



## **Analysis of Application of Internal Failure Costs and External Failure Costs in Improving Financial Performance (Case Study in Ceramic Companies listed on the Indonesia Stock Exchange)**

**Faramita Ahmad Alamri**

Prodi Pendidikan Akuntansi Fakultas Ekonomi Universitas Negeri Makassar

Email: [mitaalamri09@gmail.com](mailto:mitaalamri09@gmail.com)

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### **ABSTRACT**

This study aims to find out how the application of internal failure cost and external failure cost can improve the financial performance of the company (ROI). The object of the research are the manufacture companies which is listed on Indonesian Stock Exchange (BEI) with observation period of 2012 until 2016. The data on this study based on annual financial statements obtained through the site [www.idx.co.id](http://www.idx.co.id). The Data Technique Collection used the documentation technique, it was collecting secondary data of manufacturing companies listed on the Indonesia Stock Exchange. The result show that the application of internal failure costs and external failure costs can improve the company's financial performance (ROI).

**Keywords:** Implementation of Internal Failure Costs; External Failure Costs; Financial Performance Improvement

### **INTRODUCTION**

One of the key variables that management does to satisfy customers is the good quality of products produced by the company (Aliah & Hasanuddin, 2016; Rohaeni & Marwa, 2018; Tjiptono, 2019). The costs associated with quality are the costs of quality. The quality costs in question are the costs of control activities, namely prevention costs and appraisal costs, as well as failure costs, namely internal failure costs and external failure costs. external failure costs).

Quality costs from failure activities are at a higher risk because they can eliminate sales for the company (Jasmani & Sunarsi, 2020; Nofiana & Sunarsi, 2020; Sunarsi, 2019). If a defective product or service is found on the market, the consumer will tell his acquaintances about the defective product. If this information reaches potential buyers, the company will eventually lose sales (Agnihotri, 2020; Keeling et al., 2020; Peng et al., 2021). Manufacturing sector companies, especially the ceramics, glass and porcelain sub-sectors are companies that are important for maintaining the quality of goods reaching consumers, in addition to the fact that the products produced by these companies are potentially prone to damage (Abas et al.,

2020; Beckmann et al. ., 2016; Culot et al., 2020; Daraba et al., 2018; Gunasekaran, 1999; Hsieh & Liu, 2010; Pu et al., 2019). For example, defects in the production process or broken in transit before reaching the hands of consumers.

To maintain the quality of products produced by manufacturing companies in the ceramic, glass and porcelain sub-sector, it is necessary to apply a quality cost (Rahmatullah et al., 2020; Sahade et al., n.d.; Sahade & Adi, 2021; Sahade & Ngampo, 2016) . The application of quality costs is expected to improve financial performance. Manufacturing companies in the ceramic, glass and porcelain sub-sector, for example, are companies listed on the Indonesia Stock Exchange (IDX). These companies include PT Mulia Industrindo Tbk, PT Ceramic Indonesia Association Tbk, PT Asahimas Flat Glass Tbk, PT Arwana Citra Mulia Tbk, PT Inti Keramik Alam Asri Tbk, and PT Surya Toto Indonesia Tbk. The 6 (six) companies are manufacturing companies in the ceramic, glass, and porcelain sub-sector that apply quality costs to maintain the quality of the products they produce.

## METHOD

This research is a qualitative research with the object of research are 6 (six) ceramic and glass sub-sector companies listed on the Indonesia Stock Exchange. Data processing in this study using the computer program SPSS 21. Data analysis in this study is multiple linear regression analysis, correlation coefficient, t-test and F-test. Furthermore, in table 1, data regarding the independent variables are presented, namely internal failure costs (X1) and external failure costs (X2), as well as data on the company's financial performance (ROI).

## RESULT AND DISCUSSION

The percentage of internal failure costs, external failure costs, and financial performance (ROI) fluctuates. So to determine the effect of internal failure costs and external failure costs on company performance, SPSS test was carried out with the help of a computer using the SPSS 21 application.

To determine the form of the relationship between the variables studied, namely the independent variable cost and the dependent variable (Y). The data presented in table 4.6 is then processed to determine the relationship between the variables X1, X2, and Y in the study. Based on table 4.6, the results of processing simple linear regression analysis using the SPSS 21 (Statistical Product and Service Solution) computer program are obtained which can be seen in table 2.

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

$$Y = a + b_1X_1 + b_2X_2$$

$$Y = 0.106 + 39.776X_1 + 2.202X_2$$

where:

Y = Financial Performance (ROI)

a = constant

b<sub>1</sub> b<sub>2</sub> = Coefficient of determination

X<sub>1</sub> = Internal Failure Cost

X<sub>2</sub> = External Failure Cost The equation can be interpreted as follows:

- 1) The constant value is 0.106, meaning that if the internal failure costs and external failure costs are equal to zero or constant, the financial performance (ROI) is 0.04%.
- 2) The regression coefficient of the internal failure cost variable (X1) is -16.19%, meaning that if the other independent variables have a fixed value and the internal failure cost increases by 1%, the financial performance (ROI) will decrease by 16.19%.
- 3) The regression coefficient for the external failure cost variable (X2) is 0.546, meaning that if the other independent variables remain constant and the external failure cost increases by 1%, the financial performance (ROI) is 0.54%.

### **Correlation coefficient**

This analysis is used to determine the relationship and the magnitude of the effect of the variable costs of internal failure and external failure on financial performance (ROI), the following is the correlation coefficient results in table 3 using SPSS 21. Based on table 3, it can be seen that the value of R is 0.813. This value shows a strong relationship. This means that internal failure costs and external failure costs show a strong relationship with the financial performance (ROI) of ceramic companies listed on the Indonesia Stock Exchange. The magnitude of the coefficient of determination R Square is 0.772 or 77%. This means that the cost of internal failure and the cost of external failure as independent variables on financial performance (ROI) as a variable is 77% and the effect of 23% by other variables not examined.

### **t-test**

The t-test is used to determine whether or not the influence of internal failure costs and external failure costs partially on the financial performance (ROI) of 6 (six) ceramic companies listed on the Indonesia Stock Exchange (IDX), the results of the t-test can be seen in the table 4.

If  $t_{table} < t_{count}$  then partially there is no significant effect between internal failure costs and financial performance (ROI). If  $t_{table} > t_{count}$  then partially there is a significant effect between internal failure costs and financial performance (ROI). To find the value of t-count then look for  $\alpha = 5\% : 2 = 2.5\%$  with degrees of freedom (df)  $n-k-1$  or  $30-2-1=27$  (n is the number of independent variables). T-count can be searched using the help of Ms Excel by typing  $=tinv(0.05,27)$  then pressing enter, then the t-count value is 2.501. Meanwhile, in table 4.8, it can be seen that the t-table value is 2.171. Based on the results of the t-test, it is known that the t-count is greater than the t-table ( $2.501 > 2.171$ ), so it can be concluded that partially there is no significant effect between internal failure costs on financial performance (ROI).

Based on the t-test table, it can also be seen which variable X has more influence on the Y variable. From the t-test results, the significant value of the internal failure cost variable is 0.21 or greater than 0.05 while the significance value of the external failure cost variable is 0.006 or less. of 0.05. This shows that the cost of external failure has a more significant effect on the company's financial performance compared to the cost of internal failure.

### **F-test**

The F-test is used to determine whether there is a significant effect between internal failure costs and external failure costs together on the company's financial performance. The results of the F-test can be seen in the table annova column sig. If the value of sig  $< 0.05$ , it can be said that there is a significant influence jointly between the independent variables on the dependent variable. However, if the value of sig  $> 0.05$  then there is no significant effect jointly between the independent variable and the dependent variable. Based on table 4.10 it can be seen that the significance value is 0.006 where  $0.006 < 0.05$ , this means that there is a significant

influence between internal failure costs and external failure costs as independent variables together on financial performance. company (ROI) as the dependent variable.

Based on the results of the research conducted, it can be seen that the cost of internal failure and the cost of external failure as independent variables jointly have a positive effect on financial performance (ROI) as the dependent variable. The higher the cost of internal failure and the cost of external failure, the higher the financial performance (ROI) of the company. On the other hand, if the internal failure costs and external failure costs decrease, the company's financial performance (ROI) will also decrease.

In addition, the results of the correlation coefficient test show that the coefficient of determination R Square is 0.772 or 77%. This means that the effect of internal failure costs and external failure costs as independent variables on financial performance (ROI) as the dependent variable is 77% and the remaining 23% is influenced by other variables not examined. The higher the R Square of the results of a regression, the stronger the relationship between the independent variable and the dependent variable.

In addition, based on the F-test, it can be seen that the significance value is 0.006 where  $0.006 < 0.05$ , this means that there is a significant effect between internal failure costs and external failure costs as independent variables together. on the company's financial performance (ROI) as the dependent variable. This means that the greater the value of internal failure costs and external failure costs, the greater the financial performance (ROI) of the company.

This is in line with the statement (Nofiana & Sunarsi, 2020) that a study revealed that consumers who had an unpleasant experience would tell 11 (eleven) other people. To prevent this, companies must pay attention to product quality. Quality indicators can be seen through the quality cost approach. Quality improvement is expected to be able to provide satisfaction to consumers so as to increase consumer purchasing power. An increase in purchases will increase the company's sales which will have an impact on increasing the company's profitability. An increase in the company's profitability can be seen through an increase in the financial performance (ROI) of a company.

This is also in line with previous research conducted by (Nofiana & Sunarsi, 2020) in that study showed the use of effective prevention costs as part of quality costs can reduce product damage so that it will reduce the use of rework costs which can ultimately reduce the use of production costs. With low production costs, it will minimize the value of the cost of production for each unit produced. If the cost of production is low, it will have a greater impact on company profits. Large profits will indicate a better company's financial performance.

## CONCLUSION

Partially, internal failure costs in the form of broken goods and external failure costs in the form of guarantees and spare parts have no effect on the company's financial performance. However, together the internal failure costs in the form of broken goods and the external failure costs in the form of guarantees and spare parts have a significant effect on the company's financial performance. The higher the cost of failure of a company, the greater the financial performance of the company. Conversely, if the cost of a company's failure decreases, then the company's financial performance will also decrease. Therefore, the results of this study indicate the effect of applying internal failure costs and external failure costs together on the company's financial performance.

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## Appendix

**Table 1. Percentage of Internal Failure Costs, Percentage of External Failure Costs, and Financial Performance (ROI) of 6 (six) Ceramic Companies Listed on the Indonesia Stock Exchange 2012-2016**

Company name	Years	Internal Failure Cost (%)	External Failure Cost (%)	Financial performance (ROI) (%)
PT Mulia Industrindo Tbk	2012	0.20	4.55	5.56
	2013	0.26	3.38	2.21
	2014	0.14	2.79	2.02
	2015	0.08	2.15	1.54
	2016	0.14	2.27	1.27
PT Keramik Indonesia Asosiasi Tbk	2012	0.31	2.30	3.31
	2013	0.28	1.97	3.32
	2014	0.10	2.27	3.92
	2015	0.07	2.07	-7.82
PT Asahimas Flat Glass Tbk	2016	0.12	3.39	7.44
	2012	0.41	1.34	7.92
	2013	0.15	1.17	9.56
	2014	0.20	1.40	11.70
	2015	0.47	1.29	12.26
PT Arwana Citra Mulia Tbk	2016	0.21	1.12	4.43
	2012	0.04	0.33	22.26
	2013	0.04	0.18	20.94
	2014	0.04	0.25	22.37
	2015	0.05	0.16	4.98
PT Inti Keramik Alam Asri Tbk	2016	0.08	0.27	5.92
	2012	0.56	1.04	-7.82
	2013	0.57	0.84	-8.94
	2014	0.46	0.70	-9.13
	2015	0.44	0.29	-28.28
PT Surya Toto Indonesia Tbk	2016	0.22	0.08	-54.68
	2012	0.06	0.09	8.98
	2013	0.09	0.06	13.55
	2014	0.08	0.17	14.53
	2015	0.10	0.12	17.95
	2016	0.08	0.13	6.05

Source: Data processed

**Table 2. Results of Multiple Linear Regression Analysis**

Unstandardized Coefficients		Standardized Coefficients	t	Sig.
B	Std. Error	Beta		
.106	.049		2.171	.039
-39.776	16.196	-.429	-2.456	.021
.546	2.202	.043	.248	.006

a. Dependent Variable: Financial performance (ROI)

**Table 3. Correlation Coefficient Analysis Results**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.813 <sup>a</sup>	.772	.742	.14226

a. Predictors: (Constant), External Failure Cost, Internal Failure Cost

**Tabel 4. Hasil Uji-t**

Unstandardized Coefficients		Standardized Coefficients	t	Sig.
B	Std. Error	Beta		
.106	.049		2.171	.003
-39.776	16.196	-.429	-2.456	.021
.546	2.202	.043	.248	.006

a. Dependent Variable: Financial performance (ROI)



**Tabel 5. Hasil Uji-F**

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.122	2	.061	3.016	.006 <sup>b</sup>
	Residual	.546	27	.020		
	Total	.669	29			

a. Dependent Variable: Financial performance (ROI)

b. Predictors: (Constant), External Failure Cost, Internal Failure Cost

