower profitability that does smaller firms. Only one of the coefficients of the Dummy Industries, on the other hand, is significant at the conventional levels. That industry is Infrastructure and it has negative sign which is significant at the 1% level. Firms in Infrastructure, therefore, have lower future profitability while the rest of industries are comparable with that of Consumer Good (based industry).

#### V. CONCLUSION

The objectives of this study is to investigate the existence of the sticky cost behavior in firms listed in the Indonesia Stock Exchange (IDX) and to find an evidence on the effects of cost stickiness on the future financial performance. This study found that the sticky cost behavior does exist and the stickiness of costs provides negative effect on future financial performance of the firms. The findings imply that profitability firms depend, partly, on the ability of their managers to adapt their costs of doing business to the changes in the environment. Designing cost structure of firms should include a consideration regarding the volatility of sales. Firms with more volatile sales should design their cost structure to be more flexible for changes in the future.

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