

# The Impact of Supply Chain Management Practices On Competitive Advantage

Minrohayati\*)  
Universitas Terbuka, Indonesia  
minrohayati@ut.ac.id

Meirani Harsasi  
Universitas Terbuka, Indonesia  
rani@ut.ac.id

*Presented at the: SIBR-UniKL 2015 Conference (Kuala Lumpur) on Interdisciplinary  
Business and Economics Research, 16th-17th February 2015, Kuala Lumpur.*

## ABSTRACT

*Supply chain responsiveness is a way for companies to achieve a competitive advantage by quick response of consumer's wants and needs. In a volatile and competitive business environment, companies need to have solutions of problems requiring flexibility and quick response in the frame of cost efficiency. This study examines the impact of supply chain management on competitive advantage with supply chain responsiveness as mediating variable. This study was conducted to 334 garment manufacturers in Indonesia by sending mail questionnaires. Only 57 questionnaires were valid and can be used for next analysis. Using path analysis, all independent variables had positive impact on dependent variables, proofing that supply chain management and supply chain responsiveness have positive impact on the achievement of competitive advantage.*

*Keywords: competitive advantage, supply chain management, supply chain responsiveness*

## 1. Introduction

Globalization in economic and trade is a tough challenge for any kind of industry nowadays. High competition, consumer demand, and the ability to operate efficiently and effectively are primary factors of increasing levels of competition among industry, either similar or different types of industries. Enhancing competitive advantage is one way to survive in a high level of competition. To gain a competitive advantage, companies must be able to produce a product or service in a good quality and competitive price.

Today's business world became a consumer-oriented business, which means that the company must be able to meet the demands of consumers to produce some products according to the customer wants. Modern business currently has the characteristics of the shortening of product life cycle, the introduction of new products more quickly, increasing consumer knowledge, quick information, and more complex consumers (Thatte, 2007). In order to survive, companies must have a good network with other companies such as suppliers and distributors. Speed delivery of

products to consumers can not be separated from the smooth operations and distribution, which means that also, cannot be separated from the role of suppliers and distributors. This is where the necessary role of supply chain management (SCM) that aims to improve the internal and external performance. The difficulty often experienced by companies is improving external performance (between members of the supply chain that includes suppliers, manufacturers, and distributors) because each member has different interests.

The objective of SCM is to synchronize and coordinate activities related to the flow of material/product, both of which exist in the organization and between organizations. SCM responsiveness is suitable for companies that offer a variety of products with high demand (Krajewski and Ritzman, 2009). The company can certainly determine consumer demand when the order is made by the consumer with a short lifespan of demand, as in the fashion products. Responsive supply chain focuses on speed in responding consumer demand to avoid accumulation of obsolete inventory or product. This characteristic of business requires supply chain becomes more responsive in terms of rapid response, effective, and efficient in a market that continues to grow. SCM responsiveness is often the key to successful implementation of the supply chain to achieve a competitive advantage. However, various problems will always occur in a responsive SCM. Supply chain should be well managed to achieve a rapid response of changes in demand and overcome the changes very quickly. The main factor is the focus on time, flexibility, and speed of response of the supply chain in order to succeed in the global market with the creation of competitive advantage (D'Souza, 2002). This study aimed to analyze the impact of the application of SCM on competitive advantage which is mediated by supply chain responsiveness.

## **2. Literature Review**

Supply Chain Management (SCM) is a major focus in many industries, including manufacture and service industry, as companies realize the importance of creating a close relationship with their suppliers and customers. The supply chain encompasses all activities associated with the flow and transformation of goods from the raw materials stage, through to the end user, as well as the associated information flows. The essentials of supply chain management are the synchronization and coordination of activities related to the flow of material/product, both in an organization and among organizations. A supply chain will have many parties; consist of suppliers, producers, retailers, and consumers. The flows of material/product in the manufacturing industry are complex, it needs intervention of all parties, not just the parts that passed directly by the flow of material/physical products, but also other parts such as product design, marketing, accounting, financial, and human resources.

For many companies, it has become clear that a better information flows as well as material flows can be a significant differentiator, the competitive winner (Misra *et al.*, 2010). The desire of companies to gain a competitive advantage is focus on the ability to meet customer satisfaction, develop products on time and in reasonable cost in terms of supply and delivery of products, manage the industry in a flexible way that it can be achieved through the supply chain management. SCM become one of the strategies that can be used by companies as a media for creating and gain a competitive advantage. The benefits of the implementation of supply chain management are reduction of inventory, improve service delivery, as well as shorten the product development cycle (Ireland and Webb, 2007). In a rapidly changing and competitive environment, companies need solutions of problems related to the flexibility and ability to

respond quickly in terms of cost effectiveness (Gunasekaran *et al.*, 2008). Supply chain management facilitating organizational coordination include: (1) the development of an information network interconnection involving several suppliers who are already trained, (2) the balance between low dosage level and quality of service delivery, (3) the design of innovative products, and (4) the effectiveness of the cost of shipping the product to the consumer at the right time (Silveira *et al.*, 2001). This understanding of course can't be separated by the supply chain's ability to respond to the needs of consumers quickly, meaning that at the appropriate time and quality. Responsive supply chain has the sense of the supply chain's ability to respond and adapt the effectiveness of time based on the ability to "read" and understand the market signals in a timely supply chain based on changes in end consumers' demand (Ramakrisnan, 2002).

Many famous companies in the world have successfully implemented the concepts of SCM. However, not all of the applications of supply chain management can bring success for some companies. Failure in implementing SCM mostly arise from multiple levels within the organization, those are organizational level, intra-organizational level, and inter-organizational level (Fawcett *et al.*, 2008). Sometimes SCM is not able to overcome some of the problems associated with high costs due to high inventory levels and lower sales growth, quality and production problems, recognition of employees to improve supervision, and low collaborative planning (Hendricks and Singhal, 2005). The failures that occur in the application of supply chain management, especially increasing costs, is the strongest motivation for supply chain managers to create a strategy as a solution to overcome the obstacles implementation of supply chain management.

Veleva *et al.* (2003) stated the importance of activity measurement of companies along the supply chain to promote the sustainability of the environment due to the importance of attention to environmental sustainability as part of the future of the company itself. Meanwhile, Sodhi (2003) describes the importance of bringing together SCM with strategy. Strategy formulation through the usual scenario planning are prepared in order to bring high value to the shareholders, while supply chain management is presented to optimize the model in order to reduce costs. The combination of both allows the company to control its business processes such that the business is able to produce a fast moving and lean production. A key objective of supply chain strategies is to increase the firm's supply chain responsiveness with respect to its customers (Qrunfleh, & Tarafdar (2013).

Supply chain responsiveness can be achieved in two ways: to maintain a large number of stocks or shorten the operating cycle (Catalan and Kotzab, 2003). A large number of stocks can cause high cost production for most industries. More appropriate ways to achieve supply chain responsiveness is to shorten the operating cycle and improve flexibility. Shorten the cycle of operation can be performed and measured through four indicators: lead time, postponement strategy, the bullwhip effect, and exchange of information. Supply chain responsiveness also can't be separated from the operating flexibility (Krajewski and Ritzman, 2009). Supply chain flexibility refers to the ability of the supply chain to adapt to internal and external influences in the face of changes in market demand (Holweg, 2005). Covering the whole supply chain flexibility in the supply chain process, not only the internal operation of supply chain processes, but also the external supply chain processes. This is consistent with the main processes in the supply chain; those are suppliers, internal operations, and logistics. Supply chain responsiveness

is based on the response speed of the three main processes of the supply chain; responsive operating system, responsive logistics processes, and responsive supplier network (Thatte, 2007).

Competitive advantage can be achieved if there is a balance between the unique advantages (distinctive competency) of a company with the critical factors for success in the competition. Li *et al.* (2006) defines competitive advantage as the organization's ability to create a position that was maintained over competitors. Through a competitive advantage, companies have different competencies that make up the organization by having differences with its main competitors. It is this difference that will benefit the company because it can control the market. A competitive advantage has meaning if the advantages associated with certain attributes that are valued by the market. Consumers will assess differences in certain attributes of the products offered by a manufacturer with a product from its competitors (Agha *et al.*, 2012). These differences must be related to the attributes that consumers desired criteria. The attributes are variables that influence consumer perceptions of product, utilization, and availability. These criteria are different in each industry that consumers will use the criteria to determine their purchasing decision.

Based on the literature review, the connection among variables, and previous research by Thatte, (2007), this study aimed to analyze the impact of the application of SCM on competitive advantage that is mediated by supply chain responsiveness. The hypotheses are:

- H1: SCM practices has positive effect on SCM responsiveness
- H2: SCM responsiveness has positive effect on competitive advantage
- H3: SCM practices has positive effect on competitive advantage

Thus, the research model as follows.

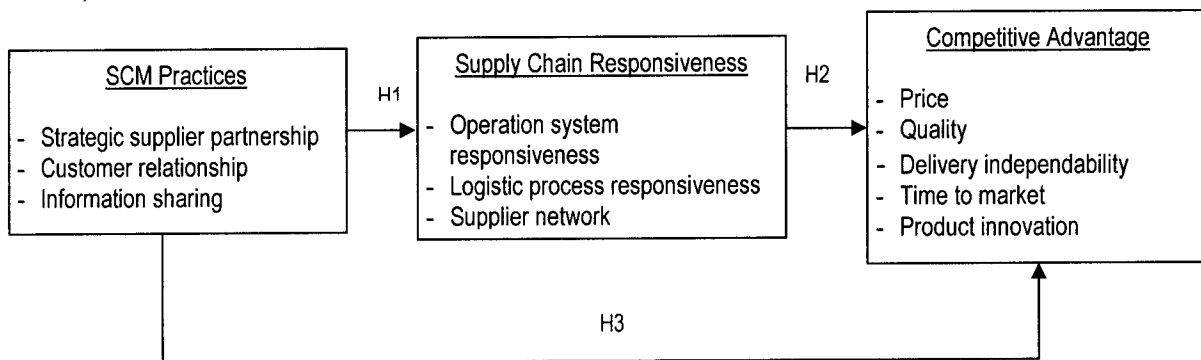


Figure 1. Research Model

### 3. Research Methodology and Results

#### 3.1. Research Design

This study was designed to analyze the impact of the independent variables with the dependent variable as defined in the hypothesis that requires further testing, thus this research classified as causal research. Causal research is a research conducted to identify the causal relationship

between some variables that have a clear definition of the research problem (Zikmund, 2000). This study was conducted based on some previous studies, so that the foundation theories and hypotheses have been formed. To achieve the objectives that have been set, each variable is measured through its constructs. Each constructs will be measured through a questionnaire items adapted from Thatte (2007). These items will be structured to elicit responses from respondents using 5-point Likert scale. The population in this study is garment companies in Indonesia and listed in the Directory of Indonesia Manufacturing Industry, 2009. The sampling technique was purposive sampling using a sample of companies in the garment industry in Indonesia that have more than 100 employees. The reason for choosing the garment companies is conformity with the emphasis on the research topics that are supply chain responsiveness. The product of garment companies has a short life cycle that means it needs to be changed in a short time. The data collected in this study was primary data taken from respondents through the answers in the questionnaire. To analyze the answers of the respondents in order to achieve the research objectives, there were three steps of data analysis, namely the validity test, reliability test, and hypotheses test using path analysis.

### 3.2. Results

The first step to analyze the data was validity test using Confirmatory Factor Analysis (CFA). As many as 57 questionnaires were valid and can be processed for further analysis. The purpose of the validity test is to analyze which indicators that are valid for measuring the variables observed (Hair *et al.*, 2006). Indicators can be classified as valid indicators if they are clustered into their variable and have a significant factor loading above 0.4. Based on the first validity test, there were three indicators that must be removed from the analysis because they have loading factor less than 0,4 and not clustered in their variables. The final factor analysis showed that all indicators are clustered in their variables and have loading factor greater than 0.4. The next step was testing the reliability using Cronbach's Alpha. A variable can be assessed reliable when Cronbach's Alpha value is greater than 0.60. All variables using in this study are reliable that have the Alpha value above 0.60. It means that all constructs have met the reliability test. In other words, the internal consistency of the items in the questionnaire questions is acceptable. The full results of the reliability test using Cronbach's Alpha can be seen in Table 1.

Table 1. Reliability Test Results

<b>Variable</b>	<b><i>Cronbach's Alpha Based on Standardized Items</i></b>	<b>Results</b>
Strategic supplier partnership	0,9451	Reliable
Customer relationship	0,9131	Reliable
Information sharing	0,9653	Reliable
Operation system responsiveness	0,9783	Reliable
Logistic process responsiveness	0,8847	Reliable
Supplier network	0,8648	Reliable
Competitive advantage	0,9847	Reliable

After all the variables were found valid and reliable, the next step is testing the hypothesis using path analysis with three stages analysis to analyze the three hypotheses. By using statistical models of linear regression, the value of t as parameter estimation, multiple correlation coefficients (R), the coefficient of multiple determinations ( $R^2$ ), and regression coefficients for each independent variable were found. The effect between two variables were significantly proved if the t value is less than 0.05 ( $\alpha = 0.05$ ) or in a 95% confidence level. Based on the category given, the results of path analysis as follows.

**Table 2. Regression Results I (hypotheses 1)**

Independent Variable	Dependent Variable	Coefficient	Standard Error	t	Sig t
SCM Practices	SCM Responsiveness	.638	.068	5.728	.000
$R^2$					.432
Adjusted $R^2$					.368
F					11.486
Sig F					.000

**Table 3. Regression Results II (hypotheses 2)**

Independent Variable	Dependent Variable	Coefficient t	Standard Error	t	Sig t
SCM Responsiveness	Competitive Advantage	.304	.242	2.370	.021
$R^2$					.093
Adjusted $R^2$					.076
F					5.616
Sig F					.021

**Table 4. Regression Results III (hypotheses 3)**

Independent Variable	Dependent Variable	Coefficient	Standard Error	t	Sig t
SCM Practices	Competitive Advantage	.217	.200	1.647	.025
$R^2$					.047
Adjusted $R^2$					.030
F					2.712
Sig F					.032

Based on the test results in Table 2, shows that together all the variables in the SCM practices have a significant impact on supply chain responsiveness. In Table 3, it can be seen that the supply chain responsiveness have positive impact on competitive advantage, and in Table 4, it is also can be seen that SCM practices is also have positive impact on competitive advantage. However, the value of adjusted  $R^2$  in each model is very low at only .368, .076, and .030 that means only a slight influence of the independent variables on dependent variables. It's also found that all hypotheses were accepted, noted from the value of significant t are below 0.05

#### 4. Conclusion and Managerial Implications

This study aimed to analyze the impact of SCM practices on supply chain responsiveness and competitive advantage. In accordance with the purpose of this research which emphasizes in the speed of company's response, the sample used are large garment companies that have a workforce of over than 100 people. From the path analysis, it can be found that all of the hypotheses are accepted. This shows that the position of a supply chain responsiveness as a mediating variable has a lesser role for the effect of SCM practices on competitive advantage, that SCM practices can directly affect competitive advantage. These results concur with those of Thatte (2007). For instance, if the supply chain is able to respond effectively and react quickly to changes in the market, then the focal firm will benefit from this by improving its competitive advantage through price, quality, and delivery (Li *et al.*, 2006). In the garment industry that has a short life cycle, the company's ability to respond quickly to market demand is preferred. This is somewhat different from other types of industries that have a longer product life cycle, which means that quick response rate is not a virtue. The impact of rapid response is not only on the operating system responsiveness, but also on the logistics process and responsive supplier network. This means that a quick response is flowing from the supplier, factory, to the distributor. The results of this research show that SCM practices and supply chain responsiveness are important factors to gain competitive advantage, especially in an industry that has a short product life cycle, such as garment industry in Indonesia.

#### REFERENCES

- Agha, S., Alrubaiee, L., & Jamhour, M. (2012). Effect of core competence on competitive advantage and organizational performance. *International Journal of Business and Management*, 7(1), 192-204.
- Catalan, M., dan Kotzab, H. (2003). Assessing the responsiveness in the Danish mobile phone supply chain. *International Journal of Physical Distribution & Logistics Management*, 33(8), 669-685
- D'Souza, D. E. (2002), Toward an understanding of how organizations create manufacturing flexibility. *Journal of Managerial Issues*, 14(4), 470-486
- Fawcett, S.E., Magnan, G.M., dan McCarter, M.W. (2008). Benefits, barriers, and bridges to effective supply chain management, *Supply Chain Management: An International Journal*, 13(1), 35-47
- Gunasekaran, A., Lai, K., Cheng, E. (2008). Responsive supply chain: a competitive strategy in a networked economy. *The International Journal of Management Science*, 36, 549-564.

- Hair, Jr., J.F., Black, W.C., Babin, B.J., Andersen, R.E. dan Tatham, R.L. (2006). *Data Analysis Multivariate 6<sup>th</sup> edition*. New Jersey: Pearson Education, Inc.
- Hendricks, K.b. dan Singhal, V.R. (2005). Association between supply chain glitches and operating performance, *Management Science*, 51(5), 695-711
- Holweg, M. (2005). An investigation into supplier responsiveness. *International Journal of Logistics Management*, 16(1), 96-119.
- Ireland, R.D., dan Webb, J.W. (2007). A multi-theoretic perspective on trust and power in strategic supply chains, *Journal of Operations Management*. 25 (2), 482-497.
- Krajewski, L. J., dan Ritzman, L.P. (2009). *Operations Management Strategy and Analysis*. Addison-Wesley Publishing Company, Inc.
- Li, S., Ragu-Nathan, B., Ragu-Nathan, T. S., and Rao, S. Subba (2006). The impact of supply chain management practices on competitive advantage and organizational performance. *Omega*, 34(2), 107-124.
- Misra, V., Khan, M.I., & Singh, U.K. (2010). Supply chain management systems: architecture, design and vision. *Journal of Strategic Innovation and Sustainability*, 6(4), 102-108.
- Qrunfleh, S., & Tarafdar, M. (2013). Lean and agile supply chain strategies and supply chain responsiveness: the role of strategic supplier partnership and postponement. *Supply Chain Management: An International Journal*. 16 (6), 571-582
- Ramakrisnan, R.V. (2002). Performance measurement of supply chain management. *DILF Orienting*, 39(2), 16-18.
- Silveira GD, Borenstein D, Fogliatto F. (2001). Mass customization: literature review and research directions. *International Journal of Production Economics*. 72, 1-13.
- Sodhi, M. S. (2003). How to do strategic supply-chain planning. *MIT Sloan Management Review*. Fall, 45(1), 69 - 75.
- Thatte, A.A. (2007). Competitive advantage of a firm through supply chain responsiveness and SCM practices. Disertasi Doktorat, The University of Toledo.
- Veleva, V, Hart, M., Greiner, T dan Crumbley, C. (2003). Indicators for measuring environmental sustainability: a case study of the pharmaceutical industry". *Benchmarking*, 10, No. 2, pp. 107 - 119.
- Zikmund, W.G. (2000). *Business Research Methods, 6<sup>th</sup> edition*. The Dryden Press