Effect of Prevention Cost and Appraisal Cost on Sales Growth

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Abstract

This study aims to determine the effect of prevention costs and appraisal costs on sales growth PT. Katingan Timber Company. This research uses primary data by visiting PT Katingan Timber Celebes. The population in this study is all employee PT. Katingan Timber Company. The community selected 150 samples in the production department. The analytical method used is multiple linear analysis. This study's results indicate that: prevention costs and appraisal costs simultaneously have a significant effect on sales growth. Partially, prevention costs have a positive and significant impact on sales growth. It can be seen a 0,003; significance level of less than 0.05. The variable cost of assessment has a positive and significant effect on sales growth, a \$ 0.003 significance level of less than 0.05. Prevention costs and appraisal costs only contribute to the variation changes the sales growth by 27,3%. While the rest of 72,7% influenced by other variables that are not included in this study.

1 Introduction

In today's global era, producers compete freely to introduce their products to consumers (Desai, 2008). In offering a product, producers use various strategies to increase quality and productivity according to market demands and needs. The quality of a product received by consumers is one of the most important strengths that determine a company's success, development, and sustainability. Sales is an essential activity in the company; sales are a source of income for the company. The company's goal to obtain optimal profit from sales is the most crucial element in maintaining its survival. The problem is how to make the internal sales control function effectively; to overcome it, an adequate sales accounting information system is needed. Quality improvement will be successful if the company implements a quality control system. Reasonable control will produce good quality. Quality costs are incurred or will occur due to low quality (costs associated with creating, identifying, repairing, and preventing damage). Research shows that the quality cost in American companies accounts for 20-30% of sales, while experts explain that the optimum level of quality cost is only 2 - 4% of sales. 2- 4% of sales represent an untapped golden opportunity. Improving quality can result in significant improvements.

To achieve a quality product, the company must always supervise and improve its products to obtain optimal final results. Increased quality will reduce the occurrence of damaged products, resulting in decreasing costs

and ultimately increasing profits. Expenses incurred for efforts to improve product quality are called quality costs. Quality costs can be divided into four types: appraisal costs, preventive costs, internal failure cost, and external failure cost.

Research conducted by Arliany (2015) states that the cost of quality on sales has a powerful effect, namely 80.9%. However, according to Stewart (2006), companies that can maintain their products and services will increase their sales volume. Among the four types of quality costs, only two quality costs can be controlled by company management. These costs are prevention costs and appraisal costs. Prevention costs are related to efforts to prevent internal or external failures to minimize internal and external failure costs. Appraisal costs are costs associated with determining the degree of confirmation of quality requirements. Because the cost of quality is greatly influenced by the value of prevention and the cost of the appraisal, all efforts made by the company must pay attention to these two types of expenses. By achieving the optimum level of quality costs, the maximum level of product quality will also be performed (Noviyanti, 2004).

This research was conducted at PT Katingan Timber Celebes (PT. KTC), a company engaged in industrial forestry whose product is plywood. This company has been established since 1984 and has several branches in several regions. This company has a goal to increase sales volume and maintain its position to survive in the competition. The efforts made by the company in achieving these goals are to improve product quality by controlling to minimize damaged products. Damaged products can result in inefficient product costs; this causes consumer dissatisfaction with the product quality that is not following the order.

Prawirosentono (2007) states that the cost of product quality is an activity to identify all costs that arise in connection with efforts to change lousy quality products into the right quality products. Meanwhile, the cost of quality is the cost that occurs or may occur due to low quality. Prices are generally associated with creating quality, identifying repairs, and preventing damage (Samryn, 2015). Blocher (2000) states that prevention costs are costs incurred to prevent product quality defects from occurring. The elements of prevention costs such as (quality training costs, planning costs, equipment maintenance costs, and supplier guarantor costs). Appraisal cost is associated with measuring, evaluating, auditing products and materials purchased following quality standards for product manufacturing (Blocher, 2000). According to Ariani (2004), appraisal costs are the costs that must be incurred for testing the products produced. The elements of the appraisal cost are (Costs of tests, costs of testing equipment, and costs of operators).

In a business context, Crosby argues that zero defects will increase profits and cost savings. Crosby has gone to great lengths to emphasize that "zero defect" is possible, even if it is challenging. Zero defect does not mean that mistakes never happen but aims to reduce and minimize the number of faults and errors that occur in a process and do everything right from the start. Its primary purpose is to reduce the defect rate to zero. A decrease in quality costs, followed by an increase in quality, will increase company profits (Hansen & Mowen, 2007). A rate increase can be seen from the value of the quality cost component; that is when the importance of prevention and appraisal cost increases while the cost of internal failure and external failure decreases.

According to Gaspersz (2007), several world-class companies use quality costs to measure the success of their continuous work improvement program. This can relate to other measures such as 1) Quality cost compared to sales level (percentage of the total quality cost to sales level). 2) Quality cost compared to profit (the portion of the total quality cost to profit value). 3) The cost of quality is compared to the cost of goods sold. 4) Internal failure costs are compared to total production costs (percentage of internal failure costs to total production costs). External failure costs are compared to the sales level (the portion of external failure costs to the sales level. Swastha & Handoko (2001) state that revenue growth in sales is an essential indicator of a company's products or services. The revenue generated from sales will be used to measure the rate of sales growth. Thus it can be seen that a company can be said to be experiencing growth in a better direction if there is a consistent increase in its main operating activities. The sales growth rate calculation is to compare the sales at the end of the period with the sales made in the base year (sales of the previous period). If the comparison percentage is getting bigger, it can be concluded that the sales growth is getting better or better than the last period.

H1: Cost of prevention have a positive effect on sales growth at PT. Katingan Timber Celebes.
H2: Appraisal costs have a positive effect on sales growth at PT. Katingan Timber Celebes.

2 Research Method

This research is quantitative research with a case study approach. The research instrument was a questionnaire or a list of questions using a Likert scale. The total employee population at PT Katingan Timber Celebes (PT. KTC) is 1,400 people. From this population, 150 people were selected from the production department because they fit the criteria to be achieved in Sugiyono (2010) study. In this study, we used quantitative data in the form of scores or scores on the answers given by respondents to the questions contained in the questionnaire, which were obtained directly from the primary source through filling out questionnaires by employees of PT Katingan Timber Celebes (PT. KTC) in the production department. The variables used in this study were the variable prevention costs (X1) and appraisal costs (X2) as the independent variable, and the sales growth variable (Y) as the dependent variable.

The validity and reliability test was carried out to test whether the questionnaire was suitable for a research instrument. Valid means that the data obtained through the questionnaire can answer the research objectives. The meaning of the data obtained through the questionnaire is consistent with the use of research. The classical assumption test clarifies that the regression equation received has estimation accuracy, is unusual and consistent. This study uses multiple linear regression analysis (Multiple Regression Analysis). Multiple linear regression analysis is used to test the effect of prevention costs and assessment costs on sales growth. The formulation of the multiple regression equation is as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

Description:
- Y   : Sales Growth
- X1   : Prevention Cost
- X2   : Appraisal Cost
- a   : constant
- β   : Regression coefficient
- ε   : Error

The form of testing that we do is 1) Test the regression coefficient's significance partially (t-test). A partial test is used to determine whether each of the independent variables, both prevention and appraisal costs, significantly affects sales growth. The value used for this partial test is if the significance value is <0.05, then the research hypothesis can be accepted (Ghozali, 2011). 2) Simultaneous Significance of Regression Coefficient Test (Test f). A simultaneous test is also a model test. This test is used to determine whether the variable cost of prevention and appraisal costs simultaneously influence sales growth. If the significance value <0.05, then the research hypothesis is accepted (Ghozali, 2011).

3 Result and Discussion

Result
The validity test is done by examining the correlation between item scores and each variable's total score, using Pearson correlation. Statement items are said to be valid if the significance level is below 0.05. This reliability test was conducted to test the respondents' consistency through the statements given, using the statistical method Cronbach Alpha with a significance of more than 0.7.

Based on Table 1, it is known that the cost of prevention (X1) and the cost of appraisal has a significant value less than 0.05, so it can be concluded that all statement items in the study are valid. Table 2 shows the variable prevention costs (X1), Appraisal costs (X2), and sales growth (Y) have value Cronbach's Alpha more significant than 0.7. This shows that the statement items in this study are reliable. So that each statement item

used will be able to obtain consistent data, and if the statement is submitted again, an answer will be accepted that is relatively the same as the previous answer.

Table 1. Validity Test Results

Question Item Table		Pearson Correlation	Sig(2-Tailed)	Info
Prevention Cost (X₁)	X1_1	0,603**	0,000	Valid
	X1_2	0,628**	0,000	Valid
	X1_3	0,552**	0,000	Valid
	X1_4	0,608**	0,000	Valid
Appraisal Cost (X₂)	X2_1	0,550**	0,000	Valid
	X2_2	0,746**	0,000	Valid
	X2_3	0,650**	0,000	Valid
	X2_4	0,722**	0,000	Valid
Sales Growth (Y)	Y1_1	0,616**	0,000	Valid
	Y1_2	0,674**	0,000	Valid
	Y1_3	0,580**	0,000	Valid
	Y1_4	0,500**	0,000	Valid

Table 2. Reliability Test Results

Variable	Cronbach's Alpha	Info
Prevention Cost (X₁)	0,718	Reliable
Appraisal Cost (X₂)	0,763	Reliable
Sales Growth (Y)	0,715	Reliable

The normality test is used to determine whether the dependent variable and the independent variable have a normal distribution or not in the distribution of the variable. A good regression model is usually distributed. Based on Figure 1, you can see the dots spread around the diagonal line, and the direction of the spread follows the diagonal line's approach. This shows that the regression model is feasible because it meets the assumption of normality. The purpose of the multicollinearity test is to determine whether there is a correlation between the independent variables. If there is a significant correlation between the independent variables, there will be a multicollinearity problem. Table 3 shows that each variable's tolerance value is more excellent than 10 percent (0.1), and the VIF value of each variable is smaller than 10. This means that the regression model is free of multicollinearity problems. Based on table 7 shows that the prevention (X1cost of) and the cost of valuation (X2)have a positive and significant effect on sales growth (Y) individually. This can be seen from the significance value of each variable of 0.003 and 0.000, which is less than 0.05. The regression equation that is formed is: $Y = 8.277 + 0.215 X1 + 0.370 X2$

The determination test coefficient aims to measure how much the independent variable can explain the dependent variable. The higher the R2 value, the better the regression model because the proportion of independent variables in defining the dependent variable is getting bigger. Small R^2 value means the independent variables' ability to explain The variation in the dependent variable is minimal. A value close to one means that the independent variable provides almost all the information needed to predict the dependent variable's variation. Based on table 4, the coefficient of determination test results, the R-value of 0.522 indicates that the relationship between sales growth and sales growth is not too strong. While the R square value of 0.273 or 27.3% suggests that the effect of the variable cost of prevention (X1), cost of valuation (X2) on sales growth (Y) is 0.273 or 27.3%, while the rest is 0.727 or 72. 7% is influenced by other variables outside of this research model. Based on table 5, the value calculated of 27.549 with a significance value of 0.000 is smaller than 0.05. so that the cost of prevention (X1) and the cost of appraisal (X2) simultaneously influence sales growth (Y), so it can also be concluded that the regression model can be used to predict the rate of sales growth.

Table 3. Multiple Linear Regression Test Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	8.277	1.395		5.933	.000		
	Prevention Cost (X_1)	.215	.070	.227	3.074	.003	.910	1.099
	Appraisal Cost (X_2)	.370	.067	.407	5.519	.000	.910	1.099

a. Dependent Variable: Sales Growth (Y)

Table 4. Determination Coefficient Test Results (R2)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.522[a]	.273	.263	1.004	1.538

a. Predictors: (Constant), Prevention Cost (X_2), Appraisal Cost (X_1)

b. Dependent Variable: Sales Growth (Y)

Tabel 5. F-Test

Anova

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	55.524	2	27.762	27.549	.000[b]
	Residual	148.136	147	1.008		
	Total	203.660	149			

a. Dependent Variable: Sales Growth (Y))

b. Predictors: (Constant), Appraisal Cost (X_2), Prevention Cost (X_1)

Source: Output SPSS (2019)

Discussion

The cost of prevention has a positive and significant effect on sales growth. This means that the better the management's efforts to prevent product damage and work accidents, the more sales growth will increase. This means that the cost of prevention can support significant sales growth. The cost of prevention in this study is an effort made by management to prevent product damage and work accidents. This research is following that stated by Hansen and Mowen (2007), which says that the higher the cost of prevention will increase sales. The supporting theory, namely Total Quality Management (TQM), is a management tool in quality improvement within a company to maximize organizational competitiveness sustainably in products, services, people (workers), processes, and the environment in all essential aspects of products and services for consumers. To produce the best quality, it requires continuous improvement efforts in the ability of employees. This will have an impact on sales.

The appraisal cost has a positive and significant effect on sales growth. This means that the appraisal fee can support substantial sales growth. The cost of the appraisal in this research is any effort or examination made to determine the occurrence of damage originating from technical defects or natural defects. The company's efforts include checking the quality of plywood, checking the quality of appearance, checking the durability of plywood, and checking the durability of plywood. The company's operational activities can run well with an inspection. This research follows what Hansen and Mowen (2007) put forward, namely, the higher the cost of

the assessment will increase sales. This is due to the increasing effort to inspect raw materials and finished products by the department quality control. Besides, Crosby also believes that zero defects will increase profits and cost savings. Zero defect does not mean that mistakes never happen but aims to reduce and minimize the number of faults and errors that occur in a process by doing everything right from the start. Its primary purpose is to reduce the defect rate to zero.

4 Conclusions

Statistically, our study found that the variable cost of prevention and cost of appraisal partially and simultaneously affected sales growth. This means that prevention costs and appraisal costs can support significant sales growth. In practical terms, the research results suggest that PT. Katingan Timber Celebes can create a quality cost report based on the classification of quality costs in the company to make it easier to evaluate and see its application's effectiveness. For further research, it is advisable to expand and add to the companies under study. This is done to see the results that are more diverse and can represent reality.

5 References

Al-Obaidi, A. Q. H. (2020). Exploring Factors that Impact the Process of Reducing Production Cost of an Iraqi Company in the Manufacture and Marketing of Dates. *Electronic Research Journal of Social Sciences and Humanities, 2*, 153-164.

Arliany, I. (2015). Pengaruh Biaya Kualitas Terhadap Tingkat Penjualan (Studi Empiris pada PT. PINDAD (Persero) (*Doctoral dissertation,* Universitas Widyatama).

Aryani, F. (2006). Analisis Pengaruh Biaya Kualitas Terhadap Produk Rusak Pada PT Masscom Graphy Semarang Tahun 2004–2005 (*Doctoral dissertation*, Universitas Negeri Semarang).

Blocher, E. J., Chen, K. H., & Lin, T. W. (2000). *Cost Management a Strategic Emphasis* (Terjemahan Susty Ambarriani) Jakarta: Salemba Empat.

Desai, D. A. (2008). Cost of quality in small-and medium-sized enterprises: case of an Indian engineering company. *Production planning and control, 19*(1), 25-34.

Ghozali, I. (2005). *Aplikasi analisis multivariate dengan SPSS*. Semarang: Badan Penerbit UNDIP.

Gaspersz, V. (2000). Penerapan Total Quality Management in Education (TQME) pada Perguruan Tinggi di Indonesia: Suatu Upaya untuk Memenuhi Kebutuhan Sistem Industri Modern. Jakarta : PT. Gramedia Pustaka Umum.

Hansen, D. R & M. Mowen.(2006). *Management Accounting*, 7.

Higgins. Robert C. (2003). Analysis for Financial Management. Seventh Edition.

Iskandar, K (2009). Zero Defect-Philips Crosby. Retrieved from http://Karto-iskandar.blogspot.com

Noviyanti. (2004). Pengaruh Biaya Pencegahan dan Biaya Penilaian terhadap Tingkat Penjualan (Studi Kasus Pada PT Agronesia Devisi Barang Teknik Karet Inkaba). Skripsi Akuntansi. Bandung : Universitas Padjadjaran.

Sturm, S., Kaiser, G., & Hartmann, E. (2019). Long-run dynamics between cost of quality and quality performance. *International Journal of Quality & Reliability Management*. https://doi.org/10.1108/IJQRM-05-2018-0118

Suyadi, P. (2007). Filosofi Baru Tentang Manajemen Mutu Terpadu Abad 21. Kiat Membangun Bisnis Kompetitif, Jakarta: Bumi Aksara.

Susanti. (2007). Analisis Pengaruh Biaya Kualitas Terhadap Omset Penjualan Pada PT. Sampurna Kuningan Junawa. Semarang: Universitas Negeri Semarang

Sugiyono. (2010). Metode Penelitian Bisnis. Bandung: Alfabeta.

Swastha & Handoko. (2001). *Manajemen Pemasaran Modern*. Penerbit Liberty. Yogyakarta.

Samryn, L.M. (2015). *Akuntansi Manajemen: Informasi Biaya untuk Mengendalikan Aktivitas Operasi & Investasi*. Bandung: Kencana