

THE EFFECTS OF ISO 9000 STANDARDS ON FINANCIAL PERFORMANCE OF MANUFACTURING COMPANIES LISTED IN INDONESIA STOCK EXCHANGE

Dampak Standar ISO 9000 Terhadap Kinerja Keuangan Perusahaan Manufaktur yang Terdaftar di Bursa Efek Indonesia

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Abstract

This research is aimed to verify the effectiveness of ISO 9000 standards of the business processes in Indonesia. The arguments are based on Demming and Juran theories about costs of quality, when the products are less defective then the costs of quality become lesser. ISO 9000 standards control so many aspects in the company, from the suppliers's relation until customers's satisfaction. ISO 9000 contains procedures that control the whole system of the company, to know the effect of ISO 9000 towards company's financial performance is considerably important. We have found that ISO 9001/2/3:1994 certifications gave quite big contribution toward companies's production processes, we analysed it through financial statement ratios of ISO companies in Indonesia. Nevertheless, it didn't works on ISO 9000:2000 companies, some revisions have made it different.

Keywords: quality management, ISO 9000, costs of quality, process

1. INTRODUCTION

Since Indonesia joined WTO in 1995, there was technical barriers to Trade Agreement Indonesia must complied. This agreement required each member of WTO to comply with international standards when trades with another countries. One of those standards is ISO 9000. WTO requested all of it members to prepare, adopt and apply ISO. These could be done through building and maintaining governmental and non-governmental bodies to assess the compliance to ISO standards.

Indonesia has built one governmental body to provide guidance, to develop as well as to coordinate national scope activities focusing on standardization. That body is named "Badan Standardisasi Nasional (BSN)" or National Standardization Agency of Indonesia. The main objective of BSN is to protect producers, consumers, labors as well as the public in relation with security, safety, health and environment conservation. The implementation of standardization within national scope is carried out to build a national system that will be able to support, increase, to guarantee product's quality and/or services as well as to facilitate national products acceptance in global market transactions. The expectation is that the system will be able to improve the competitiveness of Indonesian products and/or services in the global market.

We believe that ISO standards would be very important to provide national security requirements; prevention of deceptive practices;

protection of human health or safety, animal or plant life or health, or the environment. One thing that we consider we should ensure is whether those standards contribute positive impact on financial performances or not. To assess this issue, we examine some of ISO 9000 companies collectively to measure their financial performance. The main purpose of management is to maximize shareholders' value (Brigham & Houston, 2004: 15). In maximizing shareholders' value, companies must be able to optimize their performance. Improving the quality of goods or services is one key of performance optimization.

Quality improvement could be made in two ways, there are: (1) boosting customers' demand, and (2) reducing the costs of production (Hansen & Mowen, 2005: 440). ISO 9000 certification requires a company to design procedures to ensure if quality is constantly measured. Those procedures are used to make sure that corrective actions have been taken where ever the defects occur. As results, defective products becoming low and any defects can be detected early so that costs can be diminished. Furthermore, ISO 9000 could identify obsolete/counterproductive practices (Mukherjee et al., 1998). Quality of design is the level of conformance between customer expectation and product/service design specification (Morse, Davis, and Hartgraves, 2003: 382). Quality of design is a matter about how good product or service is designed to use (Hilton, 2000: 496). More comfortable a chair is designed to use indicate that the quality of design is high. Quality of design is gathered from market researches, design concepts, and

specifications (Morse, Davis, and Hartgraves, 2003:382). Quality of conformance is the conformance between product design and the actual result of product/service (Gitlow, Oppenheim, and Oppenheim, 1995:6).

The improvement of quality management system will give an organisation one great chance to evaluate and observe their total quality management system. Management quality system is a group of documented procedures and structured practices in a management system aimed to provide the conformance of processes or products or services with certain requirements. Those requirements flexibly improved by customers and organisation needs. The selection of management quality system is the first step for company to adopt total quality management (Gaspersz, 2008:269).

1.1 Quality Management System

ISO 9000 contains methods, practices, and specific techniques that must be performed by a company. The main purpose is to meet customer expectations and requirements. Good design, implementation, and good quality system management will make sure that good and service production could meet customer expectations and requirements.

Every activity that affects quality has done in three steps: planning, control and documentation. Each activity contributes significant value towards quality:

- Planning: the activity affects quality must be planned to ensure that goals, authorities, and responsibilities are clear and understood;
- Control: the activity affects quality must be controlled to ensure that requirements in all level are fulfilled, problems can be anticipated and avoided, and corrective actions are planned and carried out;
- Documentation: the activity affects quality must be documented to ensure the understandability of purpose and methods of quality, interaction within company, and feedback for planning cycle. Furthermore, objective or audit evidences from quality system performance must be documented to support anybody who needs it such as customer or third-party auditor.

ISO 9000 continues to evolve since it was published for the first time in 1987, revised in 1994, and revised again in the year 2000. The latest version is ISO 9000: 2008 series. The prior ISO 9001, 9002, and 9003 standards become one standard on ISO 9000:2000 version. A

fundamental modification in 2000 version have made the process management become important, process management is measurement basis, observation basis, tasks and activities improvement basis. In addition, this 2000 version also need top management involvement to integrate quality management with business system entirely and prevent the direct delegation of quality management function to junior administrator

1.2 Quality Management Principles

Organisations depend on their customers so that organisations have to know about present and future customer needs. Organisations have to fulfill customer requirements and try to get beyond customer expectations. These activities will increase sales and market share with flexible and fast respond toward market opportunities; increase the effectiveness of organisation resources used to increase customer satisfaction; and improve customer loyalty to maintain the going concern of business.

The leaders of the company should unify objectives and directions of the organisation. They must build and maintain internal environment where all the people are involved in reaching organisation objectives. Members of organisation will understand organisation goals and objectives; they will be motivated to reach them. Motivation, commitment, and involvement of people inside organisation to reach organisation objectives will result in a more effective use of resources inside company.

Continual improvement should be the permanent goal of an organisation. Organisation must be flexible to respond the new opportunities. Organisation and its suppliers are mutually connected and a mutually beneficial supplier relationship can improve both parties' ability to produce value

1.3 Costs of Quality

Costs of quality are composed of two activities: control activity and failure activity. Control activity is activity undertaken by organisations to prevent or detect low quality product or service. Otherwise, Failure activity is activity undertaken by organisations or customers to respond low quality of product or service. If respond to a low quality of product/service is detected after it sent to customer, then this activity is classified as external failure activity. Failure cost is cost that exists because failure activity does exist (Hansen & Mowen, 2005:442).

Internal failure cost is cost associated with error and nonconformity detected before a product or service is sent to customer. This cost

will not appear in case there was no error or nonconformance found before delivery. External failure cost will never exist if there is no error or nonconformance of product/service in delivery

2. LITERATURE REVIEW

There are some researches about ISO 9000 effect on financial performance. Corbett et al. (2005) have observed financial performance of ISO 9000 certified manufacturing companies in the United States from year 1987 until 1997. The research compared financial performances of ISO 9000 companies toward a control group contains some non-ISO 9000 companies with the same size and ROA. They found that ISO 9000 companies have made positive abnormal performance for ROA, ROS, Tobin's Q, SALES, and SALES/ASSETS and negative abnormal performance for COGS/SALES.

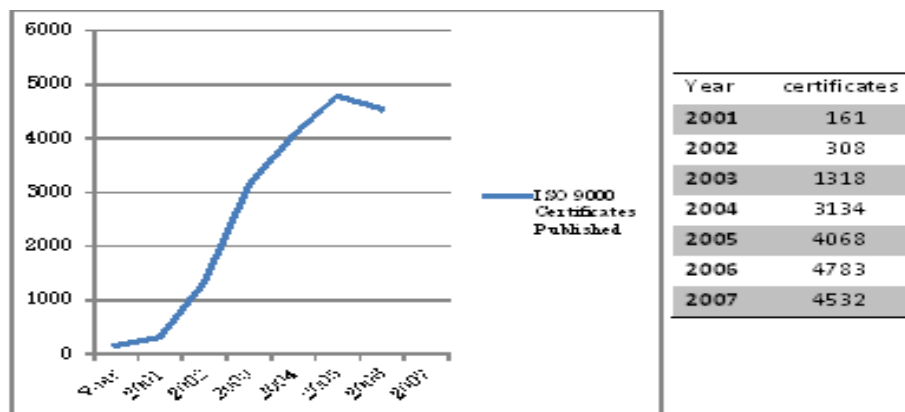
Dunu and Ayokanmbi used revenues indicator, revenue to total assets ratio, operating income, and net income to total assets ratio to measure the differences between financial performances of ISO 9000 companies with non ISO companies. They found that revenues and operating income increase followed ISO 9000 certification, but revenue to assets ratio and operating income to assets ratio improvement not really significant. This research found also that ISO 9000 companies outperformed non-ISO 9000, but the differences were statistically not significant.

Mokhtar et al. researched about ISO 9000 certification impact towards Malaysian companies' financial performances. Variables used were ROA, ROE, EVA, ROS, Working Capital Productivity ratio, Free Cash Flow, Lender Security Ratio, Tobin's Q, and industry category. The conclusion was ISO 9000 companies' financial performances were better than non-ISO 9000 companies' financial performances.

Beirao and Cabral observed stock market reaction towards ISO 9000 certification. Using twelve samples of companies with different size and different sector that registered in Lisbon Stock Exchange, Beirao and Cabral found that Portuguese Stock Market reacted positively toward ISO 9000 certification. ISO 9000 gave good news about the company. Cumulative average abnormal returns have showed positive pattern from day -15 until day 9 of companies ISO 9000 certification declaration date.

From prior researches, we know that ISO 9000 has potency to minimize costs and maximize products/services quality. To know how far that costs reduction and how relevant customers' satisfaction could affect repetitive buying is our intent. We use some kind of financial ratios to measure both of those issues. Is there any significant differences in public manufacture companies in Indonesia before and after they get ISO 9000 certificate?

Based on ISO surveys in the year 2005 and 2007, additional sum of companies that use ISO 9000 tend to increase year by year, as chart below.



(Source : International Organization for Standardization).

Figure 1 ISO 9000 Certificates Published in Indonesia

Dr. W. Edward Demming, one great quality lecturer, explained relationship between quality and cost. When people and organisation put their main focus on quality, then quality will

increase and costs will decrease over the time. Jack Campellam (1990:12) stated that strategy to lower costs was quite simple: concentrate on failure costs with intent to decrease it to zero;

invest on the 'right' prevention activities to make improvement; reduce appraisal costs depend on results achieved; and continuously evaluate and control prevention effort to obtain further improvement. These strategies base on premises that for every failure there was a cause and a cause could be prevented and prevention always cheaper.

2.1 ISO 9000 and ROA

ROA (operating income/average assets) measure how efficient management use company's assets to produce income. ISO 9000 can lessen the defects caused by low quality of conformance so that company's assets could be optimally used to produce free defect products. ISO 9000 require the documentation about production process procedures inside company to be maintained correctly so that there will be easier to transfer knowledge from previous employees to new employees (Corbett, 2005). Those will make company run more efficient because there will lessen probability of defect products. Ongoing evaluations toward process give also, what activities that deliver added value and what are not. Rework toward defect products are non-value added activities because it repeat process (Hansen & Mowen, 2005). So the first hypothesis is significant change on ROA of public manufacturing companies in Indonesia after use ISO 9001/2/3:1994 (H_{1a}) vs. ISO 9001:2000 (H_{1b}).

2.2 ISO 9000 and Profit Margin on Sales

Profit margin on sales (operating income/sales) measure how much income has produced per IDR sales. Continuous improvement encourages organisation to find more efficient and effective way to do their business. More focus to prevention costs and appraisal costs can save company from loss caused by defect products arrive at customers or defects products that couldn't sold to customers. Those loss are more serious and harmful to company than the company's contribution toward prevention and appraisal costs (Jackson, Sawyers & Jenkins, 2009). So the second hypothesis is significant change on Profit Margin on Sales of public manufacturing companies in Indonesia after use ISO 9001/2/3:1994 (H_{2a}) vs. ISO 9001:2000 (H_{2b}).

2.3 ISO 9000 and Sales Growth

Sales growth $((SALESt - SALESt-1)/SALESt-1)$ is the increase of sales over particular period. Survey in Canada prove that ISO 9000 are the

standard adopted in expect to increase the demand of products, customer expectations, quality management practices, product quality, provide even better organised organisation, and in hope organisation will get market advantages (Bhuiyan, 2005). Products that support customer expectations will obtain high customer satisfaction achievement. The satisfied customers will be loyal to company on the long run, they would buy the company's products, promote company's products to other customers or potential buyers, give less attention to same kind of products from other companies, not sensitive about price, give idea about company's product, and costs to serve this kind of customers are cheaper because their transactions are routine (Kotler & Keller, 2006). High demand on account of the conformity of products to customer expectations will make company's financial performance become better and raise company's sales growth ratio. So the third hypothesis is significant change on Sales Growth of public manufacturing companies in Indonesia after use ISO 9001/2/3:1994 (H_{3a}) vs. ISO 9001:2000 (H_{3b}).

2.4 ISO 9000 and Asset Turnover

Asset turnover (sales/average assets) is amount of sales for every IDR of asset. The increase of demand (because products meet customer expectations and more effective and efficient production process) have made higher asset turnover ratio. So the fourth hypothesis is significant change on Asset Turnover of public manufacturing companies in Indonesia after use ISO 9001/2/3:1994 (H_{4a}) vs. ISO 9001:2000 (H_{4b}).

3. DATA AND ANALYSIS

In determining the samples of population, were obtained accumulation of secondary data from some source institutions / agencies in accordance to their authorities. Data were collected from: List of ISO 9001 companies obtained from National Standardization Agency of Indonesia; list of ISO 9001/2/3:1994 companies issued by RBI Research; and public companies' financial statements obtained from Indonesian Capital Market Directory.

Samples of this study are 38 public companies which obtained ISO 9000 certificates in year 1994 until 2006. Consist of 19 public companies that obtained ISO 9001:2001 certificates and 19 companies that obtained ISO

9001/2/3:1994 certificates. This study use non-parametric statistical analysis. We chose Wilcoxon Signed Rank test to examine whether there are significant differences in public manufacturing companies' financial performance before and after ISO 9000 certification.

Companies' performances are compared between average of two years companies' financial performances prior and post ISO 9001:1994 certification. This is done to avoid economic crisis period in 1998. Otherwise, ISO 9001:2000 companies' financial performances are compared between average of three-year performances prior and post ISO 9001:2000 certification. Because there are different certification period among companies, researchers determine the event period a year when company received ISO 9000 certificate (year, t). And years before and during the acquisition of ISO 9000 (t-2, t-1, t) are compared with the years after ISO 9000 certification (t +1, t +2, t +3). Research is conducted to compare the financial performance of public manufacturing companies in Indonesia before and after they obtain ISO 9000 certificates. Data analysis was assisted with data processing programme SPSS.

4. DISCUSSION

4.1 Return on Asset (ROA)

Table 1: Result of ROA Hypothesis Testing

	ROA after ISO 1994 - ROA before ISO 1994	ROA after ISO 2000 - ROA before ISO 2000
Z Asymp. Sig. (2-tailed)	-3.058 ^a 0.002	-0.241 ^a 0.809

a. Based on positive ranks

With significance level $\alpha = 0.05$, the test accept H_{1a} ($0.002 / 2 < 0.05$) whereas reject H_{1b} ($0.809 / 2 > 0.05$). Results show that ISO 9000 series (9001, 9002, and 9003) gave companies significant contribution toward production process. Impact of ISO 9000 is that activities that do not add value could be reduced and process of knowledge transfer inside the company would become easier. These results are consistent with Corbett's research in United States. The companies' ROA increased after they were obtained ISO 9000 certificates. Our assumptions are, H_{1b} is rejected due to the addition functions and facilities, companies need to add assets related to ISO 9001 requirement.

4.2 Profit Margin on Sales

Table 2 Result of Profit Margin on Sales Hypothesis Testing

	PMoS after ISO 1994 - PMoS before ISO 1994	PMoS after ISO 2000 - PMoS before ISO 2000
Z	-1.690 ^a	-0.926 ^a
Asymp. Sig. (2-tailed)	0.091	0.355

a. Based on positive ranks

With significance level $\alpha = 0.05$, the test accept H_{2a} ($0,091/2 < 0.05$) whereas reject H_{2b} ($0,355/2 > 0.05$). Based on Jack Campellam statement, prevention is cheaper than maintain failure costs. The results show that companies' ratio of Profit Margin on Sales after ISO 9000 certification are better than before certification. That means percentages of companies' operating profit toward sales after they obtain certificates are greater than before companies get ISO 9000.

Adopting ISO 9000, failure costs can be reduced. Costs spend by new companies which implement ISO 9001:2000 will be greater than companies that have implemented ISO 9001:1994 and then upgrade it to the newer standards (ISO 9001:2000). These costs are related to learning cost for all parties involved in company's process (Marti 'Casadesu's & Stanislav Karapetrovic, 2005). Samples of ISO 9001:2000 companies which not included in population of companies which receive certificates of ISO 9001/2/3:1994 will spend greater costs than companies included in population. So in our assumption, H_{2b} is rejected due to this.

4.3 Sales Growth

Table 3 Result of Sales Growth Hypothesis Testing

	Sales Growth after ISO 1994 - Sales Growth before ISO 1994	Sales Growth after ISO 2000 - Sales Growth before ISO 2000
Z	-3.421 ^a	-1.248 ^a
Asymp. Sig. (2-tailed)	0.001	0.212

a. Based on positive ranks

With significance level $\alpha = 0.05$, test accept H_{3a} ($0,001/2 < 0.05$) whereas reject H_{3b} ($0,212/2 > 0.05$). High quality products reduce rework in company and they will also make customers satisfied. Customers who are satisfied will remain loyal to company's products, sales growth will continue to increase. If sales growth after ISO 9001:2000 certification does not show significant increase, it could be caused by increased competition. In the 90s, Demming and Juran theories were not so famous. After publication of ISO 9001:2000 standards, management accounting theories have been extended and preventive activities became focus of some companies. Businesses have been customer-oriented.

4.4 Asset Turnover

Table 4 Result of Asset Turnover Hypothesis Testing

	Asset Turnover after ISO 1994 - Asset Turnover before ISO 1994	Asset Turnover after ISO 2000 - Asset Turnover before ISO 2000
Z	-3.219 ^a	-2.736 ^b
Asymp. Sig. (2-tailed)	0.001	0.006

a. Based on positive ranks

b. Based on negative ranks

With significance level $\alpha = 0.05$. Test accept H_{4a} ($0,001/2 < 0.05$) and accept H_{4b} ($0,006/2 < 0.05$). After ISO 9000 certification, all company's assets can be used to generate sales more efficiently and effectively. That means ISO 9000 standards are effective tool to attract customers. ISO 9000 standards capture customers through improved product quality or through better communication toward customers. Asset turnover results are consistent with research of Corbett, Dunu, and Ayokanmbi.

5. CONCLUSIONS

Results of this study indicate that financial performance of companies which use ISO 9001:1994 consistent with the assumptions from prior researchers in case companies' financial performance will increase along with acquisition of ISO 9000 certification. It happen because internal and external failure costs in company

can be compressed so that the organisation can run more effectively and efficiently. Base on all of hypotheses, shift of performance on ISO 9001:2000 companies is only meet one ratio assumption. Explanation for this is that to apply ISO 9001:2000 standards require a bigger investment than ISO 9001:1994 standards. Second reason is that ISO 9001:1994 standards are quality assurance system that produce results promptly from companies that have implemented it, while ISO 9001:2000 standards need a long time to feel the benefits. ISO 9001/2/3:1994 define and standardize working procedures, develop definition of responsibilities and obligations of employees in line with increased efficiency and development of whole enterprise. ISO 9001:2000 based on continual improvement so that the benefits could only be felt in the long term (Martí Casadesu's & Stanislav Karapetrovic, 2005).

Numbers of companies surveyed are still lacking. This is due to Indonesia economic crisis (1998). This research will produce sharper and more meaningful conclusions when the periods and number of samples for companies which use ISO 9001:2000 are added, considering benefits of ISO 9001:2000 certification will only appear in the long term period. In addition, researchers think that differences of ISO 9000 companies' performance will be more visible when coupled model of Corbett, comparative study between ISO certified companies' financial performance and non-ISO certified financial performance are applied. Besides, we think this research could be a pilot study to observe more about ISO 9000 in Indonesia

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