ISO CERTIFICATIONS AND FIRMS PERFORMANCE: EVIDENCE FROM OMAN

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Abstract

This study investigates the impact of ISO certifications on the Omani industrial and services companies listed on Mascut Securities Market. The firm performance measured by financial performance and market performance. The first one is measured by return on assets, return on equity and net operating profit while the market performance is measured by market fair value of shares. ISO certifications were surveyed if the company does or doesn't have the certificate. ISO certification effect on performance was investigated in 80 Omani firms from both industrial (60%) and services (40%) sectors. In the industrial sector, MANOVA test showed that the ISO has a significant effect only on NOP. In the services sector, MANOVA test showed that the ISO has a significant effect on market fair value and return on assets.

Keywords: ISO Certifications, Financial Performance, Market Performance

JEL Classifications: D20, L16, F65

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1 Introduction

This study investigates the impact of ISO certifications on the Omani industrial and services companies listed on Mascut Securities Market (MSM). The firm performance measured by financial performance and market performance. The first one is measured by return on assets (ROA), return on equity (ROE) and net operating profit (NOP) while the market performance is measured by market fair value of shares (MFV). ISO certifications were surveyed if the company does or doesn't have the certificate. ISO certification effects on performance were investigated in 80 Omani firms from both industrial (60%) and services (40%) sectors.

The study consists of seven sections. In the first section, the study presented the introduction including the aims, problem of the study and the hypotheses. The ISO is discussed in the second section. The third section presents the literature review. In the fourth section, the study presented the model, data and methodology used in this study. Sections five and six provide results of the analysis, and finally, in section seven, the study presented the summary and conclusions.

The target population is all companies of two distinguished sectors listed on Muscat Securities Market (MSM) in Sultanate of Oman. There are 117 companies in three sectors listed on (MSM) during the period of this study. 48 companies in industrial sector and 34 companies in services sector (35 companies in

finance sector are not in the sample). Data of this study was collected from secondary sources. Accounting and market information were collected from MSM database. The methodology of the study is a content analysis of annual reports of a sample 80 companies out of 82 (97.5%) for the period 2009-2013. The study excluded 2 companies from services sector because the financial statements of those companies are not completed.

Multivariate analysis of variance (MANOVA) is used to test the hypothesis. T- test were used to find the differences between the two sectors. Normality check of the data was also carried out in this study.

2 Theoretical framework

The term ISO (Greek word *isos meaning "equal"*) is not, as many think an acronym for International Standards Organization. Instead, it is short for the International Organization for Standardization, which established the ISO 9000 quality standards (Richradson, 1996).

Martinez-Costa *et al.*, (2004) defined ISO 9000 as an effective system for the evaluation of the ability of an organization to design produce, and deliver quality products and services consistently. Sun *et al.*, (2004) also has it that the standard provides guideline for organizations for establishing of their quality management systems "by focusing on procedures, control, and documentation".

The Science and Engineering policy Studies Unit (SEPSU, 1994) came up with a more summarized definition for the ISO 9000 family of standard. ISO 9000 was defined as being about quality systems and about consistency. It aims to give customers confidence in their suppliers by assuring them that the suppliers have in place management processes that deliver consistency. The study also stated that ISO 9000 encourages but never in itself directly assures product quality.

From the above definitions, it could by conclude that ISO 9000 is only a criteria or process to be followed to achieve quality, and not the quality itself. In other words it must be emphasized that (ISO 9000 family), is not a special specification for products, it is a set of specifications that provide requirements and guidance necessary for establishing management systems designed to provide products or match the specific requirements of the services and to evaluate these systems . This means that the quality management system in the enterprise is the one which can achieve conformance with these specifications and not the products they offer. The gaining ISO 9000 certification does not guarantee quality of products and services, but rather it provides an assurance to customers that the organization has conformed to an international standard (Mei et al., 2008).

The International Organization for Standardization was established in 1946 after World War II, with the mission was the issuance of international standards and standardization in the industrial area in order to help facilitate the exchange between the countries and the development of cooperation among them. The ISO 9000 standards have been derived from the British Standards BS-5750 issued by the British Institute of Standards in 1979.

The ISO 9000 is a set of specifications and standards that have been considered requirements for quality systems by the International Organization for Standardization. The ISO specifications are based on basis of documenting all the systems and procedures, instructions and keeping appropriate records

ISO inaugurated a technical committee on quality management and quality assurance to develop a universally accepted set of quality standard. In 1987 ISO published the ISO 9000 standard series on quality management and assurance based on the commendable work of the committee (Hoyle, 2006). These standards were also revised in 1994 and 2000 respectively, and the most recent called ISO 9000:2000 family of standard (Nematollahi *et al.*, 2014).

According to the International Organization for Standardization (ISO), at the end of 2006 there were 897,866 certified companies in the world. With a growing annual rate of 20% for the period, 1995-2006, the number of ISO certified companies has been growing at a rate far higher than the economic growth (Martinez -Costa *et al.*, 2009).

The ISO 9000 was issued in its first issue in 1987 in order to standardize everything related quality systems, so that there is an international organizations that review quality systems in organizations and awards the required certificates after confirmation that their quality systems match with the requirements of the International Organization specifications.

The first version ISO 9000 focused on quality control which means the application of the methods and activities related to ensuring the continuation of the follow-up requirements of the customer and ion of defects and correcting them.

The second version ISO 9000:1994 focused on quality assurance which means the application of the necessary activities to provide confidence that the product meets the requirements of the customer and here the focus was on the prevention of the occurrence of mistakes

The third version ISO 9000:2000 focused on quality management systems, that mean the application of activities and methods relating to quality management with special focus on the direction and its various components, where that attention is directed to the processes and not to the product it. Here the set standards are relating to operations not related to the product, as these standards refer to the organization and its performance, and to ensure the production of quality products in order to enhance the customer satisfaction. Therefore, it can be stated that this version is oriented towards the achievement of higher levels of customer satisfaction. As this version replaced the old versions 1994), institutions certified 9001/2/3:1994 had to comply with ISO 9001:2000 by 15 December 2003 to remain certified (Nematollahi et al., 2014).

The Fourth version ISO 9000:2008 cancels and replaces the third edition (ISO 9001:2000). This revision contains minor amendments only. The aim of this revision is to clarify existing requirements and to improve consistency and compatibility of approach with other management standards, like ISO 14001:2004. This version ISO 9001:2008 sets out the criteria for a quality management system and is the only standard in the family that can be certified to (although this is not a requirement). It can be used by any organization, large or small, regardless of its field of activity. In fact ISO 9001:2008 is implemented by over one million companies and organizations in over 170 countries.

This standard is based on number of quality management principles including a strong customer focus, the motivation and implication of top management, the process approach and continual improvement.

ISO 9000 is currently undergoing another revision of the standard to bring it up to date and reflect latest quality management good practice. However, fundamentally the standard will stay the same and, as such, migration to ISO 9000: 2015

straightforward. The new edition, expected in 2015, will feature some important changes. This version is strongly based on three basic core concepts: that process approach which was very successful in the 2008 version of the standard superimposed on that system of processes is the plan-do-check act methodology, and a third core concept which is new in the 2015 version is risk based thinking, aiming at preventing undesirable outcomes.

3 Literature review

During the last two decades, many management standards has emerged, among which the ISO 9000 Quality Management Standard, was the most well known. In most cases, certification requires an organization to demonstrate that it employs a specific set of management practices. Usually, these practices must be verified by a third party auditor (Andrew *et al.*, 2005).

Therefore, many studies have been conducted to analyze the impact of such standards on the performance of the organizations. The last decade witnessed a dramatic increase in the research on quality management increased. Many of these researches were aimed at analyzing the effect of this standard on company performance in some way. However, there are relatively contradicting results, making it difficult to conclude with a specific finding.

Manders *et al.*, (2012) summarized key results from 42 scientific studies showing that implementing the standard does indeed enhance financial performance - but organizations aiming at real internal quality improvements gain more than those using ISO 9001 as a "quick fix" in response to quality problems or customer pressure.

Piskar (2007) confirm that the ISO 9000 quality standard's impact on better satisfying customers' needs and demands, but not the direct impact on business success.

Nematollahi *et al.* (2014) conducted a research on the Impacts of implementing ISO certification 9000 series on productivity of Barez Industrial Group. Their findings reveal that the ISO 9000 series did not have any considerable effect on productivity. Their findings also show that if quality management systems are taken as a tool for excellence and not as a goal in itself, they can provide maximum efficiency and effectiveness; otherwise they would provide low or even negative efficiency and effectiveness.

On the contrary Withers and Ebrahimpour, (2001); Rao *et al.*, (1997) surveyed companies in China, India, Mexico and the United States. They concluded that ISO 9000 Certification was significantly related to productivity.

Elmuti and Kathawala's (1997) surveyed two manufacturing plants in a large U.S. organization and concluded that ISO 9000 certification increased employee productivity.

Juan *et al.*, (2012) explored around 82 articles on ISO 9001 and 29 about ISO 14001. Even though there were some differences between the benefits considered by ISO 9001 and 14001, there was a great degree of coincidence in the benefits studied. The review suggests 13 benefits as the most usually analyzed (including environmental performance for the case of the ISO 14001 standard) by scholars.

Hallgrimsson (2014) investigated the impact of the ISO 9001 standard from different angles. The paper aimed to explore what engineering consultancies and their clients gain by ISO 9001 certification of the consultancies. The most important finding of the study is that while the representatives and employees of the engineering consultancies were rather positive regarding the benefits of their ISO 9001 certification, the purchasers of the engineering consultancy couldn't find significant difference between certified companies and non-certified.

The results by Al-Refaie *et al.*, (2012) on effects of ISO 9001 Certification and KAAE on performance of Jordanian firms, showed that the ISO 9001 certification has significant effects on quality outcomes, customer satisfaction and business performance; however, it has no significant effect on innovation. They concluded that ISO 9001 requirements and guidelines improve the efficiency and effectiveness of quality management systems in Jordanian firms, but they fail to motivate innovation.

The work of Kawthar and Vinesh (2011) in Mauritius used an empirical approach to ascertain whether the mean sales of ISO certified companies is significantly greater than those of their non-certified counterparts and assesses the impact of ISO 9000 certification on sales of companies in Mauritius. Based on a sample of 39 ISO certified companies and 39 non-ISO certified ones in 2000-2009, the findings show a significant difference between the mean sales of the two groups (in favour of the certified companies) and a positive and significant relationship between ISO 9000 certification and sales. Also, the dynamic panel analysis confirms this positive relationship. Thus, they concluded that ISO certified companies in Mauritius, experience the benefits of certification through increased sales which also implies increased customer loyalty and confidence and a larger customer base.

The results of Mokhtar and Muda (2012) on a sample of 162 public listed companies on the Kuala Lumpur Stock Exchange revealed that ISO registered Malaysian companies outperformed their non-ISO registered counterparts during the period of this study. They found that ISO 9000 registered companies in Malaysia were better off than non-ISO 9000 registered companies in terms of performance measures ROA, ROS and WC, except for EVA. ISO 9000 registered companies were found to be younger, larger, and have a higher growth and a lower capital structure than non-ISO 9000 registered companies.

On the other hand, ISO 9000 certification was also found to have some risk. In some cases the cost of certification can be very high (Nematollahi *et al.*, 2014). These risks of ISO 9000 implementation are attracting the attention to the benefits of acquiring ISO certificates (Withers and Ebrahimpour, 2001).

Consequently, there are some other studies which found no positive correlation between firm performance and ISO 9000 certification. Hongyi (2000) concluded that ISO 9000 certification alone does not have significant positive impact on performance, but rather if accompanied by other TQM enablers there may be performance improvement.

Terziovski *et al.*, (2008) pointed out that the benefits or otherwise, of ISO 9000 certification will continue to be the most important factor to impact the commitment of managers towards ISO certification. They found that ISO 9000 certification was not positively related with organizational performance. Some researches indicated that even if ISO certification was associated with TQM there was no positive correlation with business performance.

Amiran's study (2000) revealed that acquiring ISO 9000 certification did not improve the performance of that organization. Lai *et al.*, (2002) also stated that ISO certification alone does not appear to have a direct impact on business performance. The study of Tufan (2007) didn't find significant difference between defective part production of the certified and non-certified firms. Martinez Costa *et al.* (2009) concluded from a study on 713 Spanish companies that ISO 9001/2000 certified companies do not perform noticeably better than ISO 9000/1994 or non-certified companies.

Haversjo (2000) longitudinal analysis of Danish companies between 1989 and 1995, found no consistent statistically significant pattern of post-registration performance gains could be detected. Similarly, Wayhan and Khumawala (2002) analysis of the performance of 96 organizations in the USA between 1990 and 1998 showed that no significant post-registration performance gains can be detected. Naveh and Marcus's (2005) examine of 313 US firms between 1990 and 2000. They found only non-significant yearly ROA gains for all of the five years following registration.

Beattie and Sohal (1999) survey of 50 Australian companies showed that many of the companies surveyed couldn't name the benefits of ISO certification, while a few mentioned that there was financial improvement did following certification.

In the same line of direction Hua *et al.* (2000) compared the performance of survey of 100 companies in Shanghai and found no major differences in performance between ISO certified companies and non ISO certified companies.

Quazi *et al.* (2002) study in Singapore revealed that ISO 9000 certification did not have impact on the performance of the companies in relation to quality measures. Another study by Divesh Sharma couldn't

observe the existence of positive relation between ISO 9000 and business performance (Divesh, 2005). On the other hand, Martínez-Lorente and Martínez-Costa (2004) argued that the benefits of ISO certification are not better when associated with TQM implementation.

Casadesus and Karapetrovic (2005) argued that themploy a longitudinal impact study and argue that ISO 9000 standards are limited in providing a set of concrete benefits over time (Dimitris *et al.*, 2006).

Other researches like Aarts and Vos (2001) studied the benefit of ISO certification on shareholders. The finding showed that there was no significant impact of ISO certification on share prices. Caspitrano (2008) found that out 49 Philippine companies listed in Business World's Top 1000 corporations, only a few improved their financial performance after ISO certification.

The literature review revealed that despite the quantity of these studies there is still no clear conclusion about the impact of ISO 9000 (Martinez Costa and Martinez Lorente; 2007). The literature also showed that researchers mainly used two approaches. The first approach was though the comparison of ISO certified and non-certified companies. The second approach was longitudinal studies (before and after certification). Some other studies assumed that ISO certification has benefits and tried to distinguish those benefits (Internal – External, or Financial- non financial) (Dick *et al.*, 2008).

4 Research method

4.1 Model for ISO and performances

The econometric model developed comprises two equations. The first model utilizes ROA as performance indicator. The second model utilizes net operating profit as performance indicator. The final model utilizes market value of share as performance indicator. These equations are tested in the current paper and are formally presented below:

Equation 1 NOP $it = \alpha 0 + \beta AQit + \epsilon it$ Equation 2 ROA $it = \alpha 0 + \beta AQit + \epsilon it$ Equation 3 MFV $it = \alpha 0 + \beta AQit + \epsilon it$

Notes:

NOP= Net Operating Profit ROA= Return on Assets

MFV= Market Fair Value of share

ISO= Certificate of ISO

 α = Constant

 β = Beta

 ε = Error term

i = ith firm

t= tth period

These models were tested on two levels, all three sectors together and for each sector separately. Multivariate analysis of variance (MANOVA) is used

to test the hypothesis. T- test was used to find the differences between the three sectors and within the sectors. Normality check of the data was also carried out in this study.

4.2 Sample selection and data collection

This study tested the relationships between ISO and financial performance and market performance which are mentioned in the previous studies.

The target population is all companies listed on Muscat Securities Market (MSM) in Sultanate of Oman. There are 117 companies in three sectors listed on (MSM) during the period of this study. There are

48 companies in industrial sector; 34 companies in services sector and 35 companies in finance sector. Data of this study was collected from secondary sources (Muscat Securities Market Report 2014). Accounting and market information were collected from MSM database. The methodology of the study is a content analysis of annual reports of a sample 112 companies out of 117 (95.7%) for the period 2009-2013. The study excluded 2 companies from services sector because the financial statements of those companies are not completed. Table 1 imagines the distribution of sample for two sectors.

Table 1. Number of ISO/ Non ISO Observations

Sector	Population	No. of sample	%	ISO	%	Non ISO	%
Industrial	48	48	60%	27	69.23%	21	51.22%
Services	34	32	40%	12	30.77%	20	48.78%
Total	82	80	100%	39	100%	41	100%

The annual reports for the sample were checked then calculate the value of determinants (ROA, NOP and MFV) for testing by using the statistical package for the social sciences (SPSS) software. Unfortunately, the only annual reports of this period are presented on the website of MSM because the market itself began to publish the reports since 2007. Some of the companies in the sample were registered in the 2008.

5 Research Findings

5.1 Multicollinearity test

According to this test, it is very serious to ensure that the independent variables are not influencing by other independent variables. Table 2 indicates that multicollinearity is not a problem, as the correlations between all independent variables are relatively low and some of them are insignificant.

Table 2. Result of multicollinearity test using Pearson Correlation matrix

	NOP	ROA	MFV	ISO/NONISO
NOP	1			
ROA	0.211**	1		
MFV	0.409	0.196	1	
ISO/NONISO	0.276*	0.321**	0.104	1

^{**} Correlation is significant at the 0.01 level (2-tailed).

5.2 Hypotheses testing: Results of multivariate analysis of variance (MANOVA)

MANOVA is simply an ANOVA with several dependent variables. It is used when there are multiple dependent variables as well as independent variable(s) within the model which the researcher wishes to test. This section showed the results of MANOVA analysis of ISO on the dependent variables. There are four models for each dependent variable as shown below.

5.2.1 Hypotheses testing: ISO/Non ISO in tow sectors

Table 3 shows the results of MANOVA for the effect of ISO and NonISO on the financial and market performances in two sectors together. The results indicate that the ISO/NonISO has significant effect on the three dependent variables as a group where the Sigs for four different multivariate tests are (0.011) which is less than 0.05. The observed power is 0.877 which is indicates the power of statistics and it is acceptable power.

^{*} Correlation is significant at the 0.05 level (2-tailed).

Table 3. Results of Multivariate Tests^c for all sectors

Source and Effect		Value	F	Hypothesis df	Error df	Sig.	Noncent. Parameter	Observed Power ^b
	Pillai's Trace	.102	6.033 ^a	5.000	107.000	.011	13.120	0.877
ICO/NamICO	Wilks' Lambda	.899	6.033 ^a	5.000	107.000	.011	13.120	0.877
ISO/NonISO	Hotelling's Trace	.114	6.033 ^a	5.000	107.000	.011	13.120	0.877
	Roy's Largest Root	.114	6.033 ^a	5.000	107.000	.011	13.120	0.877

a. Exact statistic b. Computed using alpha = .05 c. Design Intercept +ISO

The second part of the results section gives univariate tests for the effects of independent variable on each of the different dependent variables as in the table 4.

Table 4. Tests of Between-Subjects Effects of all sectors (N=80)

Source	Dependent Variables	Type III Sum of Squares	R-Square	Mean Square	F	Sig.	Noncent. Parameter	Observed Power ^b
	NOP	.342	0.008	.342	5.097	.026	5.097	.609
IGO AL IGO	ROA	.619	0.036	.619	.067	.796	.067	.058
ISO/NonISO	MFV	9.395	0.009	9.395	1.010	.317	1.010	.169

b. Computed using alpha = .05

The results indicate that the ISO have effects on the NOP where the *Sig.* values are less than 0.05. On the other side, the ISO do not have effects on the other two dependent variables; ROA and MFV. The observed power for NOP (0.609) is acceptable and they are better than the observed power for ROA and MFV.

It can be deduced from the results that ISO/NonISO as a measure of quality of Omani

companies listed on MSM doesn't have a significant effect to the financial performance in terms ROA and market performance in terms of MFV.

5.2.2 Hypotheses testing: ISO/Non ISO in industrial sector

Table 5 showed the results of MANOVA for the effect of ISO on the financial and market performances and risk in Industrial sector.

Table 5. Results of Multivariate Tests^c in each sector

Source and Effect			Industr	ial Secto	or	Services Sector			
		value	F	Sig	Observed Power ^b	value	F	Sig	Observed Power ^b
	Pillai's Trace	.216	2.961 ^a	.020	0.475	.254	3.297 ^a	.085	0.885
	Wilks' Lambda	.784	2.961 ^a	.020	0.475	.746	3.297 ^a	.085	0.885
ISO/NonISO	Hotelling's Trace	.276	2.961 ^a	.020	0.475	.341	3.297 ^a	.085	0.885
	Roy's Largest Root	.276	2.961 ^a	.020	0.475	.341	3.297 ^a	.085	0.885

a. Exact statistic b. Computed using alpha = .05 c. Design: Intercept + ISO

The results indicate that the ISO/NonISO has significant effect on the three dependent variables as a group where the Sigs for four different multivariate tests are (0.020) in industrial sector which is less than 0.05. In the services sector, the Sig value (0.085) is greater than (0.05). This means that the ISO/NonISO has impact only in industrial sector at 0.05 but not in the services sector. In the last sector, there is a significant effect of ISO/NonISO on the dependent

variables at 0.10 where the Sig value (0.085) which is less than the significant level 0.01.

The results indicate that the ISO/NonISO has significant effect on the three dependent variables as a group where the Sigs for four different multivariate tests are less than 0.05 (0.10 for services sector). This finding indicates that the model is significant at 0.05 (0.10 for services sector) and there is at least one dependent variable may influence by ISO/NonISO.

Table 6 showed the results of univariate tests for the effects of independent variable on each of the different dependent variables.

Table 6. Results of Tests of Between-Subjects Effects

	Dependent	Industrial Sector				Services Sector			
Source	Variable	F	Sig	Observed Power ^b	R- Square	F	Sig	Observed Power ^b	R-Square
	NOP	8.817	.011	.726	0.17	0.305	.685	.081	0.011
ISO/NonISO	ROA	0.689	.411	.128	0.030	0.506	.582	.107	0.012
	MFV	1.328	.134	.321	0.058	7.607	.007	.811	0.224

Computed using alpha = .05

In the industrial sector, the result indicates that ISO/NonISO has only effect on NOP where the Sig. (0.012) is less than (0.05). The R-Square is equal to 17%, which indicates that ISO/NonISO in the model interpret 17% of the total variance. This suggests that Omani industrial firms use ISO certificate to impact on the profitability in terms of NOP.

In the services sector, the result showed that the ISO/NonISO has impact on MFV. The R-Square is equal to 22.4%, which indicates that ISO/NonISO in

the model interpret 22.4% of the total variance. Also, this suggests that Omani services firms use ISO certificate to impact on the market fair value of share.

5.3. T- Test Results

In order to determine the differences within the two sectors, the researchers used T- test for two independent samples. Table 7 showed the summary of T- test results within the same sector.

Table 7. Results of T-Test within the same sector

Sectors		ISO/NonISO	Sig	Sig. (2-tailed)	Mean	Difference for
	NOP	1,0	0.224	(0.012,0.013)	0.264	ISO
Industrial	ROA	1,0	0.614	(0.403, 0.501)	-	No
Sector	MFV	1,0	0.502	(0.303, 0.472)	-	No
	NOP	1,0	0.191	(0.813, 0.832)	-	No
Services Sector	ROA	1,0	0.719	(0.866, 0.885)	-	No
	MFV	1,0	0.410	(0.006, 0.003)	-	NONISO

It seems that the two samples or sectors are homogenous because the value of *Sigs*. are greater than 0.05. This means that T- test is appropriate to test the differences between the two independent samples. The *Sigs*. (2-tailed) are showing that there are differences in the industrial sector related to the association of NOP and ISO/NonISO where the Sig. is less than 0.025. The differences are in favor of ISO certificate since the Mean is greater than the mean of ISO/NonISO. Also, there are differences in the services sector related to the association between MFV and ISO/NonISO where the differences are in favor of NonISO since the mean of this is greater than the mean of ISO.

Concluding remarks

This study aims at indentifying the effects of ISO/NonISO on the financial performance, market performance in companies listed on MSM in Oman for 2009-2013 in two sectors; industrial and services sectors. Financial performance is measured by two variables; return on assets (ROA) and net operating profit (NOP), while market performance is measured by market fair value of shares (MFV). The

ISO/NonISO estimated by dummy variables (1 if the firm has ISO certificate, otherwise 0). The study analyzed the annual reports for 80 (out of 82) companies in tow sectors listed on MSM; industrial (48 companies) and services (32 companies).

The study was build the hypotheses based on the results of literature reviews. The results of those studies were mixed since some of them indicated positive effects and others indicated negative effects. There are very limited studies examined the effects of ISO/Non ISO on financial performance and market performance in Oman. This is also true not only in Oman but in the most of the Arab countries where studies in this area are very limited.

The study employed many statistics tests; correlations, multicollinearti test to determine the association between variables, MANOVA to examine the effects of ISO/NonISO on the three variables; ROA, NOP and MFV. The study used T- test to examine the differences between two sectors.

This study has several limitations that simultaneously offer opportunities for future research. First, Due to available information about the companies listed on MSM determinants only five independent variables were considered and examined

for a sample of 80 industrial companies. The annual reports for only five years (2008–2012) were analyzed because only those reports are presented on the websites of these companies and MSM. Second, the study was ignored the companies in the finance sector because ISO 9000 as focused by this study is more related to industrial and services companies. Finally, the results of this study are build on the statistical analysis and the conclusions are statistically supported.

On the level of 80 companies, the results of statistical analysis indicate that there are positive correlations and regression at 5% levels of significance between ISO/NonISO and NOP and MFV since the *Sig.* value (0.021) is less than (0.05). R-Squares are not supporting the results because they are very low.

In the industrial sector, MANOVA test showed that the ISO/NonISO has a significant effect only on NOP. R-square is 13% which means that the ISO/NonISO interprets only 13% of any changing in NOP. There are no any effects for ISO/NonISO on the other dependent variables.

In the services sector, MANOVA test showed that the ISO/NonISO has a significant effect only on MFV. R-square is 22.3% which means that the ISO/NonISO interprets only 22.3% of any changing in MFV. There are no any effects for ISO/NonISO on the other dependent variables.

The results of this study may agreed with some of the previous studies such as Piskar (2007), Kawthar and Vinesh (2011), Manders and de Vries (2012), Al-Refaie et al., (2012), Hallgrimsson (2014) since the ISO certificates has effect on the profitability.

References:

- 1. Aarts, M.F. and Vos, E. (2001), "The impact of ISO registration on New Zealand firms' performance: a financial performance", *The TQM Magazine*, Vol. 13 No. 3, pp. 180-91.
- Al-Refaie, A., Ola, G. and Li M.H. (2012), "Effects of ISO 9001 Certification and KAAE on Performance of Jordanian Firms", Jordan *Journal of Mechanical and Industrial Engineering*, Vol. 6, No. 1, Feb, pp. 45 – 53.
- 3. Amiran, H. (2000), "Designing of Evaluation Method to Impacts of Performing Quality Assurance Systems in Automotive Industries". Unpublished Master Thesis, Science and Researches Branch of Azad University, Tehran. In Bakhtiar Ostadi, Mohammad Aghdasi, Reza Baradaran Kazemzadeh (2010), The impact of ISO/TS 16949 on automotive industries and created organizational capabilities from its implementation. *Journal of Industrial Engineering and Management*, Vol. 3, No 3, pp. 494-511.
- Andrew A., Knig, M. L. and Ann, T. (2005), "The Strategic Use of Decentralized Institutions: Exploring Certification with ISO 14001 Management Standard", Academy of Management Journal, Vol. 48, No. 6, pp. 1091-1106
- 5. Barbara E. W., Maling E. (2001), "Impacts of ISO 9000 registration on European firms: a case

- analysis", Integrated Manufacturing Systems, Vol. 12 No. 2, pp.139 151.
- Beattie, K.R. and Sohal, A.S. (1999), "Implementing ISO 9000: a study of its benefits among Australian organizations", *Total Quality Management*, Vol. 10, No. 1, pp. 95-106.
- 7. Capistrano E. P. S. (2008), "ISO 9000 certification and business performance of selected Philippine companies, Philippine Management Review, Vol 15. pp 15-36.
- 8. Casadesus, M. and Karapetrovic, S. (2005), "The erosion of ISO 9000 benefits: a temporal study", *International Journal of Quality & Reliability Management*, Vol. 22 No. 2, pp. 120-136.
- Dick, G.P.M., Heras, I. and Casadesus, M. (2008), "Shedding light on causation between ISO 9001 and improved business performance", International Journal of Operations & Production Management, Vol. 28, No. 7, pp.687 – 708.
- Dimitris, T., Kostas, T., Dimitris, S. and Efthalia, D. (2006), "The effects of ISO 9001 on firms' productive efficiency". *International Journal of Operations & Production Management*, Vol. 26 No. 10, pp. 1146-1165
- Divesh S. S. (2005), "The association between ISO 9000 certification and financial performance", *The International Journal of Accounting*, Vol. 40, No. 2, pp. 151–172.
- 12. Elmuti, D., and Kathawala, Y. (1997), "An investigation into the effects of ISO 9000 on participants' attitudes and job performance". *Production and Inventory Management Journal*, Vol. 38, No.2, pp.52 57.
- Hallgrímsson, S. P. (2014), "ISO Certification of Engineering Consultancies: The Benefits from Different Perspectives", Unpublished Master Thesis: School of Science and Engineering: Rekjavik University.
- 14. Haversjo, T. (2000), "The financial effects of ISO 9000 registration for Danish companies", *Managing Auditing Journal*, Vol. 15, No. 2, pp.47 52.
- 15. Hongyi S. (2000), "Total quality management, ISO 9000 certification and performance improvement", *International Journal of Quality & Reliability Management*, Vol. 17, No. 2, pp.168 179.
- Hoyle, D. (2006), ISO 9000 Quality System Handbook, Fifth edition, Butterworth-Heinemann publishers, Oxford.
- 17. Hua, H., Chin, K. S., Sun, H., and Xu, Y. (2000), "An empirical study on quality management practices in Shanghai manufacturing industries", *Total Quality Management*, Vol. 11, No. 8, pp.1111 1122.
- 18. Juan, J. T., José, F. M. A. and Heras, I. (2012), "Benefits of the ISO 9001 and ISO 14001 standards: A literature review", *Journal of Industrial Engineering* and Management, Vol. 5 No.2, pp.297-322. DOI: org/10.3926/jiem.488.
- Kawthar, M. and Vinesh, S. R. (2011), "The Impact of ISO 9000 Certification on Sales: A Case Study of Mauritius", TIPS Small Grant Scheme Research Paper Series. http://www.tips.org.za/files/u65/tips__ _iso_9000_and_sales1nov_2011 mv_clean_mauritius.pdf, viewed 18 July 2015.
- 20. Lai, H. K., Weerakoon, S. T. and Cheng, C. C. T. (2002), "The state of quality management implementation: a cross sectional study of quality oriented companies in Hong Kong", *Total Quality Management*, Vol.13 No. 1, pp. 29–38.
- Manders, B., Vries, H.J. de and Blind, K. (2012). ISO 9000 and product innovation: A literature review and

- research framework. In M. Orviska & K. Jakobs (Eds.), EURAS Proceedings 2012 Standards and Innovation (pp. 241-260). Aachen: Wissenschaftsverlag Mainz.
- Martínez-Costa, M. and Martínez-Lorente A. R. (2007)
 "A triple analysis of ISO 9000 effects on company performance", *International Journal of Productivity and Performance Management*, Vol. 56 No. 5/6, pp.484 499.
- Martínez-Costa, M., Choi, T. Y., Martinez, J. A., and Martínez-Lorente, A. R. (2009), "ISO 9000/1994, ISO 9001/2000 and TQM: The Performance Debate Revisited", *Journal of Operations Management*, Vol. 27 No. 6, pp. 495-511.
- 24. Martínez-Lorente, A. R. and Martínez-Costa, M. (2004), "ISO 9000 and TQM: substitutes or complementariness? An empirical study in industrial companies", International Journal of Quality & Reliability Management, Vol. 21 No. 3, pp.260 – 276.
- 25. Mei, F., Mile, T. and Danny, S. (2008), "Relationship of ISO 9001:2000 quality system certification with operational and business performance, A survey in Australia and New Zealand-based. Manufacturing and service companies", *Journal of Manufacturing Technology Management*, Vol. 19 No. 1, pp. 22-37.
- 26. Mokhtar, M. Z. and Muda, M. S. (2012), "Comparative Study on Performance Measures and Attributes between ISO and Non-ISO Certification Companies", International Journal of Business and Management, Vol. 7 No. 3, pp. 185-193. DOI: 10.5539/ijbm.v7n3p185.
- 27. Muscat Securities Market 2014. Muscat Securities Market Guide, 2014, viewed 12 April, 2015,https://www.msm.gov.om/MSMDOCS/downloads/en_1402898083950_msm%20guide%202014.pdf.
- Naveh, E., Marcus, A. (2005), "Achieving competitive advantage through implementing a replicable management standard: Installing and using ISO9000", Journal of Operations Management, Vol. 24 No. 1, pp. 1, 26
- Nematollahi, R. A., Abbasi, A. and Forghani, M. A. (2014), "The Impacts of Implementing ISO Certification 9000 Series on Productivity of Barez Industrial Group",

- International Journal of Social Science and Management, Vol.1 No.1, pp.15-26.
- 30. Piskar, F. (2007), "The Impact of the Quality Management System ISO 9000 on Customer Satisfaction of Slovenian Companies", *Managing Global Transitions*, Vol. 5, No. 1, pp.45-61.
- 31. Quazi, H. A., Chang, W. H., and Chan, T. M. (2002), "Impact of ISO 9000 certification on quality management practices: A comparative study", *Total Quality Management*, Vol.13 No.1, pp.53 67.
- 32. Rao, S., Ragu-Nathan, T., and Solis, L. (1997), "Does ISO 9000 have an effect on quality management practices? An international empirical study", *Total Quality Management*, Vol.8 No. 6, pp.333-346.
- 33. Richardson, T. (1996), *Total quality management*. Albany, NY: Delmer Publishers.
- 34. Science and Engineering policy Studies Unit (1994), "UK Quality Management-Policy Options, *Engineering Management Journal*, Vol.4 No. 3, pp. 1-99. DOI: 10.1049/em: 19940307.
- 35. Shamsur, R. (2001), "A comparative study of TQM practice and organizational performance of SMEs with and without ISO 9000 certification", *International Journal of Quality & Reliability Management*, Vol. 18 No. 1, pp.35 49.
- 36. Sun, H., Li, S., Ho. K., Gertsen, F., Hansen, P. and Frick, J. (2004), "The trajectory of implementing ISO 9000 standards versus total quality management in Western Europe", *International Journal of Quality & Reliability Management*, Vol. 21 No. 2, pp.131 153.
- 37. Terziovski, M., Power, D., & Sohal, A. S. (2003). "The Longitudinal Effects of the ISO 9000 Certification Process on Business Performance". *European Journal of Operational Research*, Vol. 146 No.3, pp.580 595. http://dx.doi.org/10.1016/S0377-2217(02)00252-7.
- Tufan, K. (2007), "The impact of ISO 9000 quality management systems on manufacturing", *Journal of Materials Processing Technology*, Vol.186, pp. 207–213.
- 39. Wayhan V., Kirche, E. and Khumawala, B. (2002), "ISO 9000 certification: Financial performance implications", *Total Quality Management*, Vol. 13 No.2, pp. 217-31.