

## **Analysis of the Relationship of Supply Chain Management with Competitive Advantage and Financial Performance of Companies (Case Study: The Manufacturing and Industrial Companies of Hormozgan Province)**

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**Abstract:** This study has been conducted to analyze the relationship of supply chain management company with competitive advantage and corporate financial performance. The manufacturing and industrial companies of Hormozgan Province have been studied in this research. To study the variables of the research, three components have been considered for each of the variables. Questionnaires have been used in this study for data collection and evaluation of the relationship between the variables. In this regard, a questionnaire consisting of 24 questions was designed given to the respondents. In this study, all senior managers, middle managers and operations managers in manufacturing and industrial companies of Hormozgan Province were considered as the population and the sample size was calculated 123 based on Cochran Formula. Structural Equation Modeling (SEM) has been used in this study for examining the relationships between the variables and LISREL Software has been utilized for this purpose. After reviewing the results obtained from the questionnaires, the two hypotheses of the research were confirmed and it was shown that there is a statistically significant relationship between supply chain management, competitive advantage and financial performance of the company.

**Key words:** Supply chain management, competitive advantage, financial performance, SEM, statistically

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### **INTRODUCTION**

In the current situation of the global economy, active firms are developing network business models, strengthening supply chain and distributing their own businesses in order to create and enhance competitive advantage. Development of supply chains and strong business networks is so important that competitive advantage finds meaning only within the framework of this combination. On this basis, the support of production through the development of networks and chains can amount to economic efficiency and lead to the reduction of transaction costs and the possibility of synergy and realization of other key benefits (Ghazanfari and Fathollah, 2014).

Due to the industrial development of the world, products and products have increased in variety and got certain subtleties. Due to the existence of abundant parts for some of these products, there is a need to organize the production of parts but organizing the supply of raw materials, machinery and human resources has a lot of problems such as preparation and production of all of the needed parts within a company will create many problems

such as how to organize human resources and develop additional resources during the market and demand changes (Chopra and Meindl, 2012). Organizations have gradually found that for the more appropriate organizing of parts supply, it is better to make use of the resources produced outside the organization which led to the formation of the idea of supply chain because manufacturing organizations found that they cannot emphasize the internal efficiency and short-term interests independently and without considering the surrounding circumstances. Current organizations require precise coordination for preparation of raw materials and their timely delivery to customers so that they can reduce costs, get their timely delivery and ultimately achieve customer satisfaction. With regard to the issues raised, supply chain management can be an effective and useful way in this regard. Supply chain management is the process of planning, execution and control of operations associated with supply chain in the most efficient way possible. Supply chain management encompasses all movement and storage of raw materials in process inventory and finished product from the initial start point to the end point of consumption. Supply chain management is an integrated approach to planning and

control of material and information that flows from suppliers to customers and in different tasks in an organization. Supply chain management refers to a set of methods used for effective and efficient integration of suppliers, manufacturers, warehouses and retailers so that goods can be produced and distributed at the right time and in the right place in order to minimize the costs of the system and fulfill the needs of services and goods.

The relationship between supply chain and cash flow in a company and management of this relationship is very important for improving the performance of companies active in a supply chain. The design and analysis of efficient supply chains and the design of performance evaluation models for this purpose have received much attention in recent years. This is a considerably wide issue in terms of funding and liquidity management. A cash-to-cash cycle including the optimal management of inventory and receivable/payable accounts is considered one of the most important factors in the success of supply chains (Farris and Hutchison, 2002).

The financial tools of supply chain can be regarded as a financial supplement for supply chain management in order to maintain the competitive advantage of supply chains. Smaller partners of supply chain will obviously be able to benefit from profits earned in the supply chain due to the difference of the benefit arising from a larger refinance. Financial tools of supply chain can also increase their operational benefits through foreign financial services (Soleimani *et al.*, 2013). The key performance indicators to evaluate the efficiency of financial management in supply chains should be defined from both operational and financial flow perspectives in supply chains. Use of capital is an area with the greatest potential to improve the financial performance in supply chains. Inventory optimization, receivable accounts and payable accounts are the key performance indicators that must be considered in measuring the performance of the financial management of supply chain. In addition, the cash flow cycle time is also important in this category (Shafiei and Tarmast, 2014).

#### **Literature review**

**Supply chain:** In the information age, organizations know that they have a very difficult way a head for their survival in the competition arena. Today, no commercial enterprise can guarantee its profitability, unless it benefits from scientific methods to gain competitive advantage. By using scientific methods, supply chain management can help companies reduce the cost of finished products and services and their delivery time to customers. Any company that can deliver its products and services to its customers with an optimal combination of the three factors price, quality and delivery time will be able to

survive in today's competitive world and maintain its long-term relationships with its customers on the one hand and with its suppliers on the other (Frazelle, 2002).

All processes whereby the supply of raw materials and related affairs are involved in the design, production and delivery of goods and services to customers in the form of a related set are referred to a supply chain management. No company enjoys high levels of skill in all areas of supply chain management, so, companies are redefining their roles in the market in which they work and also tend to have relationships with other companies that have complementary skills.

**Definitions of supply chain:** Supply chain includes all stages that are directly or indirectly involved in the fulfillment of customer requirements. It includes not only producers and factories but also the intermediaries, retailers and their customers as well. In any company (like any plant), supply chain includes all the factors involved in the fulfillment of customer needs (Chopra and Meindl, 2012).

Supply chain, includes all business activities of a company needed for the design, production, delivery and use of the required product or service. Any company lies in one or more supply chains and plays a role in each one of the chains (Hugos, 2003).

Supply chain is the alignment of companies that provide products and services to market (Lambert *et al.*, 1998).

Supply chain refers to a network of facilities and distribution options that supply the raw materials, transfer them to intermediaries and convert them in to finished products and finally distribute the finished products among customers (Ganeshan and Terry, 1995).

A more comprehensive definition for supply chain is as follows: "supply chain is a network of processes, the ultimate goal of which is to supply customers with goods and services and which includes suppliers, manufacturers, distributors wholesalers and retailers who collaborate in a coordinated and integrated way in order to satisfy customers' needs (Kord and Jamshidi, 2013).

**Five main components of supply chain:** Any company in the supply chain should make decisions in the following five areas. The five main components of supply chain include production, inventory, location, transportation and information.

**Production:** The following points should be considered regarding this component:

- What products does the market want?
- How much of the products should be produced and when?

The activities of this are a include the creation of main production programs that have to consider the factory's capacity, load balancing, quality control and equipment maintenance.

**Inventory:** Regarding this component, we should answer the following questions:

- What inventory should be warehoused at each stage of supply chain?
- How much of the inventory should be comprised by raw materials, semi-finished products or finished products?

The primary goal of warehousing is acting as a barrier against doubts and uncertainty in supply chain (Dana and Dawes, 2004). However, warehousing can be too costly.

**Location:** Regarding this component, the following questions should be considered:

- Where should the equipment used for the production and maintenance of inventory be located?
- Where are the most economical locations for the production and maintenance of inventory?
- Should the existing equipment be used or should new pieces of equipment be purchased?

After decisions are made about these points, the possible paths available for delivery of goods to customers will be specified (Stevenson, 1993).

**Transportation:** Regarding the transportation component, the following questions should be considered:

- Should the inventory be transferred from one location of supply chain into another location?
- When and how should the inventory be transferred?
- How should the transportation networks be designed?

Delivery by air freight or truck is fast but costly. Transportation by sea or railway are less costly but they are time consuming and uncertain. This uncertainty should be compensated by storing larger amounts of inventory (Moradi *et al.*, 2014).

**Information:** Information is one of the most important and basic components, about which the following questions should be answered:

- How much data should be collected and how much of the collected data should be shared?
- How should the data be processed?
- How should the unnecessary data be refined?

Timely and accurate information to ensure better coordination and decision-making. With the right information, people can make better decisions about when and how much to produce where to locate the product inventory and how to transport it (Jafari *et al.*, 2011).

**The concept of competitive advantage:** The concept of competitive advantage has a direct relation with customers' desired value, so that in a comparative scale, the closer the values supplied by an organization are to the customers' desired values, the more superiority and advantage that organization has in one or more competitive criteria than its competitors (Mehri and Hosseini, 2004).

Competitive advantage includes a set of factors or capabilities that enable a company to show a better performance than its competitors. In other words, competitive advantage is a factor or a combination of factors that make an organization more successful than other organizations in a competitive environment and it is not easy for competitors to imitate it. Therefore, in order to achieve a competitive advantage, an organization must consider both its external position and internal capability.

Two important points should be considered in creation of competitive advantage: first, this path is a continuing process that leads to the organization's excellent performance and competitiveness. This means that if an organization is able by its own competencies to create sustainable competitive advantage that is valuable to its customers, the organization has actually had an appropriate performance and competitiveness. Second, because of the increased environmental complexity and intensity of competition, competitive advantage is either easily imitated by competitors or soon loses its value from customers' perspective and must be replaced with new advantages. Therefore, the organization should think about finding its own competitive advantages. The creation and maintenance of competitive advantage requires competencies that creates value for customers based on the capabilities of the organization. Company resources include a variety of assets, capabilities, organizational processes, information and knowledge that are controlled by the company in such a way that it will develop and implement these value-creating

strategies. These resources can be classified into three categories of tangible, intangible and organizational capabilities.

**Financial performance:** Financial performance is assessed in the study by four criteria including the increased sales, the increased profits, the increased market share, return on investment and the increased return on investment, each of which will be explained separately in the following.

**Sales:** The actual and predicted sales of a company have numerous effects on the amount of the working capital that the company spends (and has to supply it). A company's sales has a direct effect on the amount of current assets and current liabilities and increases them automatically (Rajabi and Ganji, 2010).

**Profit:** According to the theories of microeconomics, companies try to maximize their profits. Profit is revenue minus costs. A company earns income during one financial year based on the activities that it does. On the other hand, the company has to spend a lot for the production of goods and services. To determine the company's performance, its revenues and related costs are compared at the end of the fiscal year to determine how much profit the company has made in the fiscal year (Salehi *et al.*, 2013).

**Market share:** In today's world, gaining a greater share of the consumer market is considered the main goal of companies and owners of industries and the use of scientific principles and techniques in marketing becomes more and more important in these conditions. New marketing does not search for customers for products; rather it tries to create products and services tailored to customers' wishes and needs.

**Return on investment:** Rate of return on investment determines the amount of benefit per one Rial (Iran's unit of currency) of the funds invested in the company. In this way, the "profit after tax" is divided into the "total assets" is divided. Rate of return, determines the relationship between the company's volume of investments and the profits that it earns. If a company adds to its investments (i.e., increases its assets) but cannot increase the amount of profit after tax, the rate of return on investment will decrease.

**MATERIALS AND METHODS**

The main tool used in this study for data collection is questionnaire. The questionnaire used in this study contained 40 questions, the first 20 questions covering

supply chain and the variables related to it. Questions No. 21-30 measured the variable competitive advantage and questions No. 31-40 dealt with five variables of financial performance. The study population consists of all senior, middle and operational managers in manufacturing and industrial companies of Hormozgan Province whose number was 180 but the sample size was calculated 123 based on Cochran formula. The method used in this research for sampling is simple random sampling method. We also used Structural Equation Model and LISREL technique in this study to analyze the collected data. The questionnaire used in this study had content validity and reliability as measured by Cronbach's alpha. The reliability measurement results are presented in Table 1.

**Data analysis**

**Testing the fitness of the conceptual model:** The purpose of assessing the fitness of the model is to determine to what extent the model is compatible with experimental data used in the research. There is a wide range of fitness criteria and indicators that can be used to measure the fit of the model. In this study, the conceptual model of the research is shown in the form of path diagram and its fitness is measured using various methods. A structural equation model actually represents a combination of path diagram and Confirmatory Factor Analysis (CFA).

Figure 1 shows that the effects of the independent variable (supply chain management) on the dependent variables (financial performance and competitive advantage) are significant (as the level of significance is greater than 1.96).

As shown in Fig. 2 and 3, the effect of supply chain management on financial performance is equal to 81% and the impact of supply chain management on competitive advantage is 65%. The final model clearly shows that the relationship between all components set forth in the initial model of the research is significant. Therefore, the final model of the research is confirmed.

**Testing the research hypotheses:**

- H<sub>1</sub>: there is a significant relationship between supply chain management and competitive advantage

The results of the conceptual model equations for the relationship between supply chain management and competitive advantage are presented in Table 2.

Table 1: Reliability of the questionnaire

Variables	No. of questions in the questionnaire	Cronbach's alpha coefficient
Supply chain management	9	0.863
Competitive advantage	6	0.814
Financial performance	9	0.924

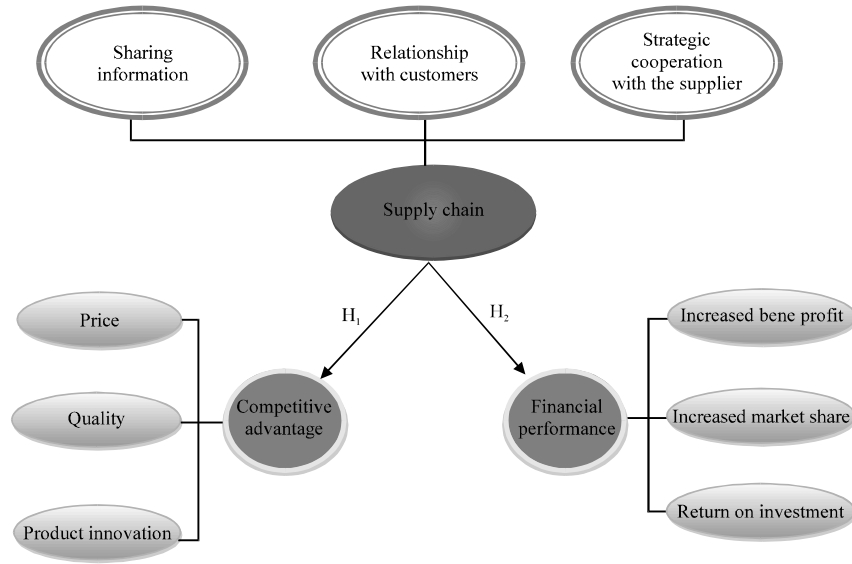


Fig. 1: The conceptual model of the research (Shi and Yu, 2013)

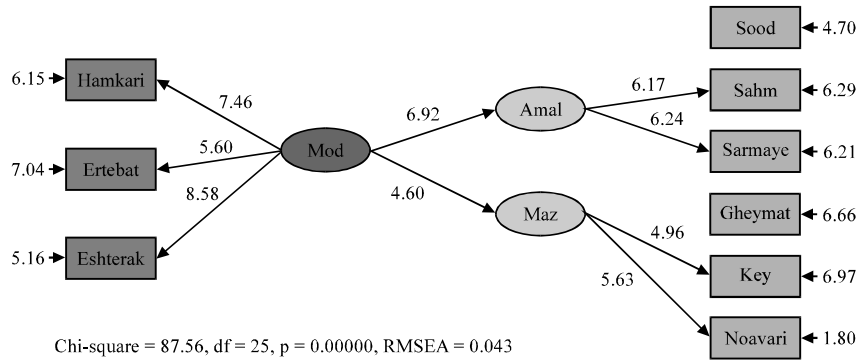


Fig. 2: The significant numbers of the structural model

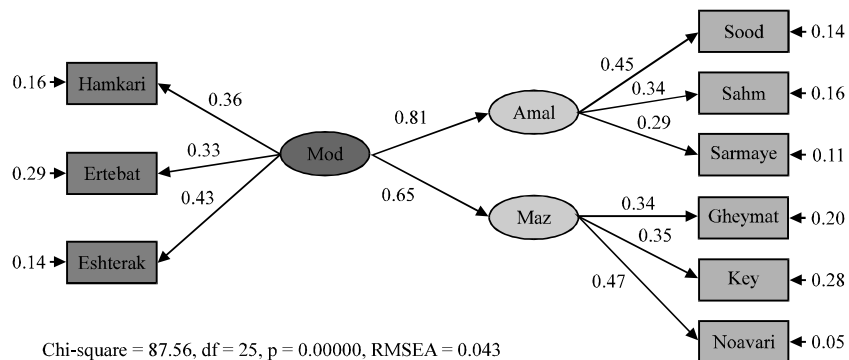


Fig. 3: The standard estimate coefficients of the structural model

According to Table 2, the level of significance between supply chain management and competitive advantage is 4.60 which is the greater than 1.96,

indicating that the relationship between supply chain management and competitive advantage is significant at 99% level of confidence. Also, the path coefficient

Table 2: Output of the relationship between supply chain management and competitive advantage

Path	Significance	Path	
coefficient	number	-----	
(β)	(t-value)	To variable	From variable
0.65	4.6	Competitive advantage	Supply chain management

Table 3: Output of the relationship between supply chain management and financial performance

Path	Significance	Path	
coefficient	number	-----	
(β)	(t-value)	To variable	From variable
0.81	6.92	Financial performance	Supply chain management

between the two variables is 0.65, showing the impact of supply chain management on competitive advantage. Therefore, the first main hypothesis of this study is confirmed. Furthermore, based on the sign of path coefficient between the two variables, it becomes clear that supply chain management has a positive impact on competitive advantage:

- H<sub>2</sub>: there is a significant relationship between supply chain management and financial performance

The results of the conceptual model equations for the relationship between supply chain management and financial performance are presented in Table 3.

According to Table 3, significant level of supply chain management and financial performance of the variable (6.92) is the greater of the amount (1.96) and Nshan Dhndh is that the relationship between supply chain management and performance financial confidence level (99%) is significant. The path coefficient between the two variables (0.81) and the variable impact of supply chain management on financial performance shows. The main hypothesis of the study confirmed the elderly. Also, according to the signal path coefficient between the two variables is clear that supply chain management has a positive impact on financial performance.

According to Table 3, the level of significance between supply chain management and financial performance is 6.92 which is the greater than 1.96, indicating that the relationship between supply chain management and financial performance is significant at 99% level of confidence. Also, the path coefficient between the two variables is 0.81, showing the impact of supply chain management on financial performance. Therefore, the second main hypothesis of this study is confirmed. Furthermore, based on the sign of path coefficient between the two variables, it becomes clear that supply chain management has a positive impact on financial performance.

**RESULTS AND DISCUSSION**

Based on the analyses, the level of significance between supply chain management and competitive advantage is equal to 4.60 and greater than 1.96, indicating that the relationship between supply chain management and competitive advantage is significant at 99% level of confidence. Moreover, the path coefficient between the two variables is 0.65 which indicates the influence of supply chain management on competitive advantage. Therefore, the main hypothesis of the research is confirmed. In addition, the sign of path coefficient between the two variables shows that supply chain management has a positive effect on competitive advantage. As for the second hypothesis, it can be said that the level of significance between supply chain management and financial performance is 6.92 which is greater than 1.96 and shows that the relationship between supply chain management and financial performance is significant in the confidence level of 99%. Also, the path coefficient between the two variables is 0.81 which shows the impact of supply chain management on financial performance. Therefore, the second main hypothesis is confirmed. Furthermore, the sign of the path coefficient between the two variables suggests that supply chain management has a positive impact on financial performance.

**CONCLUSION**

Therefore, it can be said that the main concern of this research is finding a significant relationship among supply chain, competitive advantage and corporate financial performance. In this regard, the main questions of the research are as follow: is there a significant relationship between supply chain management and competitive advantage? And is there a significant relationship between supply chain management and financial performance? The main objective of this research is to answer these questions.

**SUGGESTIONS**

**Suggestions based on the research findings:**

- Suggestions based on the first hypothesis (there is a significant relationship between supply chain management and competitive advantage)

The findings of the research show that there is a significant relationship between supply chain management and competitive advantage. Accordingly, we recommend that the managers of industrial and manufacturing companies in Hormozgan Province pay more serious attention to supply chain with a more precise

planning. Today's market is highly competitive and any organization or company that can gain better competitive advantage than the rest of the market participants using a variety of methods and strategies can gain more market share and increase its own competitive power. Based on the findings, a way of gaining competitive advantage is supply chain management. Supply chain is associated with suppliers on the one hand and with final consumers on the other. Consequently, a strong management in supply chain can not only establish a regular and precise flow of raw materials in manufacturing and industrial companies but also help achieve customer satisfaction and ultimately competitive advantage for the company through on time delivery of goods to final customers.

- Suggestions based on the second hypothesis (there is a significant relationship between supply chain management and financial performance)

The findings show that there is a significant relationship between supply chain management and financial performance of the company. It seems that the accurate and efficient management of supply chains can lead to both competitive advantages and financial interests. An effective and efficient supply chain can improve the financial power and financial performance of the company and will probably reduce the costs and increase the profitability of the company.

### RECOMMENDATIONS

Therefore, we recommend that the managers of manufacturing and industrial companies in Hormozgan Province establish up-to-date systems in the whole supply chains, thereby making it possible for the company to have better financial performance. To this aim, we recommend that the manufacturing and industrial companies in Hormozgan Province prioritize the use of integration and information technology in supply chain so that they can accelerate the process of supply chain operations and achieve the financial benefits of these systems such as the reduction of costs.

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