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Impact of supply chain management practices on firm performance

Empirical evidence from a developing country

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Abstract

Purpose – The purpose of this paper is to investigate the adoption and implementation of supply chain management practices (SCMPs) on supply chain performance (SCP) and firm performance (FP) in the organized retail industry in a developing country like India.
Design/methodology/approach – An empirical study was conducted on a sample size of 125 responses collected from the supply chain heads of organized retail firms in India. A theoretical model was developed depicting the relationship between SCMPs, SCP and FP. The theoretical model was tested using mediating multiple regression analysis.
Findings – This research suggests that the SCMPs are positively related to SCP and FP. Customer relationship management and supplier relationship management are reported as the most important SCMPs, which had the maximum impact on the FP in the organized retailing context in India.
Research limitations/implications – The research employed perceptual performance measures. Future studies can use actual performance parameters like profit and sales growth to better quantify the benefits of SCM in this context.
Originality/value – This research is an attempt to empirically test the impact of SCMPs on FP in organized retailing context in an emerging market, India.

Keywords India, Firm performance, Supply chain management practices, Supply chain performance, Mediating regression

Paper type Research paper

1. Introduction

The retail industry is one of the fastest growing industries in India. The Indian retail market is broadly classified as unorganized retail, which is made up of open "bazaars/haats" and corner stores called "kiranas" and organized/modern retail, which resembles the modern western-style supermarkets and department stores (Shaikh and Gandhi, 2016). The industry has experienced high growth over the last decade, with a noticeable shift toward organized retailing formats. From a small penetration level of about 2-3 percent in 2005-2006, organized retail today has a penetration of about 8-10 percent. Total retail sales are forecast to reach 941 billion dollars by 2019, nearly double that in 2014 (PWC Report, 2015). The retail sales account for 33 percent of India's GDP and support livelihood of over 38 million people in India, which accounts for 8.5 percent of the total employed population in the country (Retailing in India, Euromonitor).

Today's retail businesses have become extremely complex. Consumers have become incredibly particular about their choice of product. With so many national and international players, competition has intensified, and product life cycles have shortened. The power has

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shifted from the manufacturers to the consumers, thus adding to high degree of uncertainty and unpredictability (Sahay and Mohan, 2003). The Indian infrastructure in terms of roads, airports, seaports, railways, power and information technology is relatively underdeveloped as compared to other developed and developing countries in the world (Center for Monitoring Indian Economy, 2015). The supply chain maturity among the members of supply chain in the Indian context is very low; specifically, supplier integration and inventory management present significant scope for improvement. Most of the retailers do not have real-time inventory and order visibility and, therefore, are not able to respond to the consumers' requirements, quickly losing a lot of potential sale. Multichannel readiness is lacking in spite of the significant growth of online retail (Retail Operations Benchmarking and Excellence Survey, 2015). The taxation in the country is complex, and therefore, retailers operate with small scattered depots, which enhance overall cost. The process of tracking shipments from warehouse or distribution center to store is inefficient due to negligible use of technology. Most of the retailers track shipments through phone calls and matching of physical receipts. Supplier integration with retailers is extremely low, as 80 percent of the retailers manage orders though informal communication on phone, fax and e-mail. The average purchase order lead time is more than 30 days for almost 50 percent of retailers. It is 120 days for imported SKUs for most of retailers (Retail Operations Benchmarking and Excellence Survey, 2015).

It is imperative to have a good supply chain to scale up the business. This implies good, strong supplier relationship, mutual understanding and partnership in the business with the suppliers (Gawankar *et al.*, 2013b). However, it cannot be ignored that though more retailers in India today are focusing on major investments in their SCM, retail businesses in India are still striving to achieve decent profits and sustain themselves. Indian retail practitioners have established a retail-SCM discipline. There are regular conferences organized by Retailers Association of India (RAI), India Retail Forum and India Shopping Centre Forum. The retail-SCM researchers have taken a lot of time to address holistic retail-SCM issues.

Given these intense economic and competitive pressures, as well as the economic importance of this sector, there is value in studying the degree to which supply chain management practices (SCMPs) have diffused to retailers in India, and how effective those practices are to impact the supply chain performance (SCP) and firm performance (FP). Despite the compelling link between SCM and retailing, the impact of SCMPs on SCP and FP is largely an understudied area barring few exceptions, especially with reference to a developing country like India (Christopher *et al.*, 2004; Abrahamsson and Rehme, 2010; Barnes and Lea-Greenwood, 2006; Brun *et al.*, 2008). Thus, the purpose of the study is to empirically test the relationship between SCMPs and FP in the organized retailing context in a developing country like India. We investigate the impact of SCMPs measured in terms of customer relationship management (CRM), supplier relationship management (SRM), goal congruence (GC) and information sharing (IS) on SCP and FP.

The remainder of the paper has been organized as follows: literature review section discusses the different aspects of SCM along with hypotheses developed for this study. Furthermore, we discuss the methodological approach taken in the next section followed by data analysis. We conclude with theoretical and managerial implications of the study.

2. Literature review and hypotheses development

Larson and Rogers (1998) defined SCM as "the coordination of activities, within and between vertically linked firms, for the purpose of serving end customers at a profit." SCMPs is a set of practices that integrate suppliers, manufacturers, distributors and customers to improve SCP as well as FP (Barros, 2006; Koh *et al.*, 2007). It is recognized that SCM has firm-level consequences, it is necessary to measure the effect of SCMPs on FP (Green *et al.*, 2013).

Challenges exist in terms of identifying appropriate measures for the analysis of the supply chain practices. Past studies developed a SCM construct which focuses on buyer-supplier relationship by reducing the supplier base, developing long-term relationship with the suppliers, continuous communication and organizing cross-functional teams and supplier involvement in planning and forecasting (Chen and Paulraj, 2004). Thereafter, there has been consistent interest in SCM construct and its relationship with SCP and FP. Li *et al.* (2005) developed and validated a measurement instrument for studying SCMPs with six dimensions, that is, strategic supplier partnership, customer relationship, IS, information quality, internal lean practices and postponement. Sundram *et al.* (2011) examined the relationship between various SCMPs comprising supplier strategic partnership, customer relationship, IS, information quality, postponement, agreed vision and goals, risk and reward sharing and SCP. Singh *et al.* (2010) identified supply chain practices like use of technology, supply chain speed, customer satisfaction, supply chain integration and inventory management, which have an impact on organizational performance.

Chow *et al.* (2008) listed SCMPs such as customer and supplier management, supply chain features, communication and speed, IS, integration and customer service management, quality and service, distribution and design effectiveness. Gawankar *et al.* (2013b) identified SCMPs like customer relationship, strategic supplier partnership, IS, information quality and lean retailing practices, which have significant direct positive impact on supply chain profitability. Gharakhani *et al.* (2012) listed that SCMPs like strategic supplier partnership, customer relationship, information technology, IS and supply chain integration have an impact on innovation performance and organizational performance.

In the developed and developing countries, the advent of discount retailers like Wal-Mart, Tesco, etc., has led to a fundamental transition in power from manufacturer to retailer (Srinivasan, 2004). With the power shift toward the demand side, it has become important to appreciate SCM from an organized retail perspective. On top of it, the majority of the research in SCM arena is focused on manufacturing companies with very little attention on SCM in organized retail (Defee *et al.*, 2009). Literature review suggests that academic literature ignores SCM issues in organized retailing, with few studies focusing on niche areas in organized retail like inventory management (Waller *et al.*, 2006); retail on-shelf performance (Taylor and Fawcett, 2001); allotment of retail shelf space (Bookbinder and Zarour, 2006); response of supply chains to unanticipated changes (Randall *et al.*, 2011); operational strategies such as quick response, lean and postponement (Lowson, 2001); role of supply chain intermediaries like logistics service providers in determining the collaboration among the buyers and suppliers (Hingley *et al.*, 2015); and performance management systems (Forslund, 2015). This single-point focus of retail research hampers the stream to develop into a holistic retail-SCM research domain. This context provides the impetus for the present study to examine the extent to which SCMPs has an impact on FP in organized retail firms in India.

While reviewing the literature, SCMPs are portrayed with the objective of improving the performance of the firm as well as supply chain. In consolidating the literature, four distinctive dimensions emerged from the literature that explain the SCMPs and are extremely relevant for the retail sector, and which drive the performance of the firm, namely, GC, CRM, SRM and IS. Table I summarizes the research studies wherein different SCMPs have been identified to have an impact on the SCP and FP.

However, it is noticeable that there are fewer studies (Gawankar *et al.*, 2013b) in a developing country like India as compared to the studies in developed countries. Furthermore, India's retail sector is in flux with the continuous growth of organized retail formats. This warrants research into the ever-changing retail scenario in a developing country to understand the SCMPs and its impact on SCP and FP. We discuss in detail, the selected four SCMPs and its impact on SCP and FP in the next section and propose the conceptual framework with the help of existing literature as given in Figure 1.

No.	Author(s) and year	CRM	SRM	GC	IS
1	Beamon (1998)	✓	✓		
2	Gharakhani *et al.* (2012)	✓	✓		✓
3	Chen and Paulraj (2004)	✓	✓		
4	Gawankar *et al.* (2013a)	✓	✓		✓
5	Bayraktar *et al.* (2009)	✓	✓		
6	Feldmann and Müller (2003)				✓
7	Handfield and Nichols (2004)		✓		✓
8	Kannan and Tan (2006)		✓		✓
9	Narasimhan and Nair (2005)				✓
10	Li *et al.* (2005)	✓	✓		✓
11	Larson and Kulchitsky (2000)			✓	
12	Jap (1999)			✓	
13	Cao and Zhang (2011)			✓	✓
14	Sundram *et al.* (2011)	✓	✓	✓	✓
15	Bhakoo *et al.* (2012)			✓	
16	Adjei *et al.* (2009)	✓	✓		
17	Udomleartprasert and Jungthirapanich (2004)	✓	✓		
18	Hamister (2013)		✓		✓
19	Kocabasoglu and Suresh (2006)		✓		✓
20	Baltacioglu *et al.* (2007)	✓	✓		
21	Teller *et al.* (2016)		✓		

Table I.
Literature review on selected supply chain management practices

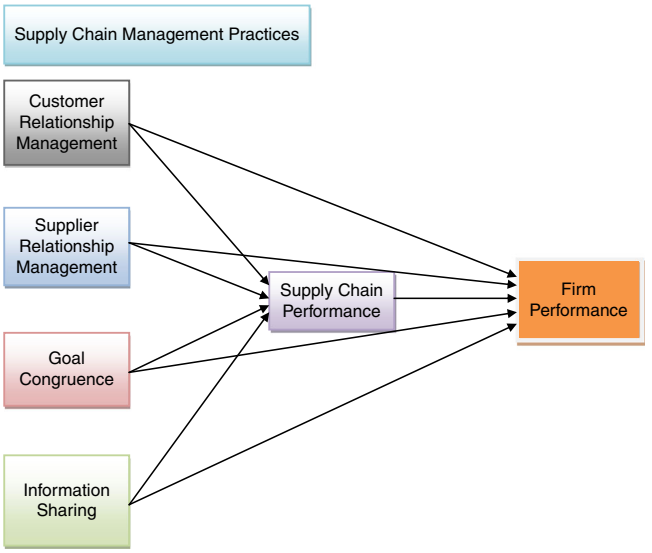

Figure 1.
Supply chain management model

2.1 CRM

CRM refers to building long-term relationship with the customers, managing their complaints and improving overall customer satisfaction (Tan *et al.*, 1999). Working on enhancing CRM helps an organization to provide value, as the firm is able to build up loyalty through customer satisfaction (Cox, 2004). The ability of a firm to respond to the requirements of the customer and accordingly come out with new products or processes enables a company to perform better over a period of time (Gawankar *et al.*, 2013a).

If customer relationship is in place, then the right merchandise and assortment of products would be available to the customer (Sundram *et al.*, 2011). CRM enables developing and retaining customers (Ranjan, 2010). Therefore, CRM can bring significant impact in terms of how you manage the complete value chain of a firm (Gharakhani *et al.*, 2012).

Hence we hypothesize the following:

H1a. There is a positive relationship between successful CRM implementation and FP.

H1b. There is a positive relationship between successful CRM implementation and SCP.

H1c. SCP mediates the effect of CRM and FP.

2.2 SRM

The performance of a retailer is not entirely dependent on its own performance, rather performance of all the members of the supply chain contributes to the overall performance of the retailer. Keeping this in mind, the framework includes SRM as a variable (De Toni and Nassimbeni, 2000; Gharakhani *et al.*, 2012; Li *et al.*, 2005; Narasimhan and Kim, 2002), which focuses on the relationship between the suppliers and the firm. It ensures that the upstream logistics processes are in place. It starts from selecting the right suppliers, who are able to produce and deliver as per the requirements of the firm, at the right time, so that the store is able to receive a continuous and flawless supply of materials to cater to the needs of the customers (Day and Lichtenstein, 2006).

Effective implementation of SRM has an impact on several processes in retail like sourcing planning and execution, sourcing analytics, supplier performance monitoring, supplier collaboration (Boddy *et al.*, 2000), mutual planning and problem solving (Gunasekaran and Chung, 2004) and all processes that enable a retailer to optimize sourcing. Effective SRM enables the company to gain competitive advantage especially during turbulent times (Raut *et al.*, 2012). Castelli and Brun (2010) state that coordination between retailers and manufacturers in the fashion sector adds value to the end users. Thus, a successful SRM will ensure that there is a seamless flow of material as well as information between the supplier and the company and the right product will be available at the right time and thus enhance the SCP of the firm (Sundram *et al.*, 2011).

Hence we propose the following:

H2a. There is a positive relationship between successful SRM and FP.

H2b. There is a positive relationship between successful SRM and SCP.

H2c. SCP mediates the effect of SRM and FP.

2.3 GC

GC among the supply chain partners is the extent to which supply chain partners perceive their own objectives to be satisfied by the fulfillment of the supply chain objectives. GC defines the extent of collaboration and understanding among the supply chain partners. It is regarded as a key element of supply chain partnership because it reduces the incentive for opportunism, which means that all the partners in the supply chain are concerned about ensuring that the ultimate customer has a unique and flawless experience. Therefore, ensuring that the products reach the store at the right time and at the lowest cost would be the aim of all supply chain partners. This would mean that a lot of collaboration between the partners would be required to ensure that there is a coordinated flow of products right from the supplier to the retail store (Sundram *et al.*, 2011). This cannot be achieved unless all the members of the supply chain share the same agreed goal and vision, that is, exhibit GC.

Cooper and Ellram (1993) strongly state that GC among the supply chain partners is a key component of SCM, and it will enable better SCP for a retailer. GC among the supply chain partners can offer benefits to all the partner's involved by reducing cost and risk and increasing productivity and profit. Effective GC among the supply chain partners has a significant influence on FP (Cao and Zhang, 2011; Sundram *et al.*, 2011; Bhakoo *et al.*, 2012). Jap (1999) states that cooperation and coordination between buyer and seller leads to enhanced performance over a period of time. If the objectives of all the supply chain partners are aligned in such a way as to attain GC, the FP will definitely improve (Larson and Kulchitsky, 2000).

Hence we hypothesize the following:

H3a. There is a positive relationship between GC among the supply chain partners and FP.

H3b. There is a positive relationship between GC among the supply chain partners and SCP.

H3c. There is a positive relationship between SCP and FP.

H3d. SCP mediates the effect of GC and FP.

2.4 IS

There is a need for two-way IS among the supply chain partners for implementing successful SCMPs. IS consists of frequent, genuine and personal contacts between the buyers and suppliers. In order to find joint solutions about customer feedback, retailers need to share information with the suppliers. At the same time, suppliers need to share vital information related to their production and delivery schedules with the retailers. Newman and Rhee (1990) ascertained that many supplier product problems were due to bad communication among the supply chain partners.

IS in the supply chain ensures smooth flow of information and thereby ensures enhanced SCP. Narasimhan and Nair (2005) conceptualize the relationship between IS on strategic alliance formation and SCP. The main economic benefit from IS comes from coordinated decision making (Funda and Robinson, 2005). Prajogo and Olhager (2012) state that information technology and IS have significant effects on logistics integration. Lee *et al.* (2000) mention that IS can lead to lower cost through reduction of stock keeping units and shortages. It enables synchronized replenishment and collaborative product design and development, which in turn lead to better SCP (Kulp *et al.*, 2004; Chow *et al.*, 2008; Sundram *et al.*, 2011; Gawankar *et al.*, 2013a). Nyaga *et al.* (2010) state that IS leads to trust and commitment, which in turn leads to improved satisfaction and FP. If all the members in the supply chain share information regularly regarding the status of sales from the point of sale at the retailers side, the status of delivery from the supplier side and the status of shipment from the freight forwarder side, then the firm will be able to operate the business with much more predictability instead of fire-fighting all the time. Therefore, it is hypothesized that IS has a positive impact on FP (Cao and Zhang, 2011; Gharakhani *et al.*, 2012).

Hence we hypothesize the following:

H4a. There is a positive relationship between successful IS among the supply chain partners and FP.

H4b. There is a positive relationship between successful IS among the supply chain partners and SCP.

H4c. SCP mediates the effect of IS and FP.

2.5 FP

Performance measures reflect how the firm is performing to achieve its objectives, mission and values. These measures will include conventional measures of performance for a business unit. From literature review, it is ascertained that the common FP measures used are return on asset, market share, return on investment, net profit, growth in net profit, sales, growth in sales, productivity ratio, total cycle time, total cash flow time, cost saving, inventory turns, net income before taxes, gross margin, quality performance, inventory management performance and financial liquidity. There are non-financial measures as well like overall competitive position, present value of firm, innovation performance, market share, performance and quality improvement. The FP in this study is measured using indicators of financial performance like profit, revenues and return on investment (Beamon, 1998; Chen and Paulraj, 2004; Gawankar *et al.*, 2013b).

2.6 SCP

SCP parameters are a set of parameters used to determine the efficiency and effectiveness of an existing supply chain system or to compare competing alternative systems. The literature review determines a lot of parameters, which can judge the efficiency and effectiveness of the supply chain. There are qualitative and quantitative performance measures. The qualitative measures of SCP are like customer satisfaction, information and material flow integration, effective risk management and supplier performance. The quantitative measures of SCP are cost minimization, sales maximization, profit maximization, inventory investment minimization, return on investment maximization, fill rate maximization, product lateness minimization, customer response time minimization and lead time minimization. Some of the other common SCP parameters used are forecasting and material accuracy, on-time delivery capability, delivery reliability and consistency, precise supply chain cost knowledge and control, fast customer response, coordinated product flow right from supplier to the store, inventory management, rationalization and responsiveness to changing requirement (Tracey and Vonderembse, 1999; Qrunfleh and Tarafdar, 2014).

Hence we hypothesize the following:

H5a. There is a positive relationship between SCP and FP.

3. Research methodology

3.1 Sample and research setting

The retail firms were identified by getting a list of all supply chain top professionals from RAI, which is an organization working toward creating the right environment for all the stakeholders for the growth of the modern retail industry in India. The sampling frame of our study is organized retail chains in India, which is approximately 50 in numbers (De Beuckelaer and Wagner, 2012). Data for the study were collected through electronic survey from 125 supply chain managers out of 213 in total, representing 45 organized retailers in India in 2014. We have also included multiple respondents to increase the variability in the data as well as ensuring multiple responses representing an organization (Boyer and Verma, 2000). Small sample sizes are norm rather than exception in SCM research as the sampling frame imposes limitation on sample size as observed by De Beuckelaer and Wagner (2012), Nyaga *et al.* (2010) and Qrunfleh *et al.* (2012). Furthermore, our hypotheses are based on sound theory and empirical research (Malhotra and Grover, 1998). We also tested for non-response bias as suggested in the literature if the sample size is small (Wagner and Kemmerling, 2010). The response rate of the study was 59 percent, which was higher than the set target of 50 percent. A total of 61 senior-level supply chain managers and 64 middle-level management professionals responded to the survey. These

are the people with designations like head-supply chain and logistics and deputy manager-supply chain, respectively. The sample size represented retail managers from across the country as well as the different types of retailers such as generalized retailers, apparel retailer and electronic retailers.

3.2 Measures

This study uses established measures of SCMPs, SCP and FP. The measuring instrument is adopted from questionnaires developed by Gawankar *et al.* (2013a, b), Kaynak and Hartley (2005), Robb *et al.* (2008), Kaynak and Hartley (2005), Narasimhan and Jayaram (1998), Narasimhan and Das (2001), Gharakhani *et al.* (2012), Kannan and Tan (2005) and Adjei *et al.* (2009). We also carried out pre-pilot and pilot studies to establish the reliability of the scale, since we were adopting these scale to the organized retailing context in India. A survey instrument was developed from these items in order to test the hypothesized relationships. Thereafter, we further refined the scale in the large-scale survey to establish the reliability and validity of these adopted scales. The purified scale items for each of the construct along with their factor loadings, Cronbach's α, scale composite reliability (SCR) and average variance extracted (AVE) have been summarized in Table II.

3.3 Data collection

The field study was carried on a sample of 125 supply chain and operations practitioners working with organized retail stores in India. Data collection was administered using modified version of Dillman (2007), total design method. The questionnaire was pre-tested with six practicing supply chain heads of various retail firms and six academicians in the supply chain arena to ensure that the content- and criteria-related validity of the instrument is established. CRM originally had six items, which were reduced to five items; SCP originally had eight items, which were reduced to six items; and finally, FP had six items, which were reduced to three items. Overall, six constructs and 30 items were reduced to 24 items based on content validity. These 24 questionnaire items are depicted in Table II. After conducting the pre-test of the questionnaire, pilot testing was conducted. With the help of pilot testing, the reliability of the instrument was established. After pilot testing, we went for the large-scale e-survey. Initially, we received 58 usable responses. After following up constantly through e-mail and phone calls, another 67 usable responses were received. The respondents were given a five-point Likert scale, ranging from 1 "strongly disagree" to 5 "strongly agree." The Cronbach's α indicating the internal consistency reliability of the measures for the six constructs of SCMPs, SCP and FP were all above the suggested value of 0.60 (Malhotra and Dash, 2011). The Cronbach's α for all the constructs is higher than 0.7 as depicted in Table II; therefore, the reliability has been established and the constructs can be used for further analysis.

3.4 Non-response bias

To ensure that there is no non-response bias, the responses obtained in the two phases were checked using wave analysis as advocated by Armstrong and Overton (1977). The p-value of the χ^2 test is less than 0.05, and therefore the two sets of data, Wave 1 and Wave 2, are not statistically different from each other.

4. Data analysis and results

We tested the hypothesis proposed in the conceptual model using mediation regression analysis. There are shortcomings in the traditional methods of testing mediation using Baron and Kenny (1986) method. We therefore adopted Preacher and Hayes (2004) method

Component	Items	Factor loadings	Cronbach's α	SCR	AVE
Goal congruence (GC)	X1 our firm and supply chain partners have common, agreed goals for supply chain management	0.848	0.868	0.839	0.568
	X2 our firm and supply chain partners are actively involved in standardizing supply chain practices and operations	0.687			
	X3 our firm and supply chain partners clearly define roles and responsibilities of each other's cooperatively	0.764			
	X4 our firm and supply chain partners know precisely what activity they are responsible for within the supply chain	0.705			
Customer relationship management (CRM)	X5 our firm frequently evaluates the formal and informal complaints of our customers	0.649	0.887	0.828	0.496
	X6 our firm frequently measure and evaluate customer satisfaction and use it to identify/ determine customers' requirements	0.588			
	X7 our firm anticipates and responds to customers' evolving needs and wants	0.839			
	X8 customer focus is reflected in our business planning	0.612			
	X9 our firm actively seek ways to improve the primary product/service in order to achieve greater satisfaction	0.797			
Supplier relationship management (SRM)	X10 our firm relies on a few dependable and high-quality suppliers	0.729	0.806	0.731	0.477
	X11 our firm has helped our suppliers to improve their product quality	0.737			
	X12 our firm has a thorough supplier rating system based on which business is given to the suppliers	0.597			
Information sharing (IS)	X13 our firm and our suppliers exchange information that helps establishment of business planning	0.657	0.805	0.815	0.598
	X14 our firm shares our business units' proprietary information with suppliers	0.802			
	X15 our suppliers share business knowledge of core business process with us	0.848			
Supply chain performance (SCP)	X16 our forecasting and material planning accuracy is high most of the times	0.783	0.909	0.879	0.552
	X17 our firm has on-time delivery capability	0.796			
	X18 our key suppliers ensure delivery, reliability and consistency	0.816			
	X19 our firm has precise supply chain cost knowledge and control	0.785			
	X20 our firm has fast customer response time	0.693			
	X21 our firm has rigorous inventory management and rationalization	0.553			
Firm performance (FP)	X22 return on investment	0.841	0.826	0.874	0.698
	X23 revenues	0.782			
	X24 profit	0.881			

Table II.
Factor loadings, Cronbach's α, SCR and AVE

using a SPSS macro to ascertain the direct and mediation effect. Consequently, we used this macro employing bootstrapping method (with $n = 5{,}000$ bootstrapped samples) to assess the indirect effects (Sobel tests) underlying the relationships. Before testing the hypothesis, we subjected the scale to exploratory factor analysis (EFA), reliability and validity test.

4.1 EFA

We used valid and reliable scale from the extant literature to measure the constructs. The survey questionnaire had a total of 24 items measuring SCMPs, SCP and FP. We subjected scale items of each individual construct to EFA with varimax rotation to identify the underlying dimensions of each construct. The results of the EFA are given in Table II. The final factor matrix produced after seven rotations was six-factor matrix with no cross-loadings. The structures of all the six factors were stable. The eigenvalue of all the six factors was greater than 1. All variables held one significant factor loading with one factor. The lowest factor loading was 0.553, which is above the 0.50 threshold. All the factors were interpretable and could be grouped together into logical factors on the basis of literature review and past studies. The total variance explained by the six factors is 75.97 percent.

Convergent validity refers to the extent to which there is consistency in measurement across multiple operationalizations (Campbell and Fiske, 1959). Table II depicts that the constructs of the theoretical framework possesses convergent validity, as the standardized factor loadings of the items are mostly greater than 0.7. The SCR is found to be greater than 0.73, and AVE is found to be greater than 0.5, the threshold limit, for all components, except for SRM, which has a value of 0.477, which is very close to the 0.5 threshold, and CRM, which is almost 0.5 with a value of 0.496.

Discriminant validity refers to the independence of the dimensions (Bagozzi, 1980; Bagozzi *et al.*, 1991). To determine discriminant validity, inter-factor correlation matrix has been derived in Table III (Fornell and Larcke, 1981). The diagonal (colored) elements represent the square root of the AVE. The lower half indicates the correlation coefficients between the constructs under study. If the diagonal elements are greater than the lower half, the constructs possess discriminant validity. The constructs in the current study possess discriminant validity with only one value marginally higher than the square root of the AVE. There are no cross-loadings among the variables in the factor loadings, which indicates discriminant validity.

4.2 Hypotheses testing

The hypotheses were tested using regression analysis as suggested by Baron and Kenny (1986). The relationship between SCMPs and FP mediated through SCP was examined. We tested linearity assumption with the help of scatter plots, which depicted linearity of relationship between dependent and independent variables. The maximum absolute values of skewness and kurtosis were found to be 1.835 and 5.487, respectively, which are well within the recommended limits (Curran *et al.*, 1996). We also examined histograms and normal probability plots to test for normality. Residual plots were drawn to check the homoscedasticity (equality of means) assumption. The residual plot shows that the variance around the straight line is constant. Durbin-Watson statistics is between 1.5 and 2.5, given in Table IV, hence there is no autocorrelation (Hair *et al.*, 2010). Neither the statistics nor the plots or histograms indicate any deviances beyond limits suggested for fulfilling the assumptions of regression analysis.

	GC	CRM	SRM	IS	SCP	FP
GC	0.754					
CRM	0.705	0.704				
SRM	0.661	0.651	0.690			
IS	0.547	0.575	0.643	0.773		
SCP	0.503	0.739	0.588	0.579	0.742	
FP	0.249	0.287	0.279	0.215	0.416	0.835

Table III. Discriminant validity test for constructs of theoretical framework

Table IV.
Regression analysis

Hypothesis	R	R^2	Adjusted R^2	F	β coefficient	P	Durbin-Watson	VIF
GC-SCP	0.401	0.161	0.154	23.631	0.382	0.000	1.916	1.000
GC-FP	0.252	0.064	0.056	8.361	0.260	0.005	1.906	1.000
SCP-FP	0.332	0.110	0.103	15.257	0.361	0.000	1.812	1.000
CRM-SCP	0.678	0.460	0.456	104.766	0.706	0.000	2.068	1.000
CRM-FP	0.271	0.074	0.066	9.786	0.307	0.002	1.851	1.000
SRM-SCP	0.553	0.305	0.300	54.045	0.451	0.000	1.910	1.000
SRM-FP	0.283	0.080	0.072	10.675	0.250	0.001	1.899	1.000
IS-SCP	0.506	0.256	0.250	42.326	0.490	0.000	2.058	1.000
IS-FP	0.200	0.040	0.032	5.128	0.210	0.025	1.858	1.000

The regression analysis suggests that all the hypotheses have been supported as given in Table IV. If we analyze the path connecting CRM- SCP (*H1b*), we can see that CRM has a very strong impact on the SCP of the retailer. It explains nearly 45.6 percent of the total SCP variance. The β coefficient of this path is 0.706 and found to be statistically significant at $p < 0.000$. Similarly, SRM has very strong impact on the SCP (*H2b*) of the retailer. It explains nearly 30 percent of the total SCP variance. The β coefficient of this path is 0.451 and found to be statistically significant at $p < 0.000$.

The extension of Baron and Kenny (1986) approach as suggested by Preacher and Hayes (2004) was considered more appropriate due to the limited sample size in the current study. The results of mediating regression analysis output are presented in Table V. The statistic suggests that GC under mediating effect of SCP (*H3d*) is an important predictor of FP. This has been checked with the help of Sobel statistics (Sobel, 2013) with a p-value of < 0.05, which signifies that the mediating regression is significant. The study revealed that direct effect ($c' = 0.1463$) of GC on FP is insignificant, whereas the indirect effect ($a \times b = 0.1141$, $p < 0.05$) is significant, indicating that SCP plays a mediating role between the relationship of GC and FP. Complete mediation happens in a situation where the independent variable has no effect, when the mediator is controlled (Baron and Kenny, 1986). For the hypothesis GC-SCP-FP, the β coefficient for the mediator SCP is 0.146, which is statistically significant, but the β coefficient for the independent variable GC is insignificant, which proves that there is complete mediation. GC accounted for 5.6 percent of variability in FP, but when SCP was introduced as a mediating variable between GC and FP, then the variability increased to 11 percent, which is almost double compared to the GC- FP model. Thus, the model improved with the introduction of SCP as a mediator. Similarly, the other three hypotheses are also supported for complete mediation.

IV	MV	DV	Effects of IV on MV (a)	Effects of MV on DV (b)	Direct effect (c')	Indirect effect ($a \times b$)	Total effects	Mediation	Sobel p-value
GC	SCP	FP	0.3816 (0.0785)*	0.361 (0.092)*	0.1463 (0.0953)	0.1141	0.2604 (0.0901)*	Complete mediation	0.002
CRM	SCP	FP	0.7061 (0.0690)*	0.361 (0.092)*	0.0966 (0.1311)	0.2102	0.3069 (0.0981)*	Complete mediation	0.000
SRM	SCP	FP	0.4505 (0.0613)*	0.361 (0.092)*	0.1262 (0.0900)	0.124	0.2502 (0.0766)*	Complete mediation	0.000
IS	SCP	FP	0.4898 (0.0753)*	0.361 (0.092)*	0.0452 (0.1040)	0.1651	0.2103 (0.0929)*	Complete mediation	0.000

Table V.
Mediating regression analysis

Notes: IV, independent variable; MV, mediating variable; DV, dependent variable; GC, Goal Congruence; CRM, customer relationship management; SRM, supplier relationship management; IS, information sharing; SCP, supply chain performance; FP, firm performance. *$p < 0.05$

Sources: Baron and Kenny (1986) and Preacher and Hayes (2004)

The results of multiple regressions and the mediation analysis proposed by Baron and Kenny (1986) and Preacher and Hayes (2004) provide empirical support for *H1c*, which predicted a positive relationship between CRM and FP, mediating through SCP. Our study brings to the surface that CRM is the most important determinant of performance among all the SCMPs in organized retailing context in India (Gawankar *et al.*, 2013a). Therefore, retailers need to pay maximum attention to innovate and improve CRM practices, so as to enhance retailers' FP. This seems logical because, when a firm draws a customer-driven corporate vision, and all the members of the organization work toward achieving customer satisfaction, then the organization experiences customer delight, which leads to higher share of customer wallet and higher profitability (Chow *et al.*, 2008; Sundram *et al.*, 2011).

H2c predicted a positive relationship between SRM and FP, mediating through SCP. The reason for this finding could be that firms utilize their supplier's processes, technologies and capabilities to enhance competitive advantage for the firm. The finding of this study indicates that retailers need to develop mutually beneficial relationships with suppliers and view the suppliers as virtual extensions of the firm. This will enhance their reliance on suppliers. Buyer and supplier firms need to do collaborative planning, forecasting and replenishment. This enables them to forecast better, enhance availability of products at the stores and thereby improve the performance of the firm (Chow *et al.*, 2008; Gawankar *et al.*, 2013a; Gunasekaran and Chung, 2004).

H3c predicted relationship between GC and FP mediating through SCP. One possible explanation for this finding could be that GC among the supply chain partners has created an environment that encouraged teamwork among the supply chain members to achieve better coordination, reliability and speed in managing the supply chains. This finding is in line with existing SCM studies, which identify GC as an important predictor of SCP and FP (Cao and Zhang, 2011).

H4c predicted a positive relationship between IS and FP, mediating through SCP. One of the possible explanations for this finding could be that the effort in providing information and making it visible to other parties in the supply chain allows for faster and accurate business decisions that translates as a source of competitive advantage. Real-time inventory status helps suppliers to plan their replenishment and delivery schedules, which in turn enhances service levels and reduces inventory costs. This requires continuous communication between the suppliers and the firm, which translates into IS (Chow *et al.*, 2008; Sundram *et al.*, 2011; Mentzer *et al.*, 2000; Kannan and Tan, 2005). *H5a* predicted a positive relationship between SCP and FP as predicted from previous research.

5. Discussion and implications for research

We empirically tested the relationship between SCMPs, SCP and FP in the context of organized retailing in a developing country like India. The findings of the study indicate that SCMPs positively influences SCP in the organized retailing context in a developing country like India (Sundram *et al.*, 2011; Gawankar *et al.*, 2013a). Further, the results of the study suggest that SCMPs have a positive impact on the FP. These results are consistent with extant supply chain management literature (Chow *et al.*, 2008; Prajogo and Olhager, 2012). This suggests that implementation of SCMPs among organized retailers in India is also an important predictor of FP similar to other developed countries.

We further tested the impact of SCMPs on FP mediated through SCP in the organized retailing context in India. The finding of the study concurs with the extant literature that the overall effect of SCMPs on FP is stronger when SCP acts as a mediator (Chen and Paulraj, 2004; Beamon, 1998; Gunasekaran and Chung, 2004; Qrunfleh *et al.*, 2012; Narasimhan and Nair, 2005). The findings of the study emphasize the importance of SCP as a critical determinant of FP. The findings indicated that organized retailers need to focus on enhancing CRM, SRM, GC and IS to improve FP in India.

The study also investigated whether SCP plays a mediating role in the relationship between SCMPs and FP. Among the four SCMP, special focus in terms of time, effort and investment should be made to implement CRM and SRM as these two are important drivers of SCP and FP. Researchers can use the findings of this research to generate ideas for future studies, and supply chain managers are able to identify specific SCMPs that have the higher potential to improve a company's performance and therefore could be more attractive to implement. Thus, managers looking for efficiency and effectiveness improvements should consider a set of SCMPs that could help them to improve their supply chain capabilities and in turn their performance.

5.1 Managerial implications

The results of the study suggest that SCMPs play an important role in enabling and supporting firms to sustain superior performance as consistent with prior studies (Cao and Zhang, 2011; Gharakhani *et al.*, 2012; Lin *et al.*, 2005; Li *et al.*, 2006; Kannan and Tan, 2005). This study provides a broad understanding to the supply chain managers in terms of the variables associated with implementation of SCMPs and also reinforces the strategic role of SCMPs through its contribution to the impact it has on SCP and FP. Many retail firms in India consider retail-SCM as being the same as integrated logistics management, though they are not (Gawankar *et al.*, 2016). Although some organizations have understood the importance of SCM, they lack the understanding in terms of what constitutes organized retail-SCMPs.

The SCMPs provided in this paper can be useful for organized retail supply chain managers in evaluating their current SCMPs and SCP. Firms strongly interested in developing good performance and sustaining should develop innovative strategies, focusing on enhanced CRM, SRM, IS and GC amongst its supply chain partners. Therefore, to achieve operational efficiencies, process improvements and overall profitability of top-line and bottom-line measures, organized retailers in India need to focus on CRM, SRM, IS and GC. The results of this study are good evidence for the organized retail sector companies to further revamp their work practices in the area of supply chains to enhance their overall performance.

5.2 Limitations and future research

However, this study has few limitations. Response error may be found due to questionnaire design. However, care has been taken by the researcher to minimize response error by personally conducting a pre-testing session with the top supply chain heads of retail firms in India. The professionals were asked to think aloud and explain the meaning of each question in the questionnaire to get an understanding of how they are interpreting the questions to ensure similar interpretation among the professionals. The data collection was done within Indian retail industry. Though care was taken to define values as specific to Indian retail industry, the extrapolation of conclusions drawn within the Indian retail industry to other organizations needs to be qualified. Furthermore, this study was cross-sectional in nature which does not establish empirical causality. Future research should conduct longitudinal research design to establish empirical causality between four SCMPs, SCP and FP. FP may be affected by various other internal and external variables not accounted for in this study. It would be beneficial to examine FP by taking these variables into account.

This study pertains to one emerging economy and could be extended further to other emerging markets to draw comparisons and inferences to see if the Indian experience is unique or similar to that experienced by other emerging markets. The current model, which is restricted to retail companies in India, can be further validated for other industries.

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