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THE EFFECT OF INTELLECTUAL CAPITAL AND COMPANY SIZE ON STICKY COST (Empirical Study of Manufacturing Companies in Indonesia Stock Exchange)

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Abstract

Sticky cost behavior becomes very important to know because sticky cost behavior can give a bad influence on the company in terms of obtaining the desired level of profit. By obtaining information about sticky cost behavior, it is expected that company management can be more careful in planning, controlling and making policies or decisions. This study aims to analyze and explain: (1) The effect of Intellectual capital on sticky cost and (2) the effect of company size on sticky cost. The population of this research is the manufacture companies listed on the Indonesia Stock Exchange (BEI) in 2014-2017. The total samples of this research are 46 companies. Technical analysis of data in this study is using WarpPLS 5.0. The results of data analysis prove that: (1) Intellectual capital has no significant effect on sticky cost, (2) company size has a significant effect on sticky cost.

INTRODUCTION

Company management needs to have a good understanding of cost behavior. Cost behavior is how a cost will respond to changes in the volume of company activities. If there is an increase or decrease in activity volume, whether costs will change proportionally or not, or maybe even not change at all. Based on activity, the pattern of cost behavior is classified into two namely *fixed cost* and *variable cost*. *Fixed costs* are constantly unchanged and are not affected by the level of change in activity volume. While the *variable cost* changes proportionally to the level of change in activity volume.

In certain conditions, an imbalance can occur between the cost response to changes in the volume of activity, where changes in costs occur disproportionately when the activity volume rises and when the activity volume falls. This imbalance is called *sticky cost* behavior. *Sticky cost behavior* is a condition in which the increasing costs occurred when corporate activity increased is greater than the losses when corporate activity decreased in the same amount (Anderson, Banker & Janakiraman, 2003).

Sticky cost behavior becomes very important to know because *sticky cost* behavior can give a bad influence on the company in terms of obtaining the desired level of profit. By obtaining information about *sticky cost* behavior, it is expected that company management can be more careful in planning, controlling and making policies or decisions.

Several previous studies investigated the influence of the behavior of sticky cost. Venieris, Naoum, & Vlismas (2015) and Mohammadi & Taherkhani (2017) examine the effect of *Intellectual capital* on *sticky cost* behavior on sales, administration and general costs. The results of the study found that *Intellectual capital* has a negative influence on *sticky cost* behavior. This can be interpreted that by increasing *Intellectual capital* *sticky cost* behavior can be reduced. This study also found that managers of large companies allow *sticky costs* in the current sales, administrative and general costs because they have high expectations for future sales (Venieris et al., 2015) (Mohammadi & Taherkhani, 2017). Thus, *sticky costs* on sales, administrative and general costs currently reduce current profits. This result is also supported by previous research that *Stickiness* will be even greater when managers are increasingly optimistic about sales increases in the future (Yasukata & Kajiwara, 2011).

This research wants to reexamine the effect of Intellectual capital on the behavior of sticky cost. This study added company size as a variable to affect sticky cost. The use of company size variable is divided into three categories, large, medium and small (Argiles & Blandon, 2009). Likewise with other previous studies which said that one of the factors that influence sticky cost behavior is company size (Weiss, 2010). Based on the explanation stated above, the purpose of this study is to determine the effect of Intellectual capital on sticky costs and to determine the effect of company size on sticky costs.

Asymmetric Cost Behavior or *sticky cost* was first introduced by Malcom (1991) who found that some costs tend not to be easy to adjust because of the high fixed costs. *Asymmetric cost behavior* arises when there is asymmetric behavior in making resource adjustments, which tends to slow down the process of decline compared to the process of increasing resource use. The role of managers in adjusting resources when responding to changes activity is related to changes in demand. Managers can recognize and control *sticky cost* behavior by considering the sensitivity of changing costs (Anderson et al., 2003)

Costs will become sticky when the manager thinks about the sales increase will occur in the future. When managers think sales increases will occur in the future, then resources not used in this period are maintained so that they can be used to increase sales in the future despite a decline in sales at this time, so that these resources have a negative impact of earnings for this period (Yasukata & Kajiwara, 2011).

Intellectual capital is an intangible asset in the form of information and knowledge resources that are useful for increasing competitiveness and improving company performance. *Intellectual capital* is knowledge and abilities owned by a company, such as an intellectual community organization or professional practice and *Intellectual capital* represents high-value resources and can act on the knowledge possessed (Moeheriono, 2012). Based on the understanding above, it can be seen that *Intellectual capital* is the main capital owned by a company or organization that comes from the knowledge, abilities, skills and expertise of its employees, including technology or the process of transforming knowledge in the form of intellectual assets and will form other capital and value so that it can create a value for the company. *Intellectual capital* can be classified into three categories, namely: *Human Capital*, *Structural Capital* or *Organization Capital*, and *Relational Capital* or *Customer Capital* (Moeheriono, 2012).

Human capital is very important in *Intellectual capital*. In this capital, there is a source of innovation and progress, but it is very difficult to measure. Human *capital* reflects the collective ability of a company to produce a wide range of the best solutions for the development and progress of the company is derived from the knowledge possessed by those that exist therein. Therefore, it can be seen that *human capital* comes from the knowledge, experience, expertise, and skills owned by people who are part of a company. *Human Capital* can increase if the company can utilize or use the knowledge held by its employees. Some things that can be measured in *human capital* include, among others, training programs, experiences, competencies, recruitment, mentoring, learning programs, as well as individual potential and personality (Moeheriono, 2012).

Structural capital or *organizational capital* is defined as the ability of the organization or company to meet all process activities and structures that can support employees to produce optimal business performance total sums, such as operating company systems, manufacturing processes, organizational culture, management philosophy and all forms of intellectual property owned by the company. If the level of individual intellectuality is high, but it is not followed by a good organizational system and procedure in a company, then *Intellectual capital* cannot obtain optimal performance results and the potential is not maximally utilized (Moeheriono, 2012).

Customer capital is a good and harmonious relationship between the company and parties outside the company environment as partners who can add value to the company (Moeheriono, 2012). For example the relationship between a company and a supplier, where the supplier is a party that can meet the needs of raw materials or semi-finished materials (for manufacturing companies) that are useful for the production process that results can be sold to customers. Likewise for trading companies need suppliers to meet the needs of stock or inventory of goods to be resold to consumers. A good relationship with consumers or customers is equally important to maintain because it is the customer who can help the company in increasing revenue. The more customers a company has, the higher the level of income it will receive.

The size of the company is defined as the size of the company in terms of the value of equity, sales value or asset value. The size of the company can be divided into three categories, namely large companies, large companies (medium) and small companies (small). The main factors affecting the size of the company are the number of total assets, the number of sales, the amount of market capitalization. Besides, the size of the company can also be determined by the number of workers, market value of shares, log size, etc. which are all highly correlated (Riyanto, 2008).

To take measurements of the size of the company is to describe the total asset size of the company, where the greater the larger the asset is usually the company is great and large too (Prasetyantoko, 2008). Whereas there is another opinion which states that the size of the

assets used to measure the size of the company. The size of these assets is measured as a logarithm of the total assets owned by the company (Hartono, 2013).

Hypothesis Formulation

Intellectual capital is an information and knowledge resource owned by the company in improving company performance. The high *Intellectual capital* which is owned by the company shows that information and knowledge are also many, including in this case the information and knowledge about their behavior indicative of *the sticky cost* of the company. Thus, the higher the level of *Intellectual Capital*, the higher the company’s ability to reduce the level of *sticky cost* behavior.

H₁: *Intellectual Capital* influences *Sticky cost* behavior

One of the factors that influence the behavior of *sticky cost* is the size of the company (Weiss, 2010). The size of the company describes the size of a company, which can be divided into three categories, namely large, medium and small companies. Companies with large scale certainly incur large costs as well, and certainly greater when compared to medium or small scale companies. In large companies, there will be an indication of an increasingly large *sticky cost* behavior. Thus it can be concluded that the larger the size of the company, the *sticky cost* behavior will be even greater.

H₂: *Firm size* influences *sticky cost* behavior

METHOD

The population in this study was manufacturing companies listed on the Indonesia Stock Exchange (IDX) for the period 2014-2017. The technique of collecting data was done by using *purposive sampling method*. The sample criteria used were manufacturing companies that publish financial statements in a row in the period 2014-2017 and manufacturing companies that have complete data during the study period. Of 124 companies registered during the observation period only 46 companies whose data could be processed so that with a 4 year observation period the number of samples of this study was 184.

In this study, the data used were secondary in the form of annual financial reports from manufacturing companies listed on the Indonesia Stock Exchange in the period 2014-2017. To obtain or collect data was made with the technique of *loading* the Internet of data collection by downloading the financial statements contained in the official website of the Indonesia Stock Exchange (www.idx.co.id). The data in this study contained in the financial statements year period 2014 -2017, ie data *Intellectual capital* which consists of three components such as human capital, organization capital, and customer capital as well as the size of the company that seen from total assets.

Variable Measurement

Variable *Sticky cost*, the dependent variable, was measured by using a research model developed by [1] as follows:

$$\text{Log} [SG\&A_{i,t}/SG\&A_{i,t-1}] = \beta_0 + \beta_1 \log [Sales_{i,t}/Sales_{i,t-1}] + \beta_2 * DECRDUM_{i,t} * \log [Sales_{i,t}/Sales_{i,t-1}] + \varepsilon_{i,t} \dots \dots \dots (1)$$

In which:

- SG&A_{i,t} = Selling, General, and Administrative costs (SG&A) of the company i in period t
- SG&A_{i,t-1} = Selling, General, and Administrative costs (SG&A) of the company i in period t-1
- Sales_{i,t} = Net sales of the company i in period t
- Sales_{i,t-1} = Net sales of the company i in period t -1
- DECRDUM = Variabel dummy

Intellectual capital is the first independent variable used in this study as measured by *Value Added Intellectual Coefficient* (VAIC). VAIC is a method of measuring the intellectual

ability of a company that provides convenience in calculating, standardized, and the basis of Pulic (2000) consistency, this measurement allows to conduct an effective comparison analysis with other companies, the data used in VAIC calculations are obtained from financial statements. The VAIC calculation procedure can be carried out as follows:

$$VAIC_i = CEE_i + HCE_i + SCE_i \dots\dots\dots (2)$$

In which:

- VAICTM_i = VA Intellectual capital coefficient of company i
- CEE_i = Capital employed coefficient of company i
- HCE_i = Human capital coefficient of company i
- SCE_i = Structural capital coefficient of company i

The second independent variable used is the firm size. Company size is the scale of the company which can be seen from the total assets owned by the company at the end of the year. In this study, company size is divided into three groups of companies, namely *small*, *medium* and *large* with the provisions that the average total assets of *medium-sized* companies will be greater than the average total assets of *small-sized* companies. The average total assets of *large-sized* companies are larger than the average total assets of *medium* companies. The formula for finding total assets is as follows:

$$Size = Ln \text{ Total Aset} \dots\dots\dots (3)$$

Data Analysis Techniques

Hypothesis testing is used to explain the direction of the relationship between the independent variable and the dependent variable. The test is performed by using path analysis (path analysis) on a model that has been created. The WarpPLS 5.0 program can simultaneously test complex structural models so that the path analysis results can be seen in one regression analysis. Correlation results between truck cons are measured by looking at the *path coefficients* and their level of significance which are then compared to the research hypothesis.

A hypothesis can be accepted or must be rejected statistically based on calculation through the level of significance. Usually, the significance level is set at 10%, 5%, and 1%. The level of significance used in this study was 5 %. The following basic decision making namely:

- p-value ≥ 0.05, then Ho is accepted
- p-value < 0.05, then Ho is rejected and Ha is accepted.

RESULTS AND DISCUSSION

Descriptive Statistical Analysis

The results of statistical tests of the three variables used in the study are presented in Table 1. For *Intellectual Capital* variables with a total data of 184, the minimum value of -37.22, the maximum value of 389.85, an average of 29.2173, and a standard deviation of 46.01309. For the company size variable, the amount of data is 184, the minimum value is .00, the maximum value is 1.07, the average is 5.6343, and the standard deviation is 10.94064. And for the *sticky cost* variable with the amount of data 184, the minimum value is -.92, the maximum value is .55, the average is .0126, and the standard deviation is .10025.

Table 1. Descriptive Statistics Results

	N	Minimum	Maximum	Mean	Std. Deviation
<i>Intellectual Capital</i> (X1)	184	-37.22	389.85	29.2173	46.01309
Size (X2)	184	.00	31.07	15.6343	10.94064

<i>Sticky cost</i> (Y)	184	-.92	.55	.0126	.10025
Valid N (listwise)	184				

Source: WarpPLS Program Output (2019)

Evaluation of Structural Model (Inner Model)

The next stage is to evaluate the structural model (*inner models*) which includes test model fit (model fit), *path coefficient*, and R^2 . In the model compatibility test, there are 3 test indices, namely the average *path coefficient* (APC), the average *R-squared* (ARS) and the average *variance factor* (AVIF).

Table 2. General SEM Analysis Result

	<i>Indeks</i>	<i>p-values</i>	<i>Description</i>
APC	.101	.041	
ARS	.036	.155	
AVIF	1.011		acceptable if ≤ 5 , ideally ≤ 3.3

Source: WarpPLS Program Output (2019)

The table above shows that the APC value has met the criteria because it has a *p-value* of .041 because the condition is *p-value* $< .05$. Furthermore, based on the data the AVIF value is 1.011, AVIF has fulfilled the criteria because the AVIF value below 5 is a requirement to fulfill the criteria. From these data, it can be concluded that the *inner model* is acceptable, but not significant.

Hypothesis Test Results

Testing this hypothesis is also intended to prove the truth of the alleged research or hypothesis. The results of correlations between constructs are measured by looking at the *path coefficients* and their level of significance which are then compared to hypotheses one through three of the research hypothesis. The level of significance used in this study was 5%. The following is a picture of the research model, along with the results that have been obtained based on data processing by using the WarpPLS 5.0 program:

Table 3. Path Analysis Result

	<i>Path Coefficient</i>	<i>P-values</i>
<i>Intellectual Cost</i>	.011	.442
Size	.190	.004

Source: WarpPLS Program Output (2019)

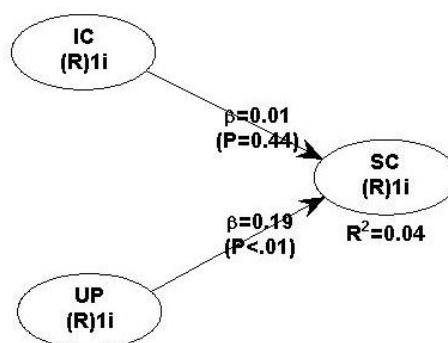


Figure 1. Research Paradigm

Source: WarpPLS Program Output (2019)

Hypothesis 1 Testing: Effect of *Intellectual Capital* on *Sticky cost*

Based on Table 3 on the effect of *Intellectual Capital* (X 1) against *Sticky cost* (Y), it appears that the significant value of .442 is greater than the error rate (alpha) of .05. From the results of the first hypothesis testing, then the decision H1 is rejected and H0 is accepted, the *Intellectual Capital* has no significant effect on *Sticky Cost*. This means that the level of *Intellectual Capital* owned by the company will not affect *Sticky Cost* behavior.

A company will be effective if the management of its human resources is managed as well as possible. Human resources will determine whether the company's goals can be achieved appropriately and well. Human resources are reflected in employees who are nothing but movers, initiators, and decision-makers for the sake of the company's sustainable existence. Assets owned by companies that were originally in the form of assets are now *intangible assets*, namely *Intellectual capital* or intellectual capital that contains elements of thought owned by employees (AAK Dewi, 2012).

Intellectual capital has an important and strategic role in the company. The creation of value is intangible (*intangible value creation*) should get sufficient attention because it has an enormous impact on company performance such as value creation by utilizing all the potential of the company both employees (*human capital*), physical assets (*physical capital*), and *structural capital* (AAK Dewi, 2012).

With the increasing number of business competition, both nationally and internationally managers in the company need information about accounting management. Information that can be obtained by managers from accounting management is the pattern of past cost behavior. This information is considered important because this information can assist managers in predicting accurate costs regarding future costs for making cost planning and decision making (Afiffah, Murdayanti, Purwohedi, & Jakarta, 2018).

Cost behavior explains the relationship between costs and activity (Afiffah et al., 2018). The magnitude of the cost reduction due to a decrease in net sales is smaller than the magnitude of the increase in cost caused by an increase in net sales equivalent (Weiss, 2010). This cost behavior is called *sticky*. *Sticky costs* occur because when net sales fall, managers choose to keep using unused resources rather than adjusting (reducing) resources. The form of unused resources when net sales decline is unemployed employees (Windyastuti, Sunaryo, & Hastuti, 2017).

Stickiness costs indicate a manager's *deliberation* in making decisions about resource use (Kama & Weiss, 2010). To increase or decrease amount of resource use, the manager must calculate carefully. Managers must bear the *adjustment cost* along with changes in the amount of resource use due to changes in net sales (Windyastuti et al., 2017). At the time of its net sales, a form of adjustment costs includes costs for the dismissal of workers (*firing cost*). Meanwhile, when net sales increase, the cost of adjustment includes the recruitment and training costs of new workers (*hiring and training costs*).

When net sales increase, managers immediately increase the number of workers. The cost of adjustments in the form of recruitment and training costs for new workers is relatively small compared to severance pay when the company terminates employment. An increase in the number of workers increases costs that must be borne by the company. Conversely, when net sales decline, companies must reduce the scale of production (Windyastuti et al., 2017). Declining production scale results in managers having to reduce the number of workers. However, labor regulations make it difficult for managers to reduce the number of workers. The company must bear the costs of adjustment in the form of severance pay to workers affected by the termination of employment (FLE). Payment of severance pay requires relatively large funds.

The cost of adjustment makes it difficult for managers to reduce the number of workers. The cost of adjustment when reducing the number of resources exceeds the cost of

adjustment when adding resources (Banker & Byzalov, 2014). The number of adjustment costs incurred when net sales fall causes managers to minimize the number of layoffs so that the reduction in the number of workers is relatively small. Thus when net sales fall, the costs borne by the company are also not much reduced. This condition results in *sticky costs*. The magnitude of the cost reduction due to a decrease in net sales is smaller than the magnitude of the cost increase caused by an increase in net sales equivalent (Kama & Weiss, 2010).

Managers want to maximize the number of resources under their supervision. The manager will immediately increase the number of resources when net sales increase. Conversely, when net sales decline managers are reluctant to reduce the number of resources. The cost of adjustment when reducing the number of resources is greater than the cost of adjusting when adding resources. This causes managers to be reluctant to reduce the number of resources (Windyastuti et al., 2017).

Hypothesis 2 Testing: Effect of Company Size on *Sticky Cost*

From Table 3, about the effect of Company Size (X2) on *Sticky cost* (Y), it can be seen that the significance value is $< .004$ and the error rate (alpha) is $.05$. From the results of the second hypothesis test, then the decision H2 is accepted and H0 is rejected, ie the size of the company has a significant effect on *sticky cost*. That is, the size of a company affects the high level of *sticky cost* behavior.

This explains that company size is an increase from the fact that large companies will have large market capitalization, large book values, and high profits, whereas small companies will have small market capitalization, small book values and low profits (ASM) (Dewi & Wirajaya, 2013). The size of the company (size) describes the size of a company that is indicated by total assets, number of sales, the average level of sales and average total assets. The greater the total assets, the greater the size of a company. Increasingly the amount of total assets of are getting bigger when the capital was nurtured. In other hand, the more sales, the more also the velocity of money in the company will be.

Company size is the average of total net sales for the year up to several years, in this case, sales are greater than variable costs and fixed costs, then the amount of income before tax will be obtained, conversely if sales are smaller than variable costs and fixed costs then the company will suffer losses (Brigham & Houston, 2001). Companies that have a greater *sticky cost* will show a decline of profits when the level of activity decreased in comparison with companies that its *sticky cost* is smaller. This is because the more sticky resulting from adjustments costs less when the level of activity decrease because of fewer cost savings.

Besides, with the increase in company assets, the management of company assets will be even greater. Thus, causing the cost of managing company assets will also increase. Larger companies certainly have a greater total cost compared to medium and small ones. Therefore, when there is an indication of *sticky cost* behavior on the cost of asset management, the magnitude of *sticky cost* behavior will be even greater when the size of the company gets bigger (Sidabutar, Harahap, & Nasution, 2018).

CONCLUSION

The conclusions in this study indicate that *Intellectual Capital* partially has no significant effect on *sticky costs* but company size partially has a significant effect on *sticky costs* on manufacturing companies listed on the Indonesia Stock Exchange. This research has the limitation that needs to be considered by future researchers: (1) This study is limited to the manufacturing companies, so there is a lack of accurate research if it is aimed at a wider population. (2) This study is confined to the variable *intellectual capital* and size of the company only since many other factors also affect *sticky cost*. Based on the research that has been done, some suggestions can be given: (1) For further research can be on various

sectors of the company on the Stock Exchange and (2) For further research can use more variables.

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