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A Comparative Study of Culture and Performance in TQM, ISO and Non-TQM Firms

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Abstract

The cultural adaptation determines the degree of success or failure of the implementation of TQM. To minimize the risk of failure, the company management must have knowledge of the dominant culture in their company. This paper aims to determine the comparative study of national culture, organizational culture and performance prevailing in TQM and non-TQM firms. TQM firms are a company that implements a TQM system, and divided two types, namely TQM and ISO firms. This research will take several Indonesian companies as relevant samples. The data are used to examine the differences between Hofstede's national culture, Cameron's organizational culture and performance among these companies. Evidence indicates no significantly different of organizational culture between the three types of firms, except the long time orientation dimension. In organizational culture no significantly different between TQM and ISO firms, however the non-TQM firms are different. Investigation of performance has a significant difference between firms. Companies that implement TQM have better organizational culture and performance value than non-TQM firms. The result of this study provides an important practical assistance to Indonesia practitioners and academics in better understanding culture effect. These can help to design and develop a culture for successful implementation of TQM.

Keywords: National culture, organizational culture, performance, TQM, ISO

1. Introduction

Culture is the values derived from social, economic, legal, political and religious norms, and traditions of the society. Culture characterizes the behavior of individuals in a social group, with other groups and depending on the individuals themselves. This is also about actions taken within their individual situations in all spheres of life. Research in cross-cultural studies has long demonstrated that cultural values can play a significant role in international operations and organization's management practices [8][10][17]. Another researcher shows that differences in national cultures may require differences in the management practices of organizations, and organizational culture is being recognized increasingly as an important determinant of quality management success and organizations performance [3] [12] [13]. Many companies fail to implement TQM because they do not recognize that the

implementation of the procedure may be a fundamental change of direction, the values and culture of their company [5].

The national and organizational culture has a relationship between success and barrier in the implementation of TQM [14][15]. The clan and adhocracy of the organizational culture provide the best working environment for the successful implementation of TQM [2]. Organizational culture affects soft and hard TQM [19]. In the Indonesian context, previous research has proposed the obstacles to critical issues of the quality management system are characterized as social-cultural dynamic rather than technical-structural Indonesia [7]. Therefore, the cultural adaptation and organizational formation need change to match the TQM approach is the key to successful implementation of TQM.

Studies on national culture, organizational culture, and performance in Indonesian did not identify the differences these cultures and performances between TQM firms and non-TQM Firms. TQM companies are divided into two types, namely TQM and ISO Firms. TQM firms are a company that implements a TQM system or certify ISO greater than three years. While the ISO firms are company certify ISO less than or equal to three years. This study raises the awareness of problems in the influences of cultural changes that may be related to the implementation of TQM in Indonesia companies. The aims are to investigate a different national culture, organizational culture and business performance between companies that has implemented TQM, ISO and non-TQM firms. It provides a significant contribution in better understanding the nature and type of national culture and organizational culture and helps managers to understand their culture and evaluate organization formation for implementing TQM more effective.

2. Review of Literature

2.1 National Culture

Geert Hofstede [9] [10] is recognized internationally for having developed the first empirical model of “Dimensions” of national culture, Hofstede's framework was based on the assumption that people around the globe are guided and driven by different attitude, beliefs, morality, custom and ethical standards. Societies have different traditions, religions and rituals and have different ways of dealing with family issues, work matters, social occasions and their personal responsibilities. The values that distinguished countries from each other could be grouped statistically into four clusters (Power Distance, Individualism versus Collectivism, Masculinity versus Femininity, Uncertainty Avoidance). These four groups became the Hofstede's dimensions of national culture.

Geert Hofstede added a fifth Dimension after conducting an additional international study with a survey instrument developed with Chinese employees and managers. The fifth dimension, based on Confucian dynamism, is Long-Term Orientation (LTO**),** Therefore, Hofstede's fifth dimensions of culture applied in this study namely:

1. **Power Distance -** Power Distance (PD) expresses the degree to which the less powerful members of a society accept and expect that power is distributed unequally. The fundamental issue here is how a society handles inequalities among people. People in societies exhibiting a large degree of

power distance accept a hierarchical order in which everybody has a place and which needs no further justification. In societies with low power distance, people strive to equalize the distribution of power and demand justification for inequalities of power.

2. **Collectivism -** Collectivism is the degree to which people act as group members. In Collectivism, societies represent a preference for a tightly-knit framework in society in which individuals can expect their relatives or members of a particular in-group to look after them in exchange for unquestioning loyalty.
3. **Uncertainty Avoidance -** The uncertainty avoidance is the degree to which people feel uncomfortable with uncertainty and ambiguity. Societies that have High Uncertainty Avoidance are likely to have greater control in well-planned organization structures. Countries exhibiting strong UAI are likely to have greater control in well-planned organizational structures and will have expertise and knowledge-driven organizations and seek to exercise control through well-planned process. These societies are likely to maintain rigid codes of belief and behavior and are intolerant of unorthodox behavior and ideas.
4. **Masculinity -** The masculinity side of this dimension represents a preference in society for achievement, heroism, assertiveness, material reward for success, and competition prevail. In Masculinity societies, management styles are assertive to provide a clear sense of direction and control of organizational members to attain goals and objectives.
5. **Long-term Orientation -** The long-term orientation dimension can be interpreted as dealing with society's search for virtue. In societies with a long-term orientation, people believe that the truth depends very much on the situation, context and time. They show an ability to adapt additions to changed conditions, a strong propensity to save and invest, thriftiness, and perseverance in achieving results.

2.2 Organizational Culture

Cameron and Quinn [5] have developed an organizational cultural framework built on a theoretical model called the "Competing Values Framework". This framework refers to whether an organization has a predominant internal or external focus and whether it strives for flexibility and individuality or stability and control. The framework is also based on six organizational cultural dimensions and four dominant culture types (i.e. Clan, adhocracy, market, hierarchy) as shown in figure 1.

In addition, Cameron and Quinn [6] generated an Organizational Culture Assessment Instrument (OCAI)' which is used to identify the organizational culture profile based on core values, assumptions, interpretations, and approaches that characterize organizations. In this respect the overall cultural profile can be identified as:

1. **Clan** – the Organization such as having concentrates on internal maintenance with flexibility, concern for people, and sensitivity for those it serves. Clan culture, values cohesiveness, participation and teamwork. They develop an environment stressing human relationships where managers empower their staff and facilitate them to participate and commit.

2. **Adhocracy** - The organizations that concentrate on external positioning with a high degree of flexibility, individuality and adaptive. They can use new resources to gain further profit. However, they bear high risks and greater uncertainties. Success means gaining unique and new products or services, risk taking and anticipating the future.
3. **Hierarchy:** the organization has a clear organizational structure, standardized rules and procedures, strict control, and well defined responsibilities. Hierarchy culture stresses order and regulations. The leadership style is administrating. Tracking and control are emphasized relatively to clearly stated goals.
4. **Market:** the organization that focuses on the transactions with the external environment the organization instead of on the internal management. Market-driven culture focuses on competitiveness and goal achievement to earn profits through market competition.

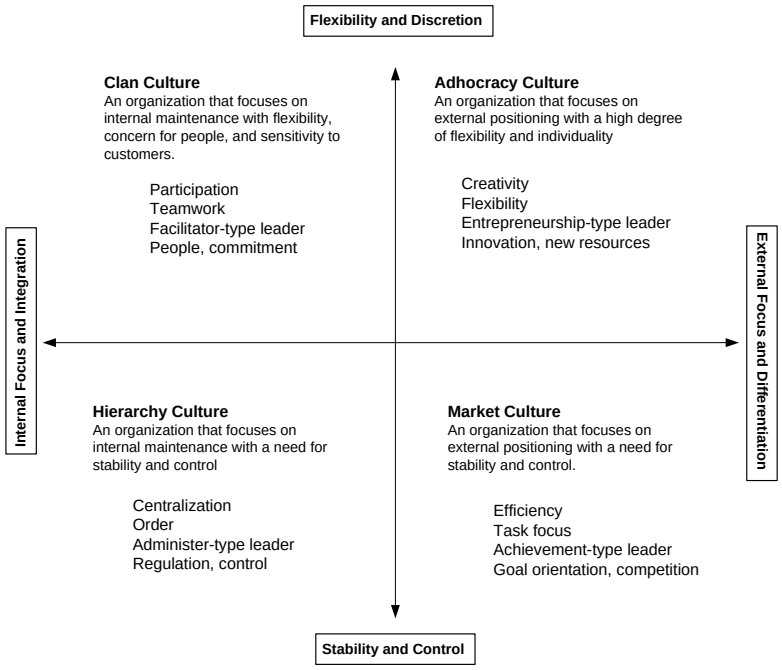

Figure 1. The competing values framework of organizational culture [5]

2.3 Culture, Total Quality Management and Performance

Understanding the difference of the dominant national culture and organizational culture before the implementation of TQM and their impact to performance is important. Changes in working environments produce different emphases within an organization. Thus, new approaches to learning and adaptation are required. The cultural change can be initiated by top management [4]. Leaders must focus on what the objectives of the organization and implement appropriate strategies and in accordance with the subordinates to achieve the company's success.

Baldrige criteria are consistent with Hofstede's cultural dimensions [8]. In that paper, they examined the relationship between Baldrige constructs and national cultural dimensions. The results show that with the Baldrige constructs work success has higher levels of uncertainty avoidance, power distance, collectivism and masculinity. Another researcher, the national culture has a positive effect

on the organizational culture, while the organizational culture has a significant effect on the implementation of TQM in Indonesia [14].

A relationship between national culture and TQM implementation in Iranian is reported by Abbas Mardani *et al* [1]. They investigate Hofstedes national culture to affect TQM implementation. Power distance, long-term orientation, and individualism are most critical elements that can affect the TQM implementation effort. Other previous researcher proposed the national and organizational culture has a relationship between success and barrier in the implementation of TQM. The clan and adhocracy cultures provide the best working environment for the successful implementation of TQM [2][15], and the values of national culture moderate the effect quality management has on quality performance [17].

2.4 TQM Implementation in Indonesia

Total Quality management issues were first recognized in 1980 [4], it was introduced in a number of multinational companies, particularly, the Japanese-Indonesian joint venture companies and Japanese companies in Indonesia. The initiative began by presenting workshops on quality management, quality assurance, and QC circle activities. The pioneer company, which consciously sought to cultivate a quality culture in Indonesia, is Astra International, a Japanese-Indonesian joint venture company. Other companies which are implemented the TQM concept are the Japanese electronics company. In 1982 top management Astra formulated and decided TQC as an Astra management system and in October 1983 Astra Total Quality Control (ATQC) began a massive training ATQC to all levels of the Astra management group. The quality activities such as QCC and other activities under TQM have been successfully implemented. In the meantime, a number of experts and scholars began to disseminate the knowledge of TQM by QC club. On 1 March 1985, the Indonesian Quality Management Association was established. One of its duties was to cooperate with relevant governmental agencies to promote TQM in the country to improve national productivity. At the same time, many people working in firms accepted education and training on TQM.

Today, many Indonesia companies have implemented TQM, such as in state-owned, joint venture and private company, not only in manufacturing companies but also in service companies. In fact, Indonesia companies still lacked effective in TQM systems and implementation of the companies. As a consequence of TQM is not well defined in Indonesia and has an ambiguous concept. Most Indonesia companies have implemented ISO 9000 in order to improve their quality systems and their first step towards TQM implementation. However, the major TQM implementation practices in Indonesia companies could be summarized as: using various kinds of quality management tools such as the statistical process control and QC seven tools in practice; analyzing and identifying quality-related costs; implementing QC circles activities; emphasizing quality inspection; establishing quality bodies (e.g., QC offices) in company; conducting quality audits; strengthening process control and improvement, and after sales services. In addition, a minor research has been conducted about the confusion of TQM concept and TQM effects. Furthermore, no research could be a guide for developing a TQM implementation model that can be used by Indonesia companies to improve their

TQM implementation efforts. The lack of sufficient guidelines to assist TQM implementation has been caused many Indonesia companies have experienced difficulties or failures in TQM implementation.

3. Methodology

A survey instrument in this research is developed based on the previous research. The model is used to investigate a difference national culture and organizational culture between companies that has implemented TQM and non-TQM. In this study, the national cultural variables were based on the work of Wu Ming-Yi [18]; Drajat I [7]. Organizational Culture Assessment Instrument (OCAI), as developed by Cameron and Quinn [5] based on the Competing Values Framework, is used to measure organizational culture. The instrument was measured at five points of Likert scale. In the study participants are expressing their opinions, their agreement or disagreement using a five-point Likert scale, namely: (1) Strongly Disagree, (2) Disagree, (3) undecided, (4) Agree, and (5) Strongly Agree. Based on research objectives, to clarify difference national culture and organizational culture between TQM firms, ISO firms, and non-TQM Firms in Indonesia, following the three hypotheses are offered:

H1. The national culture is significantly different between TQM firms, ISO firms and non-TQM firms. National culture represents five factors such as power distance (PD), uncertainty avoidance (UAI), masculinity (MAS), collectivism (CLV) and long-term orientation (LTO).

H2. The organizational culture is significantly different between TQM firms, ISO firms and non-TQM firms. Organizational culture represents four factors such as clan culture (OC1), adhocracy culture (OC2), hierarchy culture (OC3), and market culture (OC4).

H3. The performance is significantly different between TQM firms, ISO firms and non-TQM firms. The performance represents two factors such as financial performance (OP1) and non-financial performance (OP2).

This study uses postal survey. The population is the companies in Lampung province in Indonesia that has implemented TQM, or at least part of TQM (ISO certificate), therefore, they have some knowledge of the implementation of TQM or ISO system. The type of sample and the number of companies are determined on the basis of the information as required. Prior to distributing questionnaires, managers are interviewed using the telephone. We visited each company periodically and checked the progress of each company.

The company information was obtained from the Lampung Provincial Statistics Bureau. There are several large and medium companies in the Lampung Province. A sample of firms was randomly selected from the database. A total involved sample of 175 questionnaires (senior executive, general manager, quality manager, managerial level and ordinary employees) in these companies. The breakdown of the sample shown in table 1 and table 2.

Table 1. Number of firms implemented TQM

Firms Type	Frequency	Percentage (%)
TQM Firms	59	33.7
ISO Firms	70	40.0
Non-TQM Firms	46	26.3

Table 2. Industrial type of respondent firms

Industrial Type	Frequency	Percentage (%)
Food Industry	44	25.1
Furniture and Wood Industry	4	2.3
Chemical and Petrochemical	7	4.0
Mining	3	1.7
Agribusiness Industry	4	2.3
Media Industry	33	18.9
Electrical and Electronic Industry	11	6.3
Building and Civil construction	33	18.9
Trading Industry	11	6.3
Others	25	14.3

4. Result and Discussion

Data were collected from respondents for each type of firms was analyzed using SPSS 21. Factor-analysis and Cronbach's alpha test conducted by analyzing the data collected. As 11 reliable and valid factors are identified, one-way ANOVA followed by multiple-comparison tests used to compare mean variable scores of national culture, organizational culture and performance variable samples between TQM Firms, ISO Firms, and non-TQM Firms. Earlier researcher [11][16] used one-way ANOVA to compare the differences of variables.

The reliability tests with Cronbach's alpha test generate the alpha coefficients range from a minimum of 0.731 to a maximum of 0.931, which indicates that the scales are reliable. The validity test with factor-analysis formed in a single factor with eigenvalue greater than one. The percentage of variance range from a minimum of 47.714 to a maximum of 79.624 and the factor loading range from a minimum of 0.599 to a maximum of 0.911, the results show that all constructs have good construct validity.

The average and standard deviations of the five dimensions national cultures, the four dimensions organizational cultures and the two variable of company performance for each firm were tabulated are shown in Table 3, Table 4 and Table 5, respectively.

Table 3. Five dimensions national cultures, three firm types

National Culture			Types of Firm			
			TQM	ISO Firms	Non-TQM Firms	All
1	Power Distance (PD)	Mean	2.6780	2.5929	2.6576	2.6386
		SD	0.7685	0.6287	0.4095	0.6312
2	Uncertainty Avoidance (UAI)	Mean	4.2136	4.1343	4.0130	4.1291
		SD	0.4577	0.4370	0.3138	0.4207
3	Masculinity (MAS)	Mean	3.3017	3.2800	3.0348	3.2229
		SD	1.0637	0.8843	0.5355	0.8799
4	Collectivism (CLV)	Mean	4.1483	3.9143	3.9565	4.0043
		SD	0.5782	0.6166	0.5757	0.5990
5	Long Term Orientation (LTO)	Mean	4.1412	3.9667	3.5435	3.9143
		SD	0.5439	0.4820	0.6416	0.5934

Table 4. Four dimensions organizational cultures, three firm types

Organizational Culture			Types of Firm			
			TQM	ISO Firms	Non-TQM Firms	All
1	Clan Culture	Mean	4.1780	4.1381	3.9167	4.0933
		SD	0.5621	0.5076	0.4840	0.5287
2	Adhocracy Culture	Mean	4.2006	4.1143	3.9312	4.0952
		SD	0.5232	0.4346	0.3471	0.4564
3	Hierarchy Culture	Mean	4.2458	4.2000	3.9601	4.1524
		SD	0.5032	0.4166	0.5546	0.4964
4	Market Culture	Mean	4.3079	4.1881	3.8768	4.1467
		SD	0.5093	0.4052	0.4899	0.4924

Table 5. Two variable performances, three firm types

Performance			Types of Firm			
			TQM	ISO Firms	Non-TQM Firms	All
1	Financial Performance	Mean	4.5212	4.2500	3.9402	4.2600
		SD	0.5710	0.5125	0.5431	0.5825
2	Nonfinancial Performance	Mean	4.4213	4.2000	3.8975	4.1951
		SD	0.6280	0.5121	0.4834	0.5802

The average scores from Tables 3 and 4 were plotted to provide a clear picture of current national and organizational culture operating in Indonesia companies as shown in Fig. 2. The Indonesian national culture is more dominant in uncertainty avoidance and collectivism with an average value greater 4.0 shown in Fig. 2A. Organizational culture profile in TQM firms more dominant than non-TQM firms, however the whole culture of hierarchy has value greater than another culture shown in Fig. 2B. Table 5 shows company performance value in TQM and ISO companies greater than non-TQM firms. The results are consistent with the previous assumption.

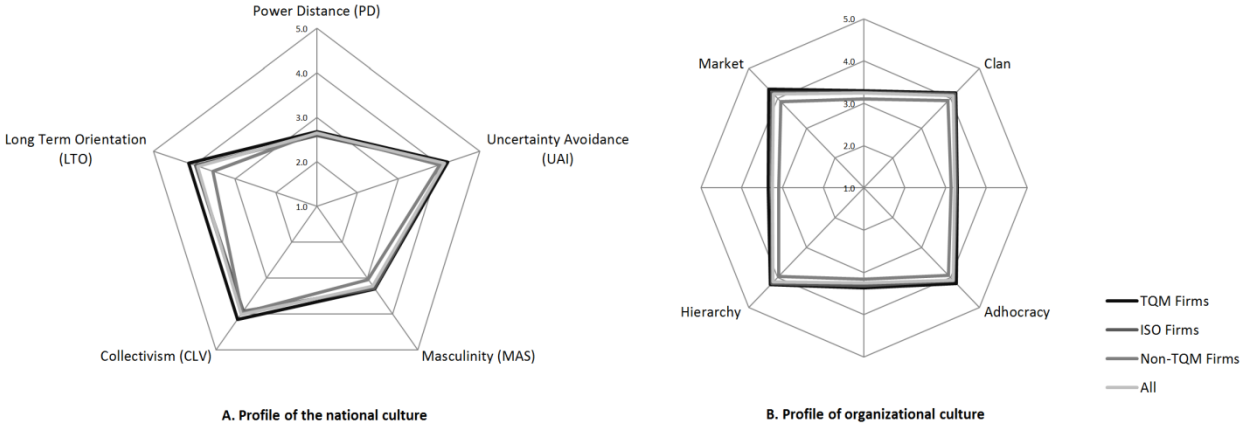

Figure 2. Profile of the national and organizational culture

Testing hypotheses, use the one-way ANOVA technique to examine the significance of the dimensions of culture and performance. After the analysis of the dimensions of culture and performance, the dimensions which differ are identified. Post hoc tests are applied to those dimensions to check the significant differences in the culture and company performance in each firm.

Table 6 presents the one-way ANOVA analysis using five dimensions of national culture as dependent variables and firm types as independent variables. The national culture does not significantly differ between TQM firms, ISO firms and non-TQM firms (hypotheses H1). Since the calculated result more than 0.05 significant levels, the one-way ANOVA has depicted no significant values for power distance (PD), uncertainty avoidance (UAI), masculinity (MAS), and collectivism (CLV). However, long term orientation (LTO) has significant values less than 0.05 significant levels. These results are consistent with the previous assumption that all firms have similar national culture in the same country.

Table 6. One-way ANOVA analysis of national culture between firm types

National Culture		Sum of Squares	df	Mean Square	F	Sig.
Power Distance (PD)	Between Groups	.255	2	.127	.317	.729
	Within Groups	69.073	172	.402		
Uncertainty Avoidance (UAI)	Between Groups	1.042	2	.521	3.012	.052
	Within Groups	29.759	172	.173		
Masculinity (MAS)	Between Groups	2.222	2	1.111	1.443	.239
	Within Groups	132.486	172	.770		
Collectivism (CLV)	Between Groups	1.896	2	.948	2.693	.071
	Within Groups	60.539	172	.352		
Long Term Orientation (LTO)	Between Groups	9.556	2	4.778	15.892	.000
	Within Groups	51.714	172	.301		

Note: *. The mean difference is significant at the 0.05 level.

Organizational culture has significantly different between TQM, ISO and non-TQM Firms (hypotheses H2) are shown in table 7. The calculation result of clan culture, adhocracy culture, hierarchy culture, and market culture are less than 0.05 significant levels. The implementation of TQM requires a change in organizational culture, it causes the cultural differences between the firms. The culture change is one of the cores that determines the success of implementation of TQM [5][14][15].

Table 7. One-way ANOVA analysis of organizational culture between firm types

Organizational Culture		Sum of	df	Mean Square	F	Sig.
Clan	Between Groups	1.999	2	.999	3.685	.027
	Within Groups	46.644	172	.271		
Adhocracy	Between Groups	1.918	2	.959	4.806	.009
	Within Groups	34.328	172	.200		
Hierarchy	Between Groups	2.373	2	1.187	5.038	.007
	Within Groups	40.508	172	.236		
Market	Between Groups	5.004	2	2.502	11.576	.000
	Within Groups	37.176	172	.216		

The performance has significantly different between TQM, ISO and non-TQM Firms (hypothesis H3). The calculated significant values for financial performance and nonfinancial performance are less than 0.05 significant levels, as shown in Table 8. The results revealed the TQM firms have better company performance than the non-TQM firms.

Table 9 shows the post hoc test analysis for different variables significantly. Long time orientation (LTO) dimensions of national culture, the non-TQM firms have significant differences than TQM and ISO firms. In an organizational culture study no significantly different between TQM and ISO firms, however the non-TQM firms are different. Whereas, financial performances study has significantly different between three types of firms. For non-financial performances no significantly different between TQM and ISO firms, however the non-TQM firms are different.

Table 8. One-way ANOVA analysis of performance between firm types

Performance		**Sum of**	**df**	**Mean Square**	**F**	**Sig.**
Financial Performance	Between Groups	8.736	2	4.368	14.933	.000
	Within Groups	50.309	172	.292		
Nonfinancial Performance	Between Groups	7.094	2	3.547	11.849	.000
	Within Groups	51.489	172	.299		

Note: *. The mean difference is significant at the 0.05 level.

Table 9. Post hoc tests (Multiple Comparisons)

Dependent Variable			**Mean Difference**	**Std. Error**	**Sig.**
Long Term Orientation (LTO)	TQM Firms	ISO Firms	.1746	.0969	.172
	TQM Firms	Non-TQM Firms	.5978*	.1079	.000
	ISO Firms	Non-TQM Firms	.4232*	.1041	.000
Clan	TQM Firms	ISO Firms	.0399	.0920	.902
	TQM Firms	Non-TQM Firms	.2613*	.1024	.031
	ISO Firms	Non-TQM Firms	.2214	.0988	.067
Adhocracy	TQM Firms	ISO Firms	.0863	.0790	.520
	TQM Firms	Non-TQM Firms	.2694*	.0879	.007
	ISO Firms	Non-TQM Firms	.1831	.0848	.081
Hierarchy	TQM Firms	ISO Firms	.0458	.0858	.855
	TQM Firms	Non-TQM Firms	.2856*	.0955	.009
	ISO Firms	Non-TQM Firms	.2398*	.0921	.027
Market	TQM Firms	ISO Firms	.1198	.0822	.314
	TQM Firms	Non-TQM Firms	.4311*	.0914	.000
	ISO Firms	Non-TQM Firms	.3113*	.0882	.002
Financial Performance	TQM Firms	ISO Firms	.2712*	.0956	.014
	TQM Firms	Non-TQM Firms	.5810*	.1064	.000
	ISO Firms	Non-TQM Firms	.3098*	.1027	.008
Nonfinancial Performance	TQM Firms	ISO Firms	.2213	.0967	.060
	TQM Firms	Non-TQM Firms	.5238*	.1076	.000
	ISO Firms	Non-TQM Firms	.3025*	.1038	.011

Note: *. The mean difference is significant at the 0.05 level.

Therefore, with implementation of TQM and ISO certificate, the company already has a standard for quality systems. A good management system to ensure the company will deliver the goods or services in accordance with the requirements set. This causes the company capable to build customer confidence and to compete in the global marketplace. The implementation of TQM and ISO certificate can be considered as institutional factors, and it is a most appropriate strategy to improving business performance.

5. Conclusions

There are several conclusions can be taken from the results and discussion. Based on the first hypothesis, the empirical findings indicate that the national culture has no significant differences between TQM, ISO and non-TQM firms, except the long time orientation dimension. This means there is no difference in the national culture of Indonesian companies.

The second hypothesis suggest an organizational culture no significantly different between TQM and ISO firms. However, the non-TQM firms are different. Since the differences in cultural context show that TQM implementation has changed the organizational culture on companies. Prior to implementation of TQM, non-TQM firm managers must have knowledge of the dominant organizational culture in their company. They evaluate their culture to develop steps of the implementation of TQM. It is necessary to create an environment and culture that supports the successful implementation of TQM.

The last hypothesis shows company performances are significant differences between three types of firms. These evidences indicate that TQM and ISO firms have better performance than non-TQM firms. It can be concluded that in order to achieve high performance, the company should implement TQM or part of TQM such as ISO certificates. By implementing TQM, companies have high standards in the quality management and culture.

The results are consistent with the previous assumption that national culture in the same country, all firms have similar national culture. However, the organizational culture and company performance are significantly different between types of firms.

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