EE
E u r o E c o n o m i c a
Issue 1(31)/2012 *ISSN: 1582-8859*

Supply Chain Management in Albania: An Empirical Study

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Abstract. Supply chain management in Albania has received little attention in the recent literature. Many companies now realize that actions taken by one member of the chain can influence the profitability of all others in the chain. Companies are increasingly thinking in terms of competing as part of a supply chain against other supply chains, rather than as a single firm against other individual firms. The aim of the paper is to investigate the current situation of supply chain management in Albania using a recent survey conducted by the authors. The target companies are manufacturing and trading companies mainly operating in Tirana and Durres. The data collected from Albanian companies are used to conduct the descriptive analysis and the factor analysis. The main objectives of the research are: to identify the challenges and obstacles of supply chain management, to identify types of information they share with chain members, to assess the level of suppliers and customers' involvement in company's activities, and to identify the main factors of supply chain management. The results of factor analysis indicate that supply chain integration, supply chain coordination, supply chain development and information sharing among the chain members are the main factors of supply chain management.

Key words: supply chain coordination; integration; information sharing; factor analysis

1 Introduction

Fierce competition in today's global markets, the introduction of products with shorter life cycles, and heightened expectation of customers have forced business enterprises to invest in, and focus attention on their supply chains. This, together with continuing advances in communications and transportation technologies have motivated the continuous evolution of the supply chain and of the techniques to manage it effectively.

In a typical supply chain, raw materials are procured and items are produced at one or more factories, shipped to warehouses for intermediate storage and then shipped to retailers or customers. Consequently, to reduce cost and improve service levels, effective supply chain strategies must take into account the interactions at the various levels in the supply chain. The supply chain consists of suppliers, manufacturing centers, warehouses, distribution centers and retail outlets.

Supply chain management (SCM) is related to the co-ordination of products and information flows among suppliers, manufacturers, distributors, retailers, and customers (Simchi-Levi et. al., 2000). With appropriately sharing information between suppliers and retailers and co-coordinating their replenishment and production decisions under demand uncertainty, it is possible to reduce costs and improve customer service levels.

Supply chain management is a key strategic function for increasing organizational effectiveness and for the better realization of organizational goals such as enhanced competitiveness, better customer care and increased profitability. In order to evolve an effective and efficient supply chain, supply chain

management needs to be assessed for its performance to know the competitive position of a company in the market place. However, assessment of the supply chain performance with firm's performance is not easy task.

The main objectives of the study in the context of Albanian organizations are as follows: to study types and the frequency of information sharing with members of supply chains, to identify the activities with higher and lower level of suppliers' involvement and clients' involvement, to identify the main obstacles and the main challenges of supply chain management, to measure the main factors of supply chain management of the organizations.

2 Literature Review

Over the past decades, there has been an increasing emphasis on supply chain management as a tool through which firms can achieve competitive advantage in markets. The supply chain(s) that add the most value for customers with the lowest cost comparing to the rival supply chain(s) make up the winning chain(s) of individual companies. Success in designing and coordination a competitive supply chain requires a firm and its supply chain partners to adapt readily to changes in a rapidly evolving marketplace.

Supply chain management is an integrated approach beginning with planning and control of materials, logistics, services, and information stream from suppliers to manufacturers or service providers to the end client (Fantazy et al., 2010). SCM is one of the most effective ways for firms to improve their performance (Ou et al., 2010).

The main supply chain objectives are operational cost, time and response, customer services, or profitability and margins (Nuthall, 2003). Also the short-term objective of supply chain management is to increase productivity and reduce inventory and cycle time, while the long-term objective is to increase customer satisfaction, market share, and profits (Tan ,2002).

The integration of supply chain processes can provide an effective means by which costs can be reduced and customer service levels improved. Organizations that aim to become part of an extended, integrated supply chain can also reorganize their infrastructure to enable effective information flows. An important component in this infrastructure will be based on robust and durable collaborative arrangements' with trading partners. The most effective of these chains will be those that are able to get the combination of information requirements, physical logistics and collaboration right, providing shared benefits to a majority of partner organizations.

Supply chain coordination is in fact a transformational business strategy that has a profound effect on competitive success. Many companies exchange an increasing amount of supply chain information with their business partners, but still are far from applying a structured collaborative process. Responsiveness to customer demand, and overall customer satisfaction, cannot be achieved without proper management of the goods movement and associated information flow throughout the supply chain. Information sharing increases the efficiency of supply chain operations, especially when the supply chain is complex.

Information sharing in supply chain context refers to the extent to which crucial and/or proprietary information is available to members of the supply chain. The extent to which information is shared can create opportunities for firms to work collaboratively to remove supply chain inefficiencies, and thus has a significant direct impact on the relationship between buyer and the supplier. The ability to access important information across the supply chain can also provide other opportunities. Sharing of information among supply chain partners can lead to synchronization of supply and demand in the supply chain.

Information sharing is an important component of cooperation in SCM. It can be categorized according to operations areas such as inventory, sale, demand forecasting, order state, and production plan (Lee et al., 2000). Depending on the need of the organization, there is a wide range of information that could be shared within the firm and across the supply chain(s) (Zhang et al., 2006; Ramayah et al., 2010). Prior research on the importance of formal and informal information sharing between trading partners has shown that effective information sharing enhances visibility and reduces uncertainty (Handfield et al., 2002). It allows firms to access data across their supply chains, allowing them to collaborate in activities such as sales, production, and logistics. According to Spaho (2011) in a recent study about Albanian companies, top management support, trust in supply chain partners and commitment of supply chain partners impacts positively the level of information sharing in supply chain.

3 Research Methodology

The population of this study comprises of all the manufacturing and trading companies in Albania. Data collection was conducted based on personally administered questionnaire. In order to obtain sufficient samples for analysis, 270 questionnaires were distributed to top managers, executives and managers of targeted manufacturing and trading companies. In a three weeks period during June 2010, only 78 companies answered the survey questionnaire.

Cronbach's Alpha method is used to determine the reliability coefficient. It is to ensure that the items comprising factors produced a reliable scale. According to Hair et al. (2009), reliability less than 0.60 are generally considered to be poor, those in a range of 0.70, to be acceptable, and those over 0.80 to be good. The reliability of the survey items was satisfactory since the Cronbach's Alpha was relatively high for all the items measured on a 5 point Likert scale. The items for level of involvement of suppliers and customers in activities of supply chain are measured on a five-point Likert scale with 5 indicating the 'highest extent or degree'.

This study aims to identify the main factors of supply chain management in Albania. All items considered in the study were adopted from the study of Kannan and Tan (2005). The 11 items for supply chain management were measured on a five-point Likert scale with 5 indicating 'extremely important'. A higher mean score on a variable indicates greater importance.

Factor analysis was used to determine whether variables of supply chain group together on significant factors. Keiser-Meyer-Olkin measure of sampling adequacy and Barlett's test of Sphericity were used to test whether the data are suitable for conducting the factor analysis. Then, a principal axis factor extraction method with a varimax with Kaiser normalization rotation method was used to determine the factor loading and communalities.

4 Results

4.1 Descriptive Analysis

The sample data was obtained from 78 organizations from Albania, which constituted 29 percent response rate, a percentage acceptable for the data analysis. Majority of the respondents were from Tirana and from Durres. Forty-four percent of organizations had less than 100 employees, and only 6 percent of them had more than 501 employees. Forty-one percent had the annual turnover less than 1 million euro and only 13 percent had annual turnover more than 10 million; also 36 percent have been operating from 6 to 10 years and about 40 percent of these companies have been operationg as well in other countries.

The companies of the sample manage their supply chain(s) having close partnership with suppliers (73%), having close partnetship with customers (64%), using strategic planning and retaining safety stock.

Supply chain management has resulted with considered benefits for responded companies. About 85% of companies as result of supply chain management have experienced increase of sales returns, 56% of them have experienced increase in profit, 49% have increased the customers' base, 39.5% reduction in order delivery cycle, 30% increase in on time delivery, and 25% reduction in inventory.

The level of suppliers' involvement and the level of clients' involvement in supply chain activities were measured on a five-point Likert scale, with 5 indicating the highest level and the Cronbach's Alfa coefficient was 0.81 for the suppliers and 0.84 for the clients.

The level of clients' involvement was higher (more than average 3.0) in order fulfillment, and in product development, and was lower (less than average 3.0) in warehousing management, inventory management, and promotions management. The level of suppliers' involvement was higher in order fulfillment, and demand management, and was lower in inventory management, warehousing management, and promotions management.

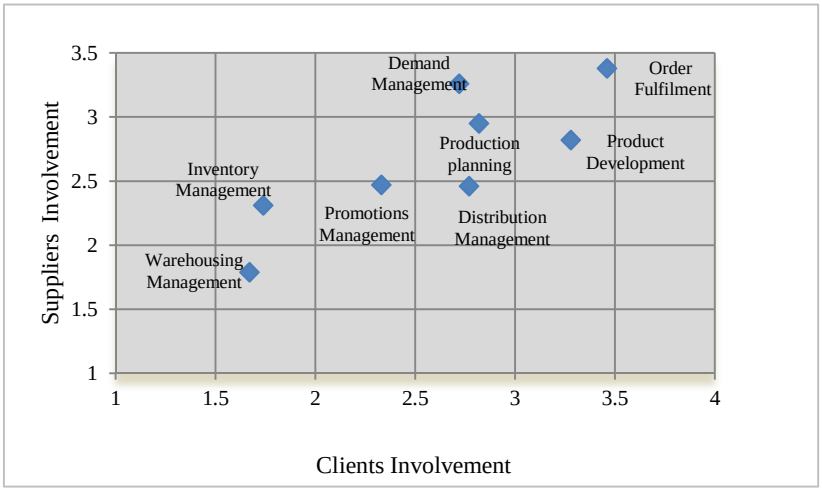

Figure 1 The level of suppliers involvement and clients involvement

Information which is shared between other members of supply chain with frequency from every day to every month is the information about: order status, (85%), demand forecasting (90%), inventory level (80%), supply capacity (83%) and production plan (59%).

The responded companies considered as main obstacles in supply chain management: increase in product variety (69%), shortening the product cycle life (38.5%) and difficulty in executing new strategies (33.3%). Also, some of their challenges are: complexity of the chain(s) (69.2%), lack of coordination among supply chain members (53.8%), lack of trust (38.5%) and lack of knowledge (25.6%).

4.2 Factor Analysis

The items considered to conduct the factor analysis were measured on a 5 point Likert scale, with 5 indicating the highest level and their mean and standard deviation are shown in table 1. Cronbach alpha reliability coefficient was 0.878 for all items considered in this study.

Most of the items revealed a mean score of below 3.00, and only few items indicated a mean score of above 3.00. Reducing response time across supply chain indicated the highest mean score, followed by using formal information sharing agreements with suppliers and customers and communicating your firm's future strategic needs to your suppliers.

Table 1 Descriptive statistics for items of supply chain management

Items of supply chain management	Mean	St.Dev
1. Participating in the sourcing decisions of your suppliers	2.88	0.683
2. Using informal information sharing with suppliers and customers	2.67	0.832
3. Using formal information sharing agreements with suppliers and customers	3.42	0.730
4. Improving integration of activities accross supply chain	2.87	0.873
5. Seeking new ways to integrate supply chain management activities	2.77	1.018
6. Communicating your firm's future strategic needs to your suppliers	3.23	0.852
7. Creating a greater level of trust among supply chain members	2.64	0.853
8. Identifying additional supply chains where firm can establish a presence	2.15	0.774
9. Reducing response time across supply chain	3.59	0.813
10. Extending supply chain membership beyond immediate suppliers/customers	2.14	0.801
11. Creating compatible communication/ information system for supply chain members	2.59	0.859

The first thing to do when conducting a factor analysis is to look at inter-correlation between variables. The correlation matrix of the considered items/variables in this study is presented in table 2 below.

Table 2 The correlation matrix of the items

	1	2	3	4	5	6	7	8	9	10	11
1	1.000										
2	0.160	1.000									
3	0.359**	0.684**	1.000								
4	0.497**	0.387**	0.392**	1.000							
5	0.446**	0.337**	0.360**	0.799**	1.000						
6	0.247*	0.257*	0.196	0.477**	0.377**	1.000					
7	0.240*	0.268*	0.268*	0.461**	0.382**	0.724**	1.000				
8	0.279*	0.181	0.159	0.375**	0.392**	0.576**	0.714**	1.000			
9	0.498**	0.314**	0.274*	0.767**	0.590**	0.382**	0.310**	0.246*	1.000		
10	0.742**	0.071	0.341**	0.453**	0.359**	0.218	0.265*	0.195	0.469**	1.000	
11	0.206	0.224*	0.156	0.656**	0.603**	0.486**	0.505**	0.408**	0.593**	0.274*	1.000

*Note: ** p < 0.01, * p < 0.05. Determinant = 0.001*

Variables that are perfectly correlated or highly correlated cause problems in factor analysis because it becomes impossible to determine the unique contribution to a factor of the variables that are highly correlated (r > 0.8). The results indicate that all the correlations are smaller than 0.80.

The Keiser-Meyer-Olkin measure of sampling adequacy was 0.794, and Barlett's test of Sphericity was significant at 0.000, so we should be confident that factor analysis is appropriate for these data. Barlett's measure tests the null hypothesis that the original correlation matrix in an identity matrix. In

the significance value is less than 0.05, the test is significant and tell us that factor analysis is appropriate.

Principal axis factor was used to identify the factors with eigenvalues greater than one and varimax rotation (factors not correlated with each other) to interpret more easily factor loading. Eigenvalues indicate the variances of the factors. According to Hair et al. (2009), factor loadings are the correlation of each variable and the factors. Loadings indicated the degree of correspondence between the variables and the factor, with higher loadings making the variable representative of the factors. Factor loadings that is greater than 0.50 are practically significant. Communalities indicate the proportion of each variable's variance that can be explained by the factors. The communalities greater than 0.4 were considered acceptable.

The results of factor analysis are presented in table 2. Factor 1 comprises four items with factor loading ranging from 0.688 to 0.838; factor 2 comprises three items with factor loadings ranging from 0.698 to 0.92. Factor 3 comprises two items with factor loading 0.842 and 0.791, while factor 4 comprises two items with factor loadings 0.821 to 0.80. The four factors obtained from the analysis reflect supply chain integration, supply chain development, information sharing among supply chain members and supply chain coordination. These four factors explained 71.2% of the total variance.

Table 3 The results of factor analysis

Items and Factors	Factor loading	Eigen-values	Percentage of variance
1.Supply chain integration		5.035	22.8 %
Improving integration of activities accross supply chain	0.838		
Reducing response time across supply chain	0.720		
Seeking new ways to integrate supply chain management activities	0.695		
Creating compatible communication/ information system for supply chain members	0.688		
2.Supply chain coordination		1.585	20.4%
Creating a greater level of trust among supply chain members	0.920		
Identifying additional supply chains where firm can establish a presence	0.721		
Communicating your firm's future strategic needs to your suppliers	0.698		
3.Supply chain development		1.307	15.3%
Participating in the sourcing decisions of your suppliers	0.842		
Extending supply chain membership beyond immediate suppliers, customers	0.791		
4. Information sharing		1.047	13.64%
Using informal information sharing with suppliers and customers	0.821		
Using formal information sharing agreements with suppliers and customers	0.800		

Cronbach alpha reliability coefficient was 0.887 for integration, Cronbach alpha for coordination and development are 0.860 and 0.845 respectively. Cronbach alpha for information sharing is 0.808.

5 Conclusions and future research

In today's global markets, supply chain management is the key factor for business' success. Companies have realized that processes integration and good relationships with suppliers and clients are very important for their success. Successful supply chains manage product, information and financial flows to offer clients higher level of product disponibility.

The aim of the paper was to investigate the current situation of supply chain management in Albania. The main obstacles in supply chain management in Albanian companies were: the increase in product variety, shortening the product cycle life and difficulty in executing new strategies. Moreover, the main challenges were: complexity of the supply chain(s), lack of coordination among supply chain members, lack of trust and lack of knowledge.

The results of factor analysis show that supply chain integration, coordination, development and information sharing are four supply chain management factors. These factors explain 71.2% of the total variance.

Albanian companies have realized that to be successful they must compete as supply chains and to try to improve supply chain' activities. Those companies pay attention management of supply chain, but are in the first steps and must consider studies and experience of international companies in this field.

Companies focusing on supply chain management can achieve competitive advantage by lowering costs and simultaneously im proving customer satisfaction. They achieve that by optimising the complete value chain, seeking value creation opportunities by closer cooperation with their partners in the supply chain. This also requires advanced collaboration models: sharing information about demand on the market, integration of key processes and therefore long term relationships, as well as inter-functional coordination. For successful cooperation is crucial that all parties involved in a supply chain have high level of trust among them, to be committed to a similar overall vision, to have a compatible organizations, key processes and most importantly, the support of top management. Increasing collaboration between them, those companies should aim to fairly share the benefits and to share the risk with other members of the supply chain.

Future research can expand this research by assessing the impact of obtained SCM factors on the organizational performance.

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