

Achievement of High-Performance Goals of Export Industry in Thailand through Quality Management Tool of Supply Chain Management

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Abstract - This study examined how high-performance goals can be achieved by the export firm of Thailand by providing high-quality products to their customers with the help of an effective supply chain (SC) practices. Data were collected from the exports managers of all exporting firm that are currently operating in Thailand. Multiple regression and bootstrapping techniques are used to investigate the relationships under study variables by using PLS-SEM. The results indicated that effective SC practices could improve the quality of the products that help in achieving the high-performance goals of the organization. This study also suggested to the policymakers that they should adopt quality measures to enhance the quality of the product; because the quality products are able to accept the challenges of global competition that result in high performance of the firm.

Keywords: Supply Chain Practices, High Performance, Quality Management

1. Introduction

Globalization of the market brought many challenges for the organizations in terms of quality, price, and performance that create competitive advantage in the market. Due to globalization, multinational organizations have developed a global and strong network of trade suppliers to compete in the market. Sale of products internationally is the prime driver of improving organizational performance globally. This growth and connection with globalization offer opportunities to the export industry of Thailand that they thought globally and encased every benefited associated with the global market. [1,2] However, to achieve all the benefits of the global market, the export products are meet the quality standards of customers and standards, providing organizations that become able the products to compete in the market. The practices of multinational organizations in the country are also the motivations for local investors and firms that they

think and work globally [1]. One of the main causes of the entrance of multinational organizations in the country is that the products of the country does not meet the standards or below quality products. The local customer can easily switch to the products of multinational enterprises due to lack of quality or scarcity of the products in the market. Similarly, the product quality of the products in the market of Thailand could not meet requirements that encourage the international market to enter the country. Therefore, there is a high level of need for local firms that they improve their quality of products to compete not only in the local market but also in the international market.

The globalization of the market increased the challenges of the local firms to compete in the market. The priority of the firms is the economic development of the country because Thailand is a developing country in the world. Thus, the demand for improvement in the economic development of the country is to get a competitive advantage that only possible through quality management [2]. Rapid economic reforms and industrial modernization become the foremost features of the economy of Thailand since the 1980s. The pressures of regulatory, community, and competition have increased the importance of balance, environmental, financial, and economic performance of the organization. Government of Thailand has developed the approaches regarding environmental management in the way of establishing strict regulation regarding the environment, promoting safe production, and adopting ISO 14001 certifications to handle the problems mentioned above. The focus of corporation in Thailand is to seek to develop integrated and systematic environmental management approaches namely; “green supply chain management (GSCM)” and industrial ecology to improve the business processes of the business. Thus, improved business processes can enhance the performance of the business because business processes include; sale, demand,

production, supply, etc.; if these processes improve, the performance will automatically improve.

Figure 1 given below elaborated the performance and infrastructure quality of the firms in different countries. It shows that as far as the quality of infrastructure is increasing the performance of the firm also increasing. In the case of Indonesia, the quality increase by 2.5 units in the result of the performance increase by three units. While in the case of Cambodia, the quality increase by two units in result performance increase by 2.5 units, Whereas the quality increase by one unit the

performance increase by 2.2 units in case of Myanmar. Moreover, in the case of Laos, the quality increase by 1.5 units and the performance increase by two units. In addition, the quality increase by 2.8 units and the performance increase by three units in the case of Vietnam. At last, the quality increase by three units and the performance increase by 3.2 units in the case of Thailand. Thus, it is proved that the quality of the firm can increase its performance and also revealed that the increase in performance is more than the increase in quality. These figures of performance and qualities are given below in figure 1.



Figure 1. Quality and Performance of the firms

The above figures show that spending on the quality of the products and infrastructure can increase the performance of the entity. Hence, the performance of the firm affected by the quality produced by the firm through the implementation of SC practices. This study empirically investigated the achievement of high-performance goals of the export industry in Thailand through the quality feature of SC practices. This study provides a clear guideline to the policy makers in adopting the SC practices that lead them towards high environmental, financial, and economic performance. This study used quality management as a mediator that show how SC practices can improve the quality and how this situation can improve the performance of the firm.

2. Literature Review

The literature of previous studies regarding the variables used in the study and association among the variables are mentioned in this part of the

study. The literature regarding under study variable and their relationships are mentioned below:

2.1. Supply Chain Practices

Supply Chain (SC) provides a link between the users and the manufacturer of the products that helps both to purchase and sell the goods at the right time and with bearing the very low cost. In this link, many of the facilitators play their role from manufacturer to the end users and charge amount for their services. They smoothen the supplying processes of the business that help in time and cost saving for the manufacturer and end users [3]. In addition, SC provides the skills that how firm utilize its suppliers, capabilities, processes, and technologies that the firm achieve the competitive advantage in the market [4]. Moreover, a study by Chan, et al. [5] explained that the SC is the integration of all the processes of supplying the goods form the manufacturer to the end users in a way that it saves the time and the cost of the company. Similarly, Forman and

Jørgensen [6] also elaborated that the SC is an effective tool for the business entities that boost up the supplying processes of the entity. It integrated the activities regarding supplying goods to the customers and provided the easy excess to the good for the customer and also provide the easy excess to the customer for the manufacturer.

2.2. Quality Management

Quality management is an essential feature of the firm and its products that bring competitive advantage and boost up the demand for the products in the market [1]. There are various types of international quality standards established by the "International Organization for Standardization (ISO)" such as ISO 14000, ISO 9000, and ISO 9001 [7]. The popularity of these ISO certifications has increased with time due to the globalization of the market, and these standards are necessary for the organization to enhance their competitive position and business operations. The growing competition is increasing the demand not only the standards of quality management but also the standards of environmental management [8]. In addition, Douglas and Judge Jr [9] explained that the certification of quality management is necessary for every firm in the market to enhance the quality of its business processes and the quality of the products to compete in the market. Moreover, ISO certifications are implemented throughout the world, and the firms are getting ample benefits by implying these standards in the business processes. Furthermore, quality management is an effective tool of increasing the demand and turnover of the business entity because the perception of the customer nowadays not the price but the quality of the products [10]. Likewise, a study by Kannan and Tan [11] mentioned in their study that quality of the products is the main feature that enhances the demand and focus of the stakeholders towards the products and the firm.

2.3. Firm Performance

The demand for every stakeholder of the company is the high level of firm performance. Firm performance includes the increasing level of turnover, demand, profitability, return on investments, both assets and equity, and environmental improvement. Similarly, Green Jr, et al. [12] mentioned in their study that prime goal of every employee of the company is to enhance the performance of the firm and the desired goal of the owners are to also link with the excessive firm performance. Likewise, a study by Gunasekaran and Kobu [13] explained that the reason for the existence of the firm in the market is only its performance; without performance, the firm cannot survive in the market. Thus, the survival of the firm

in the market is only due to its excessive performance that comes by taking the precaution measure regarding all the business processes of the entity. Moreover, firm performance is the motivation for the existing stakeholders as well as the prospective investor of the firm because it is the foremost of the aim of every owner in the business [14]. Also, the necessary part of the business is its performance that is the major reason for the survival of the entity in the market. The successful organization has strong financial, economic, and environmental performance than the weak organization [15].

2.4. SC Practices and Firm Performance

SC practices can improve the performance of the firm because it improves the business processes that are key factors in improving firm performance. Likewise, the firm performance depends upon the effective processes of the business such as production, supply, and distribution, and SC has enough ability to improve all of the processes that enhance the performance of the firm [16]. Similarly, a study by Kuei, et al. [17] conducted on SC and found that firm performance cannot be enhanced without the improvement in the processes of the entity and this cannot be possible without practices of SC. Moreover, SC practices bring a strong network in the firm that strengthens the business processes such as production, supply, and distribution that result in excessive firm performance [18]. Furthermore, the improvement in the processes of business and excessive firm performance demands effective suppliers, distributors, vendors, and other stakeholders and these are the outcomes of effective SC practices [19]. Thus, this study also explores this area of research by examining the effect of SC practices on the firm performance of the export industry in Thailand and developed the following hypothesis for the study.

H1: SC practices have a positive influence on the firm performance of the export industry in Thailand.

2.5. SC Practices and Quality Management

SC practices can improve the business processes that can increase the quality of the products and the business as well. Similarly, Robinson and Malhotra [20] conducted the study on quality management and indicated that quality of the products and business depends upon the strong processes of the business as well as the effective stakeholders and these are the outcomes of SC practices. Moreover, the outcomes of the practices of SC is the quality of the business and its products. SC practices improve quality through improve business processes. Thus, SC improves the business processes that result in

the improvement of quality of the business that is the demand of global competition in these days [21]. Likewise, a study by Wong [22] conducted on total quality management and also found that the businesses who have effective SC practices, can boost up their business processes and also increase the business and product quality. Furthermore, business and product quality need effective processes, and these processes are the outcomes of effective SC practices. Thus, SC practices are the tool of maintaining the quality in the business and its products [23]. Thus, this study also explore this area of research by examining the effect of SC practices on the quality management of the export industry in Thailand and developed the following hypothesis for the study.

H2: SC practices have a positive influence on the quality of the export industry in Thailand.

2.6. *Quality Management and Firm Performance*

The firms that maintain high-quality measures also have a high demand for their outputs that result in high firm performance. Similarly, quality is the key measure of the firm performance in a way that the firm who have implemented the quality standards such as ISO 9000, ISO 9001 and ISO 14000 also have high performance than the firm who are not implemented such quality standards [24]. Moreover, the quality of the business and its products brings the attraction of the customers and stakeholders that leads the organization towards the high financial, economic, and environmental performance [25]. Likewise, a study by Molina, et al. [26] conducted on firm performance concerning quality management. They found that business and products quality is an essential feature of a business entity that brings a strong environment, which helps, in attaining excessive performance. Thus, this study also explores this area of research by examining the effect of quality management on firm performance of the export industry in Thailand and developed the following hypothesis for the study.

H3: Quality management has a positive influence on the performance of the export industry in Thailand.

2.7. *Mediating Role of Quality Management in the Relationship of SC Practices and Firm Performance*

Firm performance can be achieved through quality management that is the outcome of the implementation of SC practices in the business. In addition, SC practices bring the quality standards that increase the quality of the products, and that is the main factor of attaining high firm performance [27]. Moreover, practices of SC improve the

business activities regarding the sale, production, distribution, and supply. These improved activities move the organization towards quality assurance, and these quality measures bring the organization towards high performance [28]. Likewise, a study by Hsu, et al. [29] conducted on SC and mentioned that the quality of the products come from the perfectly managed activities of the business concern and this is possible through practices of SC that bring the excessive performance in the business. Thus, this study also explores this area of research by examining the mediating effect of quality management on links between SC practices and firm performance of the export industry in Thailand and developed the following hypothesis for the study.

H4: Quality management has mediated the relationship between SC practices and performance of the export industry in Thailand.

3. Research Methods

This study used the primary source for the analysis purpose and gathered data by issuing the questionnaire to the respondent of the study. The study adept the questionnaire of previous studies and change it according to the requirement of the scope of the study. Total 1900 respondent is selected from the export industry of Thailand that are the managers of the export department. The questionnaire was sent to them through the mail, and 490 responses were returned from them that showed approximately 25.79% response rate. Out of them, 40 questionnaires were not meet the standard and eliminated from the study, and the remaining 450 responses are considered fit for the analysis. For the answer, the question in the questionnaire 5 points Likert scale were used (from 1 for strongly disagree to 5 for strongly agree).

3.1. *Measures*

All the variables under study have only one dimension. However, the dependent variable (practices of SC) has twelve items, while the independent variable (firm performance) has six items, and the mediating variable (quality management) has four items. Five-point Likert scale is used to answer all the items of the constructs used in the study.

3.2. *Data Collection Procedure*

This study used the primary source for the analysis purpose and collected data by issuing the questionnaire to the respondent of the study. The managers of the export industry in Thailand were the respondent of the study. Before sending the survey questionnaire to them, a mail was sent to them for receiving their consent regarding data

providing. After taking the consent from 1900 export managers, a survey questionnaire was sent to them through email. Only 490 responses were returned that was only 25.79% response rate; out of the 40 questionnaire failed to meet the criteria, and

the remaining 450 responses were considered appropriate and used for analysis purpose.

3.3. Research Framework

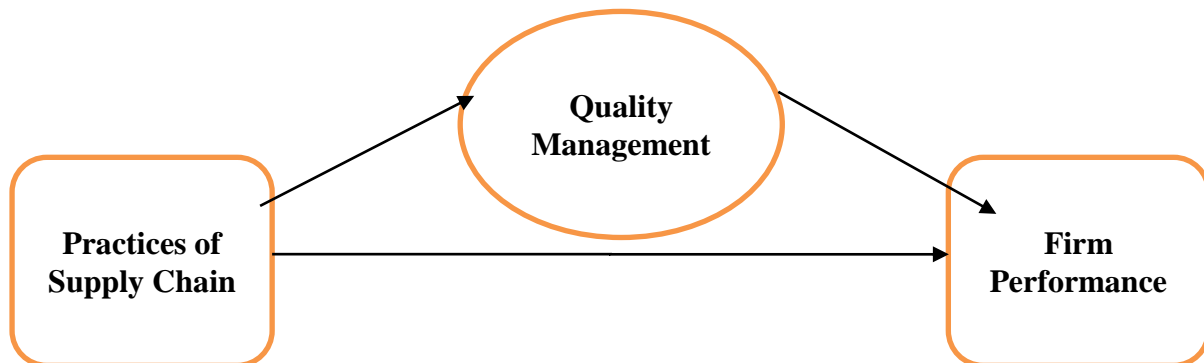


Figure 2. Theoretical Framework

4. Results

This section deals with the findings of the study based on collecting data through questionnaire. The findings of the study were obtained by using PLS-SEM. Before we are going for regression analysis to check the link between the variables, checking the validity of the items and constructs is necessary. There are two types of validity that we must check before path analysis; one is convergent and second is discriminant. Four approaches are used to test the convergent validity. The first is outer loading, and thumb rule is that its values should be more than 0.50. Table 1 showed that the

values of all items are greater than 0.50 that means convergent validity is perfect. The second approach is Cronbach's Alpha, and the standard is that it should be more than 0.70. Table 1 showed that the values of all constructs are more than 0.70 that means no problem with convergent validity. The third approach is composite reliability (CR), and thumb rule is valued should be more than 0.70. Table 1 showed that the values of all variable are more than 0.70 that means convergent validity is perfect. The fourth approach is the average variance extracted (AVE), and the standard values should be more than 0.50. Table 1 elaborated that values are more than 0.50 that means no issue with convergent validity.

Table 1. Convergent Validity

Constructs	Items	Loadings	Alpha	CR	AVE
Firm Performance	FP1	0.817	0.907	0.931	0.729
	FP2	0.89			
	FP3	0.858			
	FP4	0.891			
	FP5	0.808			
Quality Management	QM1	0.859	0.908	0.936	0.784
	QM2	0.924			
	QM3	0.916			
	QM4	0.84			
Supply Chain Practices	SCP1	0.732	0.901	0.917	0.503
	SCP3	0.712			
	SCP4	0.685			
	SCP5	0.75			
	SCP6	0.685			
	SCP7	0.675			
	SCP8	0.691			

	SCP9	0.687			
	SCP10	0.74			
	SCP11	0.702			
	SCP12	0.736			

There are two approaches to check the discriminant validity of the construct; one is Fornell Larcker, and the second is Heterotrait and Monotrait ratio (HTMT). Fornell Larcker is the old technique, and most of the previous research discourage to use it.

HTMT is the latest technique for checking the discriminant validity of the constructs. The thumb rule for HTMT is its value should be less than 0.80. Table 2 showed that HTMT of all constructs is less than 0.80 that shows discriminant validity is fine.

Table 2. Heterotrait-Monotrait Ratio (HTMT)

	FP	QM	SCP
FP			
QM	0.736		
SCP	0.665	0.558	

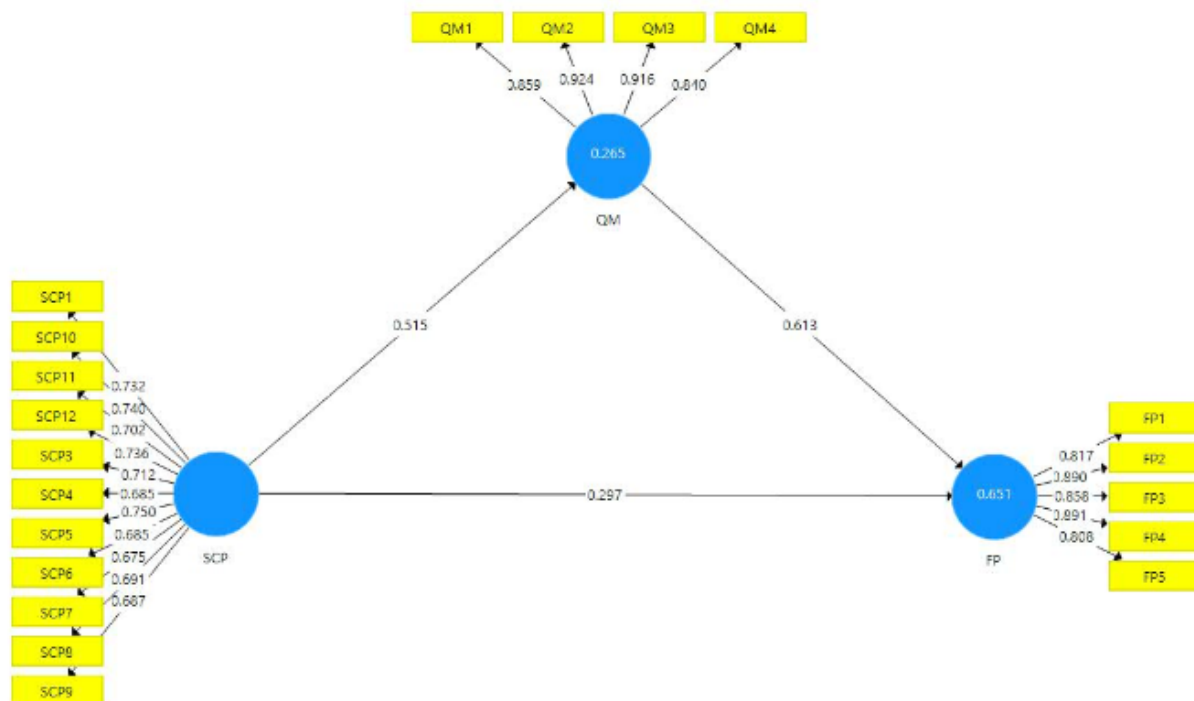


Figure 2. Measurement Model Assessment

The structural model is used in the study to check the links between the variables. Direct and indirect both links between the variable can be check through the structural model. The outcomes showed the R square ($R^2 = 0.651$) that elaborate the overall impact of all variables on the dependent variable. According to this study, all variables explain the dependent variable by 65.10%. The findings showed that practices of SC has a positive effect on firm performance of an entity ($\beta = 0.297$; $t = 7.701$) and supported the hypothesis H1. In addition, the outcomes indicated that practices of SC also has a positive effect on quality management of an entity ($\beta = 0.613$; $t = 16.831$)

and supported the hypothesis H2. Moreover, the results elaborated that quality management has a positive effect on firm performance of an entity ($\beta = 0.515$; $t = 12.661$) and supported the hypothesis H3. In addition, the findings also showed that quality management significantly mediates the links among the practices of SC and firm performance of the export industry in Thailand and supports hypothesis H4. All figures mentioned above are shown in Table 3 given below:

Table 3. Path Analysis

	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values	LL	UL	R Square
QM -> FP	0.613	0.612	0.036	16.813	0	0.549	0.666	0.651
SCP -> FP	0.297	0.297	0.039	7.701	0	0.236	0.362	
SCP -> QM	0.515	0.521	0.041	12.661	0	0.441	0.575	0.263
SCP -> QM -> FP	0.315	0.319	0.031	10.131	0	0.254	0.36	

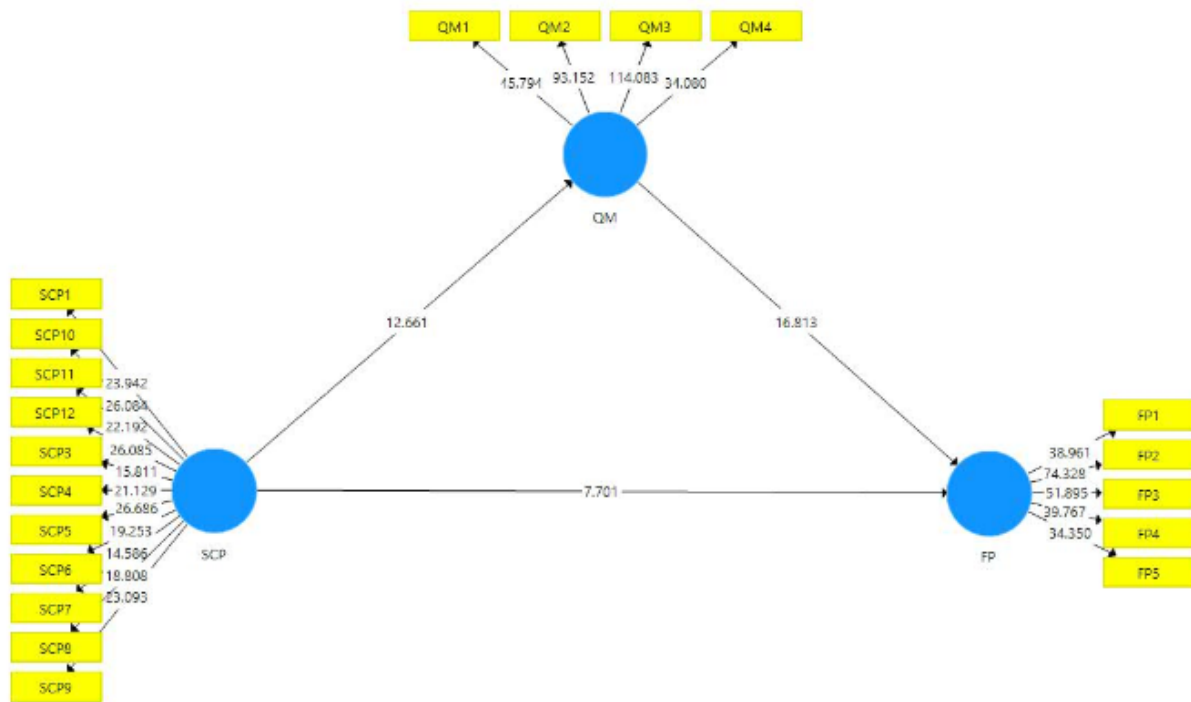


Figure 3. Structural Model Assessment

5. Discussion

This section explains the results that are mentioned above section and compares with previous studies and also make a conclusion from that results. In addition, this section also shows the recommendation, suggestions, and limitations of the study.

The prime motivation of the investors, owners, and financiers is only the performance of the firm that increases their wealth. SC practices are the effective tools that help in achieving this motivational element for the owner by improving business processes and quality of businesses concerns. This study is also examined the changes in the firm performance due to the quality assurance by implementing the SC practices. This study found that SC practices are very effective in improving the business processes and also effective in increasing the performance of the entity. The results are similar to the finding of Vachon and Klassen [30] and Stewart [31] who indicated that SC management is an effective tool for enhancing

the firm performance. In addition, this study also examined that the quality of the businesses also improved by the effective SC practices of the entity. This finding is also matched with outcomes of Schaltegger and Burritt [32] and Scannell, et al. [33] who found positive links between quality management SC practices. Moreover, this study also investigated that quality management is the key factor of firm performance in the export industry in Thailand. These outcomes are also similar to previous studies, which proved that firm performance depends upon the business quality [34]. This study also proved that quality management part of SC practices is playing a vital role in enhancing the performance of the entity. Thus, quality management significantly mediates the links among the SC practices and firm performance.

Finally, this study concluded that the performance of an entity is required the SC practices to improve gradually. This improvement is through the assurance of an important element that is quality management. Thus, practices of SC is effective enough that they improve the quality of the

business concern that is one of the major factors of increasing the performance of the business. Moreover, this study recommended that this area could be explored further by adding more factors that are affecting firm performance. In addition, it also suggested that the focus of the current study is only on the one sector, and future studies can add more sector for investigation. Additionally, further studies can expand the scope by adding more countries for investigation.

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