

The Effect of Efficiency and Quality Cost on Profitability

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— *Review of* —
**Integrative
Business &
Economics**
— *Research* —

ABSTRACT

This study aims to assess the effect of efficiency and quality costs on the profitability of a company. This topic is of particular interest in Indonesia because there are so many bad quality products flooding the nation's domestic market. This negatively impacts consumer demand for domestic products which in turn reduces the profitability of domestic companies. This study uses explanatory research methods involving description and systematic analyses on the basis of accurate information about the facts as well as the relationships among the variables studied. The unit of observation consists of 32 companies incurring some levels of quality cost (costs of maintenance and repair costs) listed in Indonesia Stock Exchange in the period 2010-2013. It is found that the costs of efficiency and quality significantly influence the profitability of the company in question by changing the maintenance and repair costs resulting from internal and external failures.

Keywords: Efficiency of quality cost, Profitability, Maintenance cost

INTRODUCTION

1.1 Research Background

Owing to increasing business competition in Indonesia as a result of the existence of many competitors or business rivals, domestic companies now need to become more creative and innovative. One way to achieve this is to work towards higher quality services and products of higher quality than those of competitors (Mathius et al. (2010)).

The phenomenon that occurs, according to Sanny Parengkuan (2012), there are many low quality products circulating in Indonesia, which could harm consumers or be dangerous to them; they do not meet Indonesia's quality standards (SNI). Likewise, Rachmat Gobel (2015) lamented that the massive presence of unsuitable products in the Indonesian market is rendering the domestic industry unable to build a healthy market in Indonesia.

The lack of public interest in buying local products is not caused solely by the love of foreign brands. It is also due to the lack of attention that domestic manufacturers pay to customer desires in addition to their inability to provide quality goods, after sales services

and sales of well-packed products. As a result, often, products made in Indonesia that are sold locally are of much lower quality than those sold abroad (Suci Rakhmawati, 2013).

The measurement of quality cannot be separated from the quantitative aspects attached to it, particularly in relation to the cost of quality. As the cost of quality increases, so will the losses incurred by the company. In short, the cost of quality can be used to gauge the success of a company's quality improvement program (Wahyu K. (2014)).

Quality costs arise due to possible or past poor product quality. There are two categories of activities related to quality: activities before (control activities) and after (failure activities) the onset of poor. Further, there are four main sources—associated with prevention, appraisal, internal failure, and external failure—of quality costs.

The cost of quality is one of the main elements determining the company's financial performance. Many world-class companies use the size of the cost of quality as an indicator of the quality program's success as determined by corporate profits, sales volumes, cost of sales, and total production costs (Mathius, et al. (2010)).

Blocher, Chen, and Lin (2002) state that most companies spend 20-25% of its sales as the cost of quality; around 40% of business costs arise from poor quality. In other words, a company producing quality goods and services enjoys advantages in terms of sales (sales gain) and profit acquisition (high profit). "This information can be used as feedback for company's management to identify opportunities to optimize the quality and suppress the cost of quality which will ultimately reduce the cost of production and may increase earnings / profit".

Blocher, Chen and Lin (2002) further revealed that companies usually gain competitive advantage and enjoy a high level of profitability by increasing product quality. For example, this could reduce the level of product returns from customers; this leads to decreased warranty and repair costs.

The above observations kindled the authors' interest into researching the relationship between the cost of quality and profitability.

1.2 Problem Identification

The issue examined in this paper is: Is there an effect of the cost of quality efficiency on profitability improvement?

LITERATURE REVIEW

2.1 Cost of Quality

Blocher et al. (2000:220) define cost of quality as the costs related to the prevention, identification and improvement of low quality products along with the opportunity cost arising from the loss of production time and sales as a result of low quality.

The cost of quality is the cost incurred or likely to occur because of poor quality. It is the cost associated with the creation, identification, repair and damage prevention. The overall cost includes quality costs incurred for raising awareness of the need to avoid mistakes so that no waste or expenses are incurred due to product errors that need to be repaired.

2.2 Profitability

Husnan and Pudhiastuti (2006:72) defines profitability as follows:

“Profitability as a result of a number of policy and decision making that is measured qualitatively using ratios known as the profitability ratio.”

According to Horne and John (2012), there are three ratios which can be measured:

1. Profitability in relation to sales (*Profit Margin*)

Profit Margin is a measure of company’s profitability from the sale after taking into account all costs and income taxes

$$\text{Profit Margin} = \frac{\text{net profit after tax}}{\text{net sales}}$$

2. Profitability in relation to investment

a) *Return on Investment (ROI)* or *Return on Asset (ROA)*

Return on assets derived from net profit distribution after taxes with total assets

$$\text{Return on Asset} = \frac{\text{net profit after tax}}{\text{total Assets}}$$

b) *Return on Equity (ROE)*

Return on equity compares the net profit after tax (minus common stock dividends) with equity invested in by the company's shareholders.

$$\text{Return on Equity} = \frac{\text{net profit after tax}}{\text{shareholder's equity}}$$

2.3 Hypothesis

The following hypothesis is made: "There is a cost of quality efficiency effect on profitability level”

RESEARCH OBJECTIVE AND METHODOLOGY

3.1 Research Objective

The object of research and the scope of this research is “cost of quality and profitability”.

3.2 Research Method

The research method used is essentially explanatory in nature. Explanatory research is a research method used to arrive at a systematic picture of accurate facts along with an understanding of the relationships among the variables studied (Sekaran and Bougie, 2010 : 123).

DISCUSSION

4.1 Unit of Observation

The unit of observation in this study consisted of 32 companies incurring quality costs (maintenance costs and repair costs) as listed by Indonesia’s Stock Exchange for the 2010-2013 .

1. Descriptive Statistics Analysis

a. Cost of quality

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Cost of Quality	128	Rp 22,934,278	Rp 100,287,062,800	Rp 19,204,703,895	Rp 22,337,706,711
Valid N	128				

Note that the minimum cost of quality was Rp 22,934,278 (Champion Pacific Indonesia Tbk in 2013) whereas the maximum was Rp 100,287,062,800 (TIFICO Fiber Indonesia Tbk in 2013).

b. Net Profit

Table 1 Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Net profit	128	-474,045,653,000	1,574,744,236,000	95,552,384,579	263,161,009,754
Valid N (listwise)	128				

Note that the minimum net profit amounted to Rp 474,045,653,000 (Mulia Industrindo Tbk in 2013) while the maximum was Rp 1,574,744,236.000 (also by Mulia Industrindo Tbk in 2010).

2. Classic Assumption Test

a. Normality Test

Table 2 One-Sample Kolmogorov-Smirnov Test

		Cost of Quality	Net Profit
N		128	128
Normal Parameters ^{a,b}	Mean	1,92E10	9,56E10
	Std. Deviation	2,234E10	2,632E11
Most Extreme Differences	Absolute	.195	.238
	Positive	.153	.238
	Negative	-.195	-.237
Kolmogorov-Smirnov Z		2.209	2.698
Asymptotic Significance (2-tailed)		.000	.000

Note that the Kolmogorov-Smirnov value for the cost of quality equaled 2.209, that for net profit was 2.698 with the significant values being greater than 0.05, meaning that the data were normally distributed.

b. Heteroscedasticity Test

It can be seen from the test results that the regression model used was free from the problem of heteroscedasticity, so it can be said that the model had fulfilled the requirements for simple linear regression testing.

c. Autocorrelation Test

Table 3 Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
dimension0 1	.486 ^a	.236	.230	2,310E11	1.912

a. Predictors: (Constant), cost of quality

b. Dependent Variable: net profit

Note that the value of obtained Durbin-Watson test was 1,912, with the degree of confidence (α) equaling 5%. Based on the decision-making criteria, the Durbin-Watson value is between 1.724 and 2.276. This shows that there is no autocorrelation.

3. Simple Linear Regression Analysis

Table 4 Coefficients^a

Model	Non-standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error			
1 (Constant)	-14328349590	26965817697		-.531	.596
Cost of Quality	5.722	.917	.486	6.236	.000

From the above simple linear regression analysis results, it can be noted that the constant (a) was approximately -14328349590 and the regression coefficient (b) for the production cost was 5.722, so we can arrive at the following simple linear regression equation as follows:

$$\text{Net Profit} = -14328349590 + 5.722 * \text{Cost of Quality}$$

4. Correlation Analysis

The magnitude of the correlation coefficient between production costs and net profit is 0.486 (see Table 3). This suggests that the interval coefficient will be between 0.40 and

0.599. It also demonstrates that the level of the relationship between cost of quality and net income is reasonably strong.

5. Coefficient of Determination (R^2)

It may also be noted from Table 3 that the R Square value was 0.236, i.e., 23.6%. This shows that the cost of quality contributes 23.6% effect on net profit in the manufacturing companies listed in Indonesia Stock Exchange 2010-2013, while the remaining 76.4% represents the contribution from the influence of other, unexamined variables.

6. Hypothesis Testing (t test)

From Table 4, it can be seen that t-value associated with the production cost variable was 6.236, which is larger than the value of 1.65704 specified in the t-table. This means H_0 is rejected and H_a accepted, meaning that the cost of quality had significantly influenced the net profit in manufacturing companies listed on the Indonesia Stock Exchange during the period, 2010-2013. Further, the significance value of 0.000 is smaller than 0.05, which also implies that H_0 must be rejected.

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

The results have shown that costs of quality significantly influence the profitability level. The low profitability of companies caused by lower maintenance and repair costs caused the increase of internal failure costs and external failure costs. Based on the results of research in industry companies listed on the Indonesian Stock Exchange period 2010 - 2013, it showed that the high profitability is influenced by the high cost of quality resulting in lower internal failure costs and external costs, so as to increase sales of products which impact on increased profitability.

5.2 Recommendations

1. Recommendation for Improving Scientific Applicability

Research on the cost of quality is very important in relation to improving the quality of products with a view to enhancing company profits. In this context, future researchers will benefit by studying data drawn from companies listed in the Jakarta Stock Exchange. In addition, they may use the latest data.

2. Recommendation for Operational Improvements

It should be useful to look at the factors contributing efficiently to quality cost through reductions in maintenance and repair costs. Increased product quality will boost sales and so increase the profitability of the company. Companies are therefore advised to pay attention to operating costs incurred to minimize unnecessary costs,.

APPENDIX

List of Corporations Studied

Number	Code of Corporation	Name of Corporation
1	MLIA	Mulia Industrindo Tbk
2	ALKA	Alaska Industrindo Tbk
3	ALMI	Alumindo Light Metal Industry Tbk
4	GDST	Gunawan Dianjaya Steel Tbk
5	JKSW	Jakarta Kyoei Steel Work LTD Tbk
6	NIKL	Pelat Timah Nusantara Tbk
7	PICO	Pelangi Indah Canindo Tbk
8	TBMS	Tembaga Mulia Semanan Tbk
9	INCI	Intan Wijaya International Tbk
10	IGAR	Champion Pasific Indonesia Tbk
11	MAIN	Malindo Feedmill Tbk
12	TIRT	Tirta Mahakam Resources Tbk
13	FASW	Fajar Surya Wisesa Tbk
14	AUTO	Astra Auto Part Tbk
15	ERTX	Eratex Djaya Tbk
16	GDYR	Goodyear Indonesia Tbk
17	INDS	Indospring Tbk
18	JECC	Jembo Cable Company Tbk
19	KBLM	Kabelindo Murni Tbk
20	POLY	Asia Pasific Fibers Tbk
21	PTSN	Sat Nusa Persada Tbk
22	RICY	Asia Pasific Fibers Tbk
23	SCCO	Supreme Cable Manufacturing and Commerce Tbk
24	SSTM	Sunson Textile Manufacturer Tbk
25	TFCO	Tifico Fiber Indonesia Tbk
26	AISA	Tiga Pilar Sejahtera Food Tbk
27	INAF	Indofarma Tbk
28	KAEF	Kimia Farma Tbk
29	PYFA	Pyridam Farma Tbk
30	ROTI	Nippon Indosari Corporindo Tbk
31	SKLT	Sekar Laut Tbk
32	ULTJ	Ultrajaya Milk Industry and Trading Company Tbk

ACKNOWLEDGMENT FROM THE FIRST AUTHOR

I, Rina Tresnawati, would like to thank Allah SWT who has enabled me to bring this long effort to a successful end. Secondly, I thank my co-authors, Evi Octavia and Shinta Dewi Herawati, for their encouragement and suggestions; they have been highly valuable to the research. Finally, I thank my students for having given their full support while I conducted

this research. I dedicate this paper to my beloved family. Thanks also to my beloved parents for having given me 'big' love. I love you too.

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