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Research Article

THE RELATIONSHIP BETWEEN COST, QUALITY AND COST OF PRODUCTION (CASE STUDY OF TEHRAN STOCK EXCHANGE)

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ABSTRACT
Administrative expenses of the new issues that may be shows performance of various aspects such as cost accounting (cost accounting), quality control, maintenance and maintenance, supply chain management, production, warehousing, health and safety, training and rehabilitation and other. Due to the nature of expenditure on these items is always a challenge between production managers and sales these costs are adjusted or extended. In order to measure the quality of a cost than the cost of prevention, quality assessment, internal failure and external failure costs are overhead and indicators related to the cost of the product cost of sales ratio was measured. The main goal of private companies the main research question in relation to increasing the company's profit margin is expressed as follows whether the focus is on quality costs can reduce the cost of goods? There were 4 main hypothesis and sub-hypothesis are. The relationship developed and the corresponding model in the company's 66 now in stock at 90 and 91 years, respectively. The results show the existence of an inverse relationship between the cost of quality and cost involved such a relationship between quality cost components is observed. The results indicate that increasing the cost of quality, the cost to sales ratio declining from. The results show inverse relationship between the sub-components of the cost of preventive and cost and quality assessment and cost involved with no significant correlation with other components.

INTRODUCTION
Cost is no economy in terms of total payments for a manufacturing unit of capital, land, labor and management to take action. The definition of this concept raises a concern that the economic outlook and management issues are not accepted as cost management disciplines and accounting for the introduction of commodity production is only expenses which stated they also always reduce the emphasis. In other words, the cost of corporate executives view accountants as sources of economic and monetary which is due to reach a certain goal or an obvious advantage in the past, consumed or consumed in the future. Between the costs associated with quality shipping are always controversial issues facing executives leave if the cost of quality which will lead to lower customer's satisfaction can affect a company's profitability. On the other hand, in some cases, reduce the cost of quality to safeguard the liquidity of the company and can reduce the cost of financing the company. Given that eliminates many of the costs of hedging and goods in order to reduce costs, increase customer's dissatisfaction and staff will naturally so many organizations as an essential component of quality to achieve customer satisfaction, leading to survival development and evaluation of a competitive situation. The concept of quality is beyond the reliability of the product and its purpose is to achieve a comprehensive quality also affect the performance of the organization. In addition, all quality-related activities are ultimately aimed at improving performance and increasing profitability must be at organizations in fact, this is the same problem that led to the formation and development of quality costs (Davis, 2003). Quality of costing can be obtained with the help of the company's balance sheet and compare the quality costs, the company's cost control and improved quality (Benevolent, 2005). Economic criteria in order to assess the cost of quality are a quality program and achieve everything that stakeholders expect companies which are also given. Cost of Quality is one method of identifying cost assessment carried out in the name of quality, activity-based costing determine the range of the feedback implementation costs were high. Costing, activity management tools create an ability to determine the actual costs associated with the production any technology product or service "costing activity" is the Cooper and Kaplan (1988) and its development partner Johnson tried them.

Activity-based costing and process owners identify and trace the direct and indirect costs and exact allocation to activities that are involved in the production process of a product or a service directs, so finally the new system could not have overhead cost such as the uniformly and optional on all products or services may be prorated (Cooper, 2003). Other methods of costing is the proper allocation of costs, quality has been used, is kaizen costing. In kaizen, it is assumed that all activities should lead to increased customer's satisfaction (Hejazi, 2005). "Kaizen costing" means to maintain current levels of production costs during construction and performing work systematically reduce costs to acceptable levels. The main goal of kaizen costing, the unrelenting pursuit of cost reduction activities at all stages of production, help minimizes the distance between the goals of profit (profit raise in the budget) and the estimated profit margin. This approach is conceptually implementation of cost management to apply standard costing system is different (Zgrdy, 2000).

In many cases mandatory for projects costing Quality Company is facing managers while the quality costing practices through benchmarking (Benchmarking) is one of the ways that organizations can conduct themselves towards progress and development. The term "benchmark" of engineering as an indicator compares the position with which they are implemented. But management is "Benchmarking the search for industry best practices or services achieves the highest level of performance "(Alaghebandan, 2001). The accurate identification of target costing is a costing speech quality. Development of quality costs, the concepts that have been proposed, which is consistent with the target costing system, cost management a strategic concept seeks to reduce product costs, before the production cycle (Horvas *et al.*, 1998). Therefore, the study can be extended with the concept of quality cost management accounting in many structures and costing systems, including the three-dimensional triangle (Goudarzi, 2003). Total Cost of Ownership (Al-Ram, 2002) seen. This study due to lack of funding, lack of familiarity with many of the principals of quality cost concepts, costing systems of the activity done and seek to prove the following hypothesis is derived:

1. There is a relationship between the cost of preventive and cost.
2. There is a relationship between the cost of quality and cost of the company.
3. There is a relationship between internal failure costs and the cost of the company.
4. There is a relationship between external failure costs and the cost of the company.

Background and Theoretical Framework

Take a two-dimensional quality model that was developed by Kano, also in terms of quality cost analysis can be useful. According to this model, the quality of the required quality (quality of the customer's expects to be there) and attractive quality (no quality that customers expect it and it is breathtaking) is formed (Farsijani, 2007). Dr. Deming believed that quality leads to lower costs (in contrast, the fact that some of the expensive count). Accounting for quality to determine how we will achieve quality, cost and pay the cost of bad quality, you can better control costs and by providing detailed information about the proactive bad quality and results in quality outcomes, provides strategic decision making for managers (Ali *et al.*, 2010). Ramudhin *et al.*, (2007) investigate the challenges presented by the introduction of an integrated model of quality costs and the study began with modeling supply chain networks. He also stated that if the scenario combining the operational costs of supply chain network design quality a series of quality costs, including costs to be minimized.

This scenario combines quality costs in the supply chain network design will ensure the overall cost. Because the cost of failure and the possibility of additional costs are due to corrective actions, reduce head. Zugarramurdi *et al.*, (2007), in their study examining the cost of quality for food processing companies have expressed to assess the effectiveness of the quality management system, a realistic estimate of the cost of quality is essential.

Authority announced Sower and Quarles (2007), in a study titled "Use of Quality Costs and its association with mature quality management system "to study the relationship between the distribution of quality costs and maturity level of an organization's quality management system is presented. And also to what extent the system of quality costs associated with quality management system in the organization is involved. In their study to analyze why some organizations use quality cost system does not have too.

Their study by analyzing the correlation between the two components of organizational maturity level of operational considered the cost and quality.

The Cost of Quality

Quality costs in the early 50th century and has evolved over the past five decades as a structured approach, in addition to their independent nature could also be used as performance measures total quality management. Rahnamaee (2007), states that a process-based approach to costing, quality costing conceptually a measure of the balance between the costs of preventive and costs against the costs of quality assurance and quality losses and customer dissatisfaction is bad. Dr. Deming believed that quality leads to lower costs (as opposed to the fact that some of the expensive count) in fact, this statement is confirmed is due to the lack of spending on prevention activities and a comprehensive review of the costs and results of their activities. Also Aldridge *et al.,* (2006) argue that although the implementation of the quality needed to survive in a turbulent and competitive environment in the present age has become but it should be noted that the ultimate goal of such measures is to promote the organization and increase its profits. If you have a need to enhance the quality, then we can be an essential tool for managing costing, quality improvement organizations deemed to be part of the cost of quality are:

Prevention costs include the cost of activities to prevent problems and failures are, know the products. Spent to reduce defects and faults in the product at various stages, Log in to deliver the final product is the company's products (Farsijani and Kyamhr, 2008), as the cost of training, planning, quality control and process. Appraisal costs: These costs are used to determine compliance failure to meet the specifications of the product with the desired quality characteristics spent (Farsijani and Kyamhr, 2008), such as inspection costs and test input, process, product, create, and implement a system of quality certification, quality products and ... internal failure costs: These costs include faults that occur at different stages before delivering the product to the customer and organizations in different ways, such as inspection and testing by QC staff or external auditors to follow the defect and the action to remove them (Farsijani and Kyamhr, 2008) costs such as the cost of waste (Salvage), repair and rework, failure analysis, repair and modification of incoming raw materials and external failure costs: costs for evaluating, correction or replacement of the product must be paid by the customer (Farsijani and Kyamhr, 2008), such as warranty costs, costs of customer complaints and the cost of returning the product.

In several research studies that have been done in this field, for various definitions of quality costs is presented. Narasimhan (2000) states that a common feature of all these definitions can be defined the costs of implementing the quality and mismatch cost is generally divided into two categories. Implementation costs, costs that are solely intended for product or service quality, such as inspection fees.

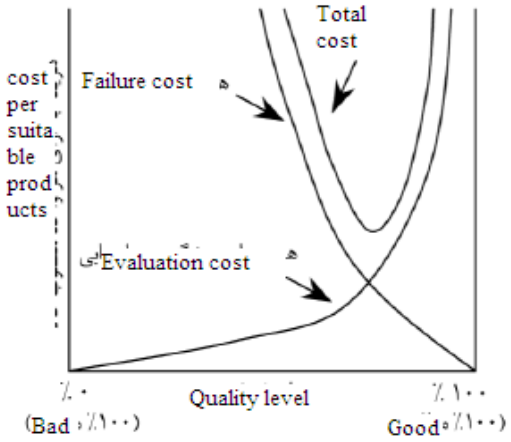

Figure 1: The optimal level of spending quality

In this diagram it is clear that the optimal level of quality at the lowest cost possible quality that is the basis of quality costing. So there is a level of quality where quality costs are minimal indeed. However,

critics have objected to this theory. Schiffauerova and Thompson (2006) says Finer (1986), Davos (1989), Marcellus and Dada (1991) proposed the model offers an accurate picture of quality and standing of economic levels, but in terms of dynamic and multi-period, the cost of failure with time and without the need to increase prevention and appraisal costs are reduced and also stated that there is no point for quality and economic efficiency in fact, the optimal level of quality is flawless.

Cost

Cost Accounting Management accounting is one branch that is responsible for various tasks such as: establishment of cost control, inventory valuation and in order to achieve certain goals, such as achieving an appropriate cost and middle managers in making decisions for the future. Cost Accounting Definitions are provided for many among them are the following definition: "Cost Accounting branch of accounting refers to the task was to gather information related to the cost, calculate the cost of goods and services, and also provide methods for reducing the cost of production, through the analysis of reports and methods of production. Managers, using information provided by the accounting cost centers from factories that have lower efficiency or have not done their job properly identify it. Using industrial management accounting, cost of production is calculated and their control over the cost of materials, labor and other production costs will apply. If the reports are not accurate management of cost factors in its decision to increase production or other decisions and to carry out their decisions will be difficult.

Model and Methodology

This study based on objective is applied and correlation research. Correlation analysis is a trend or patterns two (or more) or a collection of data sets a consistent and logical manner with the change (Sarmad *et al.*, 2010). Since the companies listed in Tehran Stock Exchange, subject to certain regulatory provisions Stock securities are expected to be created and provided by the companies of cohesion, grabber confidence and higher quality. The spatial domain or the population of the study consisted of all companies since the beginning of fiscal year 2011 to fiscal year 2012 was the end. Given the nature of this research study are also some inconsistencies between the firms listed in Tehran Stock Exchange, the following conditions are intended to determine the statistical community.

1. Manufacturing companies are under investigation.
2. The commodity produced in mass production and customized products are not.
3. During the research study may not be skipped.
4. Sales and raw material manufacturing company is mainly domestic.
5. By the end of Year 89 have been accepted in Tehran Stock Exchange.
6. Exist at the end of the production value chain.
7. In the automotive industry, pharmaceutical, food, cement, petrochemical and ceramic tiles are used.

Given the assumptions made, 66 companies were selected as the sample survey. The study is also descriptive and inferential statistical techniques were used. Using the information gathered descriptive statistics; calculated using tables and graphs, graphs Graphical tools have been analyzed. Analytical techniques to test hypotheses and answer questions based on the probability are used. Analysis of the survey data and test hypotheses have been done by Excel and EVIEWS. This means that the information provided by databases in Excel and SPSS software, and sorting by category software EVIEWS then ported to appropriate statistical tests to be performed on them. The method of this research is that panel data models to a panel data set called that includes both time-series and cross-cutting. Mathematical models in the study are as follows:

The Main Hypotheses

$$CFC = \alpha + \beta_1 TCQ$$

TCQ: towards total quality costs to sell

CFC: The total cost to sales ratio

Multiple regression model variables are as follows: the hypothesis of a fourth

$$CFC = \alpha + \beta_1 CP + \beta_2 CVQ + \beta_3 CBI + \beta_4 CBO + \in$$

In the above equation:

CP: Prevention of the overhead costs
CVQ: Quality assessment of costs in overhead costs
CBI: Failure of internal overhead costs
CBO: external failure costs compared to overhead

Summary of Statistical Results

1.3 Descriptive Analysis of Research Data

Of the 66 companies selected for the study from the automotive, pharmaceutical, food, cement, petrochemical and ceramic tile listed in Tehran stock market has been cooperative with investigators to conduct research, and all of them had the least activity. Given that the research was conducted in two years a total of 132 data for each company that is classified as the following diagram:

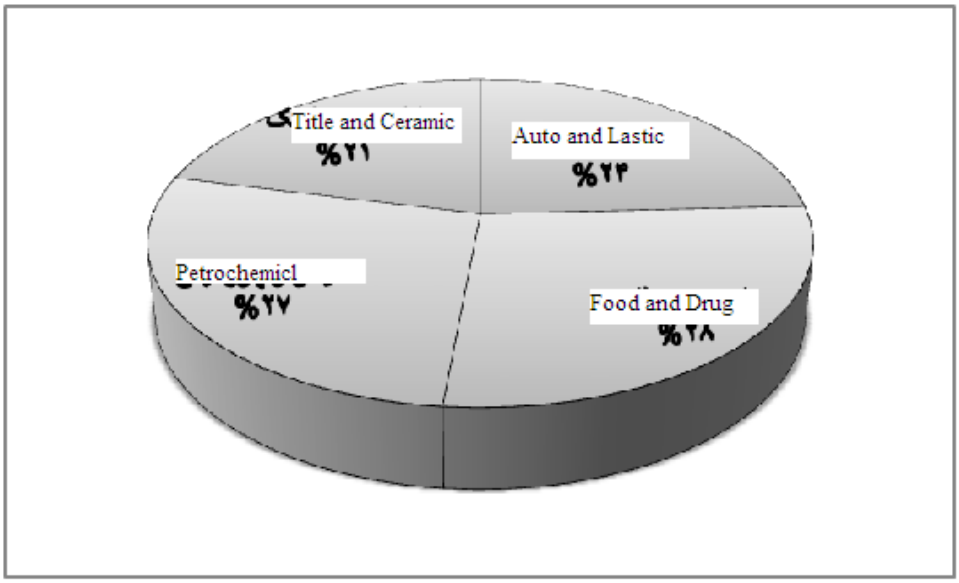

Figure 2: Frequency of investigated companies, by industry

The statistical results obtained by the present study are as follows:

Table 1: Descriptive analysis of the statistical results

		CFC	CP	CVQ	CBI	CBO	TCQ
Sample size		132	132	132	132	132	132
Mean		0.747288	0.2171	0.0612	0.1573	0.1498	17.2812
Middle		0.761500	0.1745	0.0545	0.164	0.0905	11.9912
Mode		0.8700	0.127	0	0	0.085	.98
Standard deviation		0.1620494	0.2348	0.0416	0.053	0.1431	28.96821
Skewness		-0.524	4.853	1.843	-0.702	1.978	6.339
Elongation		0.953	38.52	7.07	0.786	4.577	51.012
Minimum		0.2440	-0.126	0	0	0	.98
Maximum		1.2030	2.202	0.264	0.257	0.845	274.96
Quarter	First	0.6403	0.0373	0.127	0.0653	3.2000	3.2000
	Second	0.7615	0.0545	0.164	0.0905	11.9912	11.9912
	Third	0.8603	0.0808	0.191	0.1905	20.9868	20.9868

Statistical Analysis of Research Data

The results suggest that prevention costs and variable costs in the cost of company-wide quality assessment of error is less than 5% impact to test the influence of these variables are significant because the amount is less than 0.05. In conclusion, one can say with 95% confidence that the costs of prevention and appraisal costs affect the quality of the company's cost. Sign of the regression coefficient for the relationship shows so be proactive and spending quality assessment and payment of the cost of the firm's image and thus increase the costs of prevention and appraisal costs lead to lower quality of the company's cost. However, both internal and external failure costs to variable costs do not impact the company in less than 5% error level to test the influence of these variables are significant because the value is greater than 0.05. In conclusion, one can say with 95% confidence that the internal and external failure costs are not reflected in the cost of the company. And the two sub-hypotheses are rejected at less than 5% error.
The coefficient of determination indicates that the variable cost of quality 1/50% explains the changes the company.

Table 2: The estimated coefficients of the substance on the cost price

Variable	Factor	Standard deviation	T	Prob	Result
C	0.11830	0.0235	5.02531	0	Confirmatio
CVQ	-0.378	0.1129	-3.3491	0	Confirmatio n
CP	-0.1019	0.0381	-2.6749	0.0042 8	Confirmatio n
CBI	-0.0183	0.0160	-1.1459	0.3492	Rejection
CBO	-0.0209	0.0138	-1.5092	0.1189	Rejection
overall F-value	13.69	Significant level	0		
The coefficient of determination adjusted	0.42				

Based on the above research model as the following equation is obtained:
CFC it = 0.1183 – 0.378 CVQ it - 0.1019 CP +Uit
In this regard, CFC represents the ratio of cost to sell, CVQ quality assessment costs, and costs of prevention is CP. The dependent variable is due to the lack of impact of error level of research are excluded from the model. Also in the relationship between the total cost of quality and cost of the company following relationship is obtained:
CFC it = 0.05546 -0.023 TCQ it +Uit
In this regard, the ratio of cost of sales and TCQ CFC of quality costs sell. Whatever that is less than CFC represents an increase in the company's performance. TCQ also grow towards the internal management and long-term perspective.

Conclusion

The results obtained are somewhat at odds with previous research as compared with the research results Kiamehr and Farsijani (2008) have said that they own the place in the study of quality costs in the management of an organization engaged in promoting showed that lack of attention to the quality and cost-efficiency of waste the resources are low. In this sense, our results indicate achieve greater efficiency and increased costs related to enhancing the quality of operating margin next. Also Farsijani and Kiamehr in their study according to PAF model quality items cost external failure costs (external), internal failure costs (internal), assessment of costs and preventive costs as a component of cost of study quality were introduced completing each country examined in several petrochemical companies. It is noteworthy that, unlike the results obtained by Farsijani and Kiamehr survey in this study, only two of the four

components mentioned above are known to influence the cost of quality. Eghbal (1889) in their study showed that the provision of quality costing with a quality balance sheet and define four categories of quality costs and determining the difference between the two techniques to improve the quality of the balance sheet can be achieved. They further stated that the amount of internal and external failure costs and prevention costs are quality assessment and hence their difference is always in favor of internal and external failure costs and managers can be programmed to eliminate these costs. Eghbal (1889) results that have been obtained and despite being focused on the impact of the high cost of quality, but the emphasis on tangible results of the company have not changed. It should be noted that the results are partly in line with this study is the study also failed because the costs of internal and external factors that are known to have low and hence the elimination of these costs to the benefit of both studies was to evaluate (Eghbal, 2010).

The main hypotheses have shown that there is an inverse relationship between the cost of quality and cost, by increasing the quality and reducing costs in cost of sales as a way to show your strong, this could be the result of sales growth, product quality and reduce production costs is thrown. Accordingly, the Company proposes to increase its profit margin percentage and also the costs of sale could raise their quality to an acceptable level, this would also lead to the development of brand products among competitors. Manufacturing companies also suggested that if the cost of quality, their marketing expenses also increased accordingly aspects of the production quality is known to be more transparent to customers. According to the result of secondary hypotheses suggest that corporate managers to increase their quality costs, mainly focused on evaluating the quality of the increased costs and the cost of preventive strategies. Given that some of these costs have a significant impact on the quality of the production company therefore, companies can increase the cost of training staff and line maintenance machines inspection at all stages of production and costs and expenses primarily increased attention to preventive measures such as cost of transportation and return of goods in the second act as the company's gross profit margin has increased its greatest impact on the quality and cost of the response action changes the cost considerably.

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