



The Effect of Market Turbulence on the Supply Chain Strategies and the Organizational Performance

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The prime objective of the current study is to investigate the impact of supply chain strategies on the organizational performance. In addition, this study is also interested in examining the moderating role of market turbulence in the relationship between supply chain strategies and organizational performance. This study has used SEM-PLS as a statistical tool to answer the research questions raised in this study and the research objectives envisaged in the current study. The results have shown that the along with a customer focus approach, the firms are also following the production focus approach. The findings of the study will be helpful for policy makers in understanding the issues related to market management and supply chain management.

Key words: *Supply Chain strategies, market turbulence, organization performance.*



Introduction

With the increase in competition and globalization since the 1990s, the main challenge that companies are facing is getting the services and products at the right time from the right place at the minimum cost. Companies are understanding that it is not enough to optimize the efficiencies within the company. In effect, it's time to make the whole supply chain competitive. In order to remain competitive, it is essential for the firms to practice supply chain management (Childerhouse and Towill, 2003).

It is well known that developing a strategy to gain competitive advantage is very important for an organization. There are a number of factors that influence the competitive strategy. These factors include corporate social responsibility, regular infrastructure, competition, customer expectation, mission and vision. As a result, the partners and the organization itself is impacted by the strategy of the organization. In the current global environment, firms around the globe try to incorporate the strategy. They also want to embed the supply chain management strategy into a competitive strategy that already exists. The pattern of decisions regarding the supply chain strategy is in effective supply chain management. This pattern consists of delivery of products, communication, demand management, conversion of raw material, capacity planning, and pattern of decisions regarding sourcing of the products. Therefore, the strategy of supply chain management is linked to a corporate level strategy and a business level strategy (Grawe, et al., 2011).

Among the other components of organizational strategy, the supply chain is the key one. Long lasting competitive advantage is provided by the alignment of supply chain strategy with the supply chain partners, core organization and organizational strategy. Several competitive dimensions are impacted by the comprehensive supply chain strategy including innovation, responsiveness, reliability, costs and quality. These objectives are achieved by the strategy through several functions (Ketchen, et al., 2007).

Additionally, there are a number of dimensions of the organizations. These dimensions include the technology management, information technology, process management, product development, customer focus and top management support. Smooth functioning of an organization to gain and sustain competitive advantage and also for improved performance of the organization shows close alignment between core organizations, strategy and customer needs (Jajja, et al., 2014).

Researchers have defined supply chain management in order to recognize the kinds of coordination among the partners. It also explains the process of supply chain management



which is to improve the performance of organization and also of the whole supply chain (Liu & Kuo 2017). The main objective of the supply chain is to integrate the flow of material and information across the supply chain. Later on, use this supply chain as the competitive advantage (Feldmann and Müller, 2003).

Business managers, consultants and academicians have given a lot of attention to the concept of supply chain management. Now the organizations have realized that the supply chain is the critical area to gain and sustain competitive advantage for their services and products (Choon, et al., 2002). Different bodies of literature have different points of view regarding the concept of supply chain management. These points of views include management information system, organizational theory, marketing, operational management, logistics, supply management and purchasing. Insights are offered by a number of theories on different aspects of supply chain management including social, political, competitive strategy, resource dependency theory, resource-based theory, associated transaction and the industrial organization perspective (Halilović and Ilgun, 2014).

The general aim of supply chain management is to improve the value delivered to the customers while relying on eliminating waste and just in time systems; involving all the stakeholder and working closely with partners and suppliers. As mentioned by different studies in order to create and sustain competitive advantage, supply chain management is being used as a key medium by firms. The benefits regarding the supply chain include a reduced cycle to develop products, improved systems of delivery and reduction in inventory. The researchers have identified that the objectives of supply chain management include satisfying the consumers, and the formulation and implementation of a strategy to capture and retain the consumers. Moreover, it is also beneficial to effectively and efficiently manage the supply chain (Chandra and Kumar, 2000).

The integration of improving the performance of the supplier, internal process and customer requirement simultaneously is referred to as supply chain management. Basically, it's an integrated approach which begins with the controlling and planning of material, managing information stream of suppliers to provide services or to manufacture the products for clients, and services and logistics. It shows important changes in the practices of the business as well. Supply chain management is one of the most important mechanisms for the organizations to make their performance better. In order to manage the supply chain, so that performance of the business can be improved, it is important to manage and plan activities like logistics with suppliers, clients, capacity planning, inventory management and material planning (Ou, et al., 2010).



The final achievement of the organization is known as organizational performance. It contains the existence of a few targets that an organization wants to achieve. Moreover, it has a certain time period to achieve these goals in an efficient and effective way. Most of the organizations, of all types, struggle to survive irrespective of whether they are profitable or non-profit, private or public, big or small. These organizations must be successful to survive, and they have to perform well to be successful. Therefore, performance is at the heart of organizational contracts and managerial processes. Therefore, it is considered as an important concept in the field of strategic management. Multiple activities are included in the organizational performance which helps in the establishment of goals set the by the organization. It also has to regularly check the progress to achieve the set goals. It is further used to adjust the accomplished goals more effectively and efficiently. Whereas, it is important to define the functions of the organizations and develop the strategy according to the core competencies and skills of the organization to improve the overall performance (Nyangweso, 2013).

On the other hand, researchers have defined market turbulence as the rate of change in the preferences and composition of the customers. It is the key elements of the market environment. Theoretically, it has influence on the relational and operational results of the collaborations of supply chains, which is studied in the past literature (Jaworski and Kohli, 1993).

Researchers have tried to examine the relationship between organizational performance, customer relation practices and supply chain management practices. They have investigated the impact of customer supplier integration towards the performance of the organization. Few researchers have also studied the supply chain management and practices of supplier evaluation and also have related these constructs to the performance of the firm. Moreover, few researchers have also developed instruments to measure the supply chain orientation and the conceptual level of supply chain management. There exists limited research that has focused on providing an integrated view of supply chain management strategies and its link with the organizational performance, with the help of a framework (Li, et al., 2006). Similarly, there is limited research regarding the interface between strategies of supply chain management and factors of the external environment. The main purpose of the current research is to address the mentioned gaps and test the said relationships empirically (Madhusudhanan, 2018).



Literature Review

Supply Chain Strategy

Organizations are getting more and more interested in supply chain management in the current competitive business market. Appropriate supply chain management strategy is needed by the organizations to compete. Researchers have defined supply chain strategy as the decision taken by the firm which shapes the long-term capabilities of the organization's supply chain functions and its contribution towards the overall strategy through resources of the supply chain and ongoing reconciliation regarding the requirements of the market. From the perspective of core competencies, supply chain strategy defines what sourcing, logistics and operations will try to do better than those who are in competition (Kohlberger, et al., 2012). Coordination and integration are needed throughout the supply chain so that the performance of the supply chain can be generated. It's been argued that strategy is needed to be adopted by the chain which suits both marketplace and product (Sukati, et al., 2012).

Researchers revealed that organizations participate in the larger systems and are considered as the open system. The success of the organization comes when the members of the supply chain work together to fulfil their responsibilities and roles (Fawcett and Waller, 2011). A relational view of the firm is also articulated by the researchers. According to the relational view, efficient governance, partner resource complementarity, knowledge sharing routines, partner specific and relationship specific assets offer positive contribution to the performance of the organization (Dyer and Singh, 1998).

According to the researchers there are three types of supply chain that are required to match the product categories, namely hybrid, innovation and standard. According to the researchers, there are limited differentiations in the standard products and they are very simple. Moreover, complex and new technologies are involved in the innovative products. Whereas, there are many components in the hybrid products and they are very complex as well. Therefore, more than one relationship is required with suppliers (Vonderembse, et al., 2006).

According to the scholars there are three type of strategies regarding supply chain: hybrid supply chain, lean supply chain and agile supply chain (Towill and Christopher, 2002). In order to develop a successful supply chain strategy, there needs to be a combination of agile and lean supply chains implemented successfully (O'Reilly, et al., 2010).



Organizational performance

The extent to which an organization is able to meet its goals and needs to survive, and the needs of stakeholders, is described as the organizational performance. The productive output regarding a system in the form of services and goods is known as the organizational performance. There are three categories of organizational performance. External non-financial performance, internal non-financial performance and financial performance. Profit is considered as the financial performance, productivity as the internal non-performance and customer satisfaction as the external non-financial performance (Swanson, 2000).

The main objective of the private organizations is to maximize the profit. On the other hand, public organizations are more focused towards delivery of services and goods to the public. It is important to consider employees as an asset and to perform better through the employees. Moreover, employees must also be treated with more care and attention to improve their performance. There is more than one way to judge the performance of the organization. Quantitative and qualitative measures, offered by the balanced score card, is a good way to measure the performance of the organization. The wholistic measure of organizational performance is provided by the balanced scorecard. To manage the performance of organization, the balanced scorecard can also be used as it's the management system as well by which the strategy and vision become clear to the organization which helps in making actionable plan and execution (Ghoshal, 2005). In this way, performance is linked to the process management and short-term outputs (Johnson, et al., 2006).

It has been realized by firms that people of organization, also known as employees, are the largest assets, and this gives rise to the importance of process management. The performance of all assets must be measured by the performance measurement system adopted and employed by the organization (Ghoshal, 2005).

Market turbulence

The market turbulence is the rate of change in order to compose the preferences of customers along with external situations of the market to gain the competitive edge. The changes related to customers are due to uncertain patterns of demands describing customer demand non-predictability along with variability of the environment. This is called turbulence in the environment and the companies struggle hard to manage with these uncertain external conditions. Additionally, this notion suggests that the perceptions of markets related to uncertainty, helps to inform the strategic choices of managers. Thus, the decision making of the companies, at a managerial level should emphasize more on operational as well as



relational outcomes of firms at the time of market turbulence. The external environment of the company may involve the flow of information that the companies maintain through the trust and attention towards the customers. These perception of the external environment of companies develop culture and impact the behaviour of customers. This might generally happen in the supply chains where there is a collaborative structure of supply chain management (Germain, et al., 2008).

There is a basic belief in the organizational behaviour theory that states that organizational memory depends upon the operational situation of the company. It is considered that handling uncertainties expresses the essence of the management of companies, showing how efficiently the company's administration works. Therefore, in accordance to this, there is a probability that supply chain structure might impact of market turbulence on collaboration of company. The outcomes of operations show dynamic behaviours that are involved to remain in competition at the time of turbulent market. With the increase in the rate of environmental change externally, there will be more stress on the companies to improve operational features of the firms. Thus, at the time of market turbulence and complex environment, supply chain of the companies should be according to the strategies to gain competitive edge. The high level of collaboration in supply chains deals with all the complex situations that occur due to market turbulence and environmental uncertainties (Burke, et al., 2012).

Supply Chain Management Practices and Organizational Performance

Organizational performance is evaluated in past studies by an assessment of service and product quality, customers satisfaction, performance in the market, innovations in the services, and employee associations. Contrary to this, Hoque and James (2000) studied organizational performance by the method of a balance scorecard, stating that organizational performance might be evaluated on the basis of sales margins, return of investment, utilization of capacity, satisfactory customer service and quality of product. It shows that all of these performance measures are highly influenced by supply chain structures. Therefore, SC is highly involved in financial as well as non-financial measures of the companies. Hence, generally, SC structure influence the organizational performance level (Nyangweso, 2013).

A satisfied customer supports in improving the financial as well as marketing performance of a business. Before the demand of customers shifts towards environment friendly products, manufacturers should bring about changes in the products and services that are eco-friendly in order to satisfy customer demands. The relationship of the firm with its customers impacts the internal supply chain management and performance as well. A successful supply chain involves the customer's downstream integration as well as supplier's upstream integration.



All the entities of the supply chain are individually acting as the supplier or the customer. Therefore, the supply chain integration at each level of the supply chain has a direct impact on the overall performance of the firm. If the customer driven vision of the firms is applied with efficient supply chain management practices, it helps to gain a competitive advantage for the companies in several ways. These ways might include satisfied customers, increased market share, improved sales, reduce inventory time cycle, increased productivity and thus improve overall profits (Green, et al., 2005).

Also, according to Yee-Loong and Ooi (2008) well executed and organized supply chain management helps the companies to reduce their inventories, decreases the costs, improve customer services and support fast inventory turns. In the situation of short-term objectives, supply chain management helps to increase productivity, reduce lead time and decrease inventory. The current research has identified that time is also a factor in obtaining a competitive position in the market. Therefore, by reducing wasted time and utilizing the available time properly, this helps to improve the performance of companies. Whereas, while talking about long-term objectives, the efficient supply chain management helps to increase market share and improve the outside integration of companies (Li, et al., 2006).

Previous literature has discussed in detail that companies which use strategic purchasing can foster long-term communication, cooperative associations and gain responsiveness towards the supplier's requirements. Strategic purchasing is vital to achieve active and operative supply chain integration in all over the members of supply chain. Effective communication skills in supply chains help to develop and maintain inter-organizational practices that help to enhance capability of firm to effective management of strategic union (Zollo, et al., 2002).

Supply chain lean practices help to improve all procedures of time management practices and utilization of resources. Lean culture and technique is a concept that has evolved into a management style that modifies all the procedures at each level of the companies. Lean supply chain helps to prevent shortage of inventory, removes waste in all of the procurement cycles, diminish inventory investment, lessen procurement lead cost and time and increases inventory turnover

Moderating role of market turbulence

Uncertainty in the environment is related to unpredicted customer demand, whereby companies struggle to diminish uncertainties, develop sales forecasting and to understand market trends. Hence, market turbulence is also related to demand unpredictability that is the result of uncertainties in the external environment. Supply chain collaboration in the



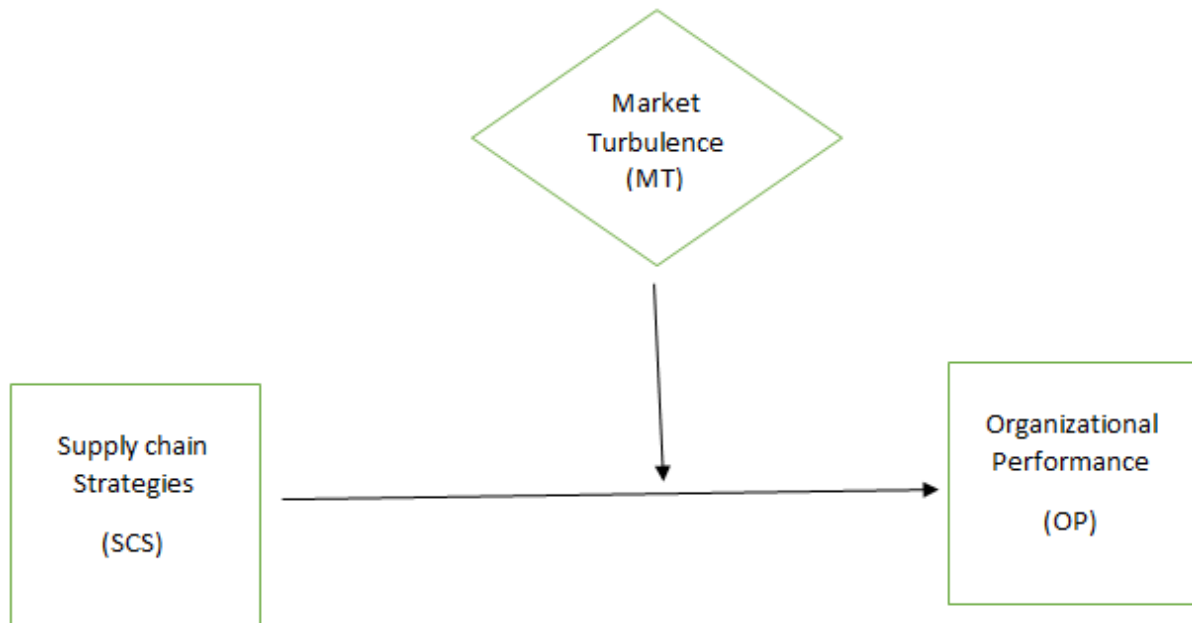
company develops a friendly environment where all the supply chain members have trust, effective coordination, and commitment. In turbulent market situations, there is intense competitions and fluctuations in demand, and thus the companies take robust actions according to frequent market changes in order to gain advantages over their competitors in the market (Luo, 2001). Building on this general situation, it can be concluded that market turbulence effects supply chain collaboration all over the organization and thus effects the overall performance of companies. Generally, we expect market turbulence to influence the supply chain-performance relationship. Thus, larger market turbulence enhances the operational outcomes of the supply chain.

During uncertain market demand and market turbulence, it is highly difficult for companies to have accurate sales predictions and demand forecasting due to fluctuations, understanding market trends and variables of marketing mix (price change), etc. Germain et al (2008). This situation might lead to decrease supply chain collaboration (trust, coordination, and association commitment) as the companies avoid sharing information, knowledge and wisdom due to uncertain market situations.

Researchers have observed that organizational performance is negatively impacted by market turbulence. Moreover, there is a negative relationship between supply chain strategies and market turbulence which leads to a decline in information sharing, changing schedule of firms, collective wisdom and different level on inventories. Therefore, market turbulence will be taken as moderator between supply chain strategies and organizational performance (Jaworski and Kohli, 1993). Based on the literature reviewed we have drawn the following hypotheses

H1: Supply chain strategies have a significant impact on the organizational performance

Figure 1. Conceptual framework



H2: Market turbulence has significant impact on the organizational performance

H3: Market turbulence moderates the relationship between supply chain strategies and organizational performance

Methodology

The original questionnaire was worded in English but since the targeted study respondents' (i.e. Libyan bank branch managers) mother tongue is Arabic, it was translated into Arabic, following the recommendations of Brislin (1970). The translation was carried out through a back translation procedure, where the questionnaire was translated into Arabic, and then back to English in order to confirm both validity and reliability of the wording. Two bilingual services were obtained to translate it first into Arabic, and then two others were requested to back translate the translated original version, without seeing the original version.

The two English versions of the questionnaire were then compared after which minor changes were made accordingly. Back translation guarantees the near equivalence of the two English versions of the questionnaire. Data analysis in this study was conducted with the help of the software package, Smart-PLS, Version 2.0 M3, as suggested by Ringle et al (2005). Smart PLS is extensively utilized in the field of marketing and management science



(Henseler, et al., 2009). According to researchers (Hair, et al., 2011) a PLS model is generally analysed and interpreted in two phases; first measuring the outer model for validity and reliability and second, analyzing the structure model by R square, effect size, predictive model relevance, and goodness of fit (GoF). In the first phase, properties of multi-item constructs are measured with the inclusion of convergent validity and discriminant validity. Following the second phase, the study hypotheses testing is conducted through the bootstrapping method. The initial study model comprised reflective measurement items that are manifest variables or indicators, four latent variables including two independent, one dependent variable and one mediating variable constituting 16 relationships between them on the basis of the proposed study.

Results

Uma and Roger (2003) proposed four methods that are extensively utilized by researchers to guarantee measuring instruments reliability; they are test retest methods, alternative form methods, split half method and Cronbach's alpha coefficient method. Davis et al (2000) highlighted the inadequacy of the first three methods based on their practical weaknesses. The first test may generate lower scores owing to the changes in the subject, the second one may require significant expenses as two different, but equivalent, forms of the same measure should be developed, and lastly, the third method may generate different reliability coefficients according to the division of items. However, Cronbach's alpha method for measuring reliability is invaluable due to its strengths to overcome the issues faced by all the three methods. Cronbach's alpha's practicality has been the dominating force behind its use, particularly in the field of social science. Hence, taking the cue from other social science studies, the present study employed Cronbach's alpha coefficient to test the measurements reliability.

Content validity is defined as the level to which the proposed items suitably measures the concept of the construct that they are designed to measure (Hair, et al., 2011). Stated differently, items measuring a construct should load higher on their respective constructs. Hence, items are considered through a thorough literature review. On the basis of the factor analysis, the entire items correctly loaded to their constructs. The content validity of the measures is presented in Table 1 It is evident from the table, that the items loaded significantly to their respective constructs and that the measures content validity are confirmed (Chan, et al., 2008).

Table 1: CFA

	Indicators	Loadings	CR	AVE
MT	MT1	0.843	0.895	0.772
	MT2	0.855		
	MT3	0.802		
	MT5	0.925		
OP	OP1	0.884	0.932	0.617
	OP3	0.955		
	OP3	0.932		
	OP4	0.872		
	OP6	0.832		
	OP7	0.802		
	OP8	0.982		
SCS	SCS1	0.822	0.91	0.671
	SCS2	0.855		
	SCS3	0.722		
	SCS4	0.825		
	SCS5	0.841		
	SCS6	0.783		
	SCS8	0.792		
	SCS9	0.76		
	SCS11	0.832		
	SCS12	0.89		
	SCS13	0.802		
	SCS15	0.832		

According to Hair et al. (2010) convergent validity refers to the degree to which a group of variables converge in measuring a particular concept. They suggested that convergent validity can be established through the simultaneous testing of three criteria; factor loadings, composite reliability (CR) and average variance extracted (AVE). As such, the entire items loadings were examined and confirmed to be above 0.70 (the acceptable level recommended by Hair et al. (2010)). The factor loadings were all significant with 0.01 level of significance.



Discriminant validity determines the degree of correlation between different constructs. Low correlations are present if individual constructs are unique and hence possess various dimensions to have achieved discriminant validity.

Convergent validity is also confirmed through composite reliability – a test that refers to the level to which the items set indicate the latent construct in a consistent manner (Hair, et al., 2010). For this study, the Cronbach Alpha and Composite Reliability values are listed in Table 5.9. From the table, the values of Cronbach Alpha fall between the range of 0.771-0.945 while composite reliability values fall between 0.881-0.956 indicating that the latter values exceeded the recommended value of 0.70 (Hair, et al., 2010). Hence, the results confirm the outer model's convergent validity. In addition to the above, the average variance extracted (AVE) values were tested to further confirm the outer model's convergent validity. AVE shows the group of items average variance extracted in relation to the variance shared with measurement errors. Specifically, AVE gauges the variance encapsulated by indicators that relate to the assignable variance to the measurement errors. If the AVE value is 0.5, the set of items is deemed to have sufficient convergence in measuring the construct (Thompson, et al., 1995). In the present study, the values of AVE fall in the range of 0.622-0.686 indicating good construct validity of measures, as recommended by Thompson et al (1995).

Further, construct validity was measured through factor analysis by employing the Principle Component Method and Varimax rotation. This analysis highlights the items explaining the same construct. Because the pilot study sample size was only 30, factor analysis of each construct was separately examined following (Black and Porter, 1996) The initial step involved the confirmation of the applicability and suitability of factorability of factor analysis through Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity.

Kaiser (1974) described the KMO as an index that compares the observed correlation coefficient's magnitude to that of the partial correlation coefficient. The condition is such that the smaller the sum of the partial correlation between variable pairs, the closer will be the KMO to the value of 1.0 and thus, the more suitable factor analysis will be. Kaiser (1974) explained the KMO measure on the basis of their proximity to one; if it is approximately 0.90 it is deemed marvelous, if it is approximately 0.80, it is deemed meritorious, approximately 0.70 is deemed middling, approximately 0.60 is mediocre, 0.50 is deemed miserable and finally, below 0.50 is not acceptable. In this study, the results of the pilot study analysis in Table 4.7 showed that KMO measures ranged from 0.747-0.930 indicating the appropriateness of conducting factor analysis.

Table 2: Discriminant Validity

	1	2	3
MT	0.928		
OP	0.731	0.878	
SCS	0.518	0.550	0.801

The next step is the estimation of structural equation modelling through a path diagram. It is a useful technique as it determines the direct and indirect relation among the observed variables. For this reason, structural equation modelling is preferred for the current study. This is done for hypotheses testing. The next stage is the assessment of the structural model after ascertaining the measurement model in the present study. The procedure for the bootstrapping through a number of 1000 bootstrap samples and 231 sample size to assess the significance of the path coefficients was applied

Table 3: Direct Effect

	(β)	SD	T-value	P-Values
H1	0.111	0.035	3.161	0.002
H2	0.346	0.107	3.873	0.003

Indirect effect through moderation is also examined and the results are explained in table 4.

Table 4: In Direct Effect

	(β)	SD	T-value	P-Values
H3	0.111	0.035	3.161	0.002

The variance explained in the organizational performance by supply chain management and the green marketing is 52 percent.

Table 5: Expected Variance

	R²
SCM	52.0%



Conclusion

The prime objective of this study is to investigate the impact of supply chain strategies on the organizational performance. In addition, the current study is also interested in examining the moderating role of market turbulence in the relationship between supply chain strategies and organizational performance. The general aim of the supply chain management is to improve the value delivered to the customers while relying on eliminating waste, just in time systems, and involving all the stakeholder and working closely with partners and supplier. In order to create and sustain a competitive advantage, supply chain management is being used as a key medium by firms. These benefits regarding the supply chain include the reduce cycle to develop the product, improved systems of delivery and reduction in inventory. The researchers have stated that the objectives of supply chain management include satisfying the consumers, and formulation and implementation of a strategy to capture and retain the consumers. Moreover, it also is beneficial to effectively and efficiently manage the supply chain. This study has used SEM-PLS as a statistical tool to answer the research questions raised in this study and research objectives envisaged in the current study. The findings of the current study have provided support to the proposed hypothesis. The results have shown that, along with a customer focus approach the firms are also following the production focus approach. The findings of the study will be helpful for policy makers in understanding the issues related to integration supply chain management.

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