EXECUTIVE SUMMARY

With increasing competition and advancement in technologies, firms have been experiencing significant changes in the way of doing businesses. The term Supply Chain Management [SCM] was originally introduced by consultants in the early 1980s, and has subsequently gained tremendous attention. Since then, this paradigm has undergone huge developments nationally and internationally. It is important for companies to know what they are doing and where they can reach, and measurement is the first step that leads to control and eventually to improvement.

One of the predominant methods for measuring performance is the use of key performance indicators [KPIs] that cascade down from top level business objectives and measures through the organization into a series of functional measures (Storey, Emberson, Godsell, & Harrison, 2006). Once the supply chain performance measures are developed adequately, managers have to identify the key performance indicators (KPIs) that need to be improved. A typical firm already has a certain number of KPIs such as a return on investment for assessing its financial performance, but supply chain related KPIs have not been widely adopted and businesses are typically uninformed of them (Chae, 2009). Also, the Traditional BSC and SCOR models generally assume that KPIs are uncoupled (Cai, Liu, Xiao, & Liu, 2009). These approaches could describe business operations well, and serve as a good communication tool, but they are not effective in improving overall performance by accomplishing the critical KPIs (Cai, Liu, Xiao, & Liu, 2009).

It is widely acknowledged that there has been relatively little interest in developing measurement systems and metrics for evaluating supply chain
performance (Beamon, 1999; Gunasekaran, Patel, & Tirtiroglu, 2001; Chen & Paulraj, 2004). It was in fact found encouraging that some researchers have developed measures to assess the performance of supply chain relationships or the performance of a supply chain as a whole (Ellinger A. E., 2000; Fynes & Voss, 2005). As pointed out by (Douglas, 1996; Ho, Chan, W, Wong, & Chan, 2000; Gumbus, 2005; Lavy, Garcia, & Dixit, 2010) that categorization of KPIs must provide the organizations an opportunity to select the performance indicators in which the companies are most interested.

One of the main problems with supply chain metrics is that they do not capture how the supply chain as a whole has performed (Lambert, Cooper, & Pagh, 1998). There is a need to incorporate broader relationships to collaborate across different levels of supply chain. Some of the concerns that need to be address in this direction include the integration issue of supply chain in varied industries across the countries. Also there is a requirement to conduct more empirical studies on the effect of management practices on combination of these supply chain management practices (Gopal & Thakkar, 2012). To the best of researcher’s knowledge no integrated measurement system exists for retail supply chain that combine different aspects of performance (e.g. financial and non-financial, qualitative and quantitative) into one measurement system, in this study researcher aims to develop a model for measuring retail supply chain performance. Therefore, the study seeks to create a comprehensive understanding of the way the performance measurement of contextual factors impacts the financial performance of a retail supply chain. The scope of the study has been narrowed down to four important dimensions of retail supply chain including transport optimization, inventory
optimization, resource optimization and information technology optimization. The major objectives of this research study are:

- To identify the Key Performance indicators (KPIs) for Retail Supply Chains.
- To develop a performance measurement model for Retail Supply chains in India.

For this study, contingency approach was adopted, according to contingency theory perspective there is no best way to ensure superior performance. It also advocates that there is not universal set of strategic choices that applies to every business situation (Ginsberg & Venkatraman, 1985). Typical frameworks in the contingency research focus on the relationship between contextual factors and the performance (Schoonhoven, 1981; Ginsberg & Venkatraman, 1985). This view is also supported by RBV, which suggests that the firm extract and create value by optimally utilizing its human and technological resources. This study has combined RBV and contingency theory perspective and a framework was developed with respect to the contextual factors of retail supply chain with the objective of determining which components are most applicable to the supply chain issues confronting retailers in India.
Research Hypotheses

H1: Information technology will have a positive effect on Resource Optimization
H2: Information technology will have a positive effect on Inventory Optimization
H3: Information technology will have a positive effect on Transport Optimization
H4: Inventory Optimization will have a positive effect on Transport Optimization
H5: Transport Optimization will have a positive effect on Resource Optimization
H6: Transport Optimization mediates the effect of information technology Optimization and inventory Optimization on financial performance
H7: Resource Optimization mediates the effect of information technology on financial performance
H8: Inventory Optimization mediates the effect of information technology Optimization on financial performance

The target population for the study includes the organized retail in India (both Indian and Private MNCs operating in India). The researcher has adopted Two-Stage Sampling. At first stage the top ten retailers operating in India were identified and at second stage Delhi [NCR] was selected as the geographical region for conducting the survey. The sample frame was constructed primarily to target relatively the senior and middle level managers and sample size in this study is 120. The questionnaire has a total of 56 questions divided into four main sections as per the division into four categories i.e., transport optimization, inventory optimization,
information technology optimization and resource optimization. The data was easily fed into the SPSS software for further analysis (factor analysis, IBM SPSS 20 and Structural Equation Modeling, using SMART PLS 2.0.

The model in this study reveals that retail supply chain performance measurement is multidimensional with IT as a great enabler and a strong predictor of inventory and resource optimization. It was also found through this study that respondents have given maximum weightage to inventory optimization, which provides an empirical evidence that inventory is undoubtedly a critical area of focus for retail industry, the extent to which it influence the financial performance of the firm. Infact inventory turnover and productivity of material handling equipments [MHE] has been identified as the most influential indicators for inventory optimization.

The next most important component of the study was resource optimization influencing the financial performance of the firm. Training of employees and value added employee productivity are two most influential indicators. This led to a clear outcome that training of employees is vital for a high value added employee productivity which influences customer experience, finally results in increased sales and profitability of the company. Thus the companies should focus on training their employees for better performance.

As IT is a predictor of inventory and resource optimization, real time sharing of information plays an important role in increasing the accuracy and reliability of information. Retailers use different methods to coordinate with the supply chain partners with real time information in order to optimize their supply chain and assure maximum product
availability. Accuracy and reliability of information makes it possible that right product is available at right time at the right place, thus increasing the responsiveness to the market demand with better sales forecast. Hence companies are encouraged to invest in IT for data reduction and data maintenance cost.

Furthermore, IT is moderate predictor of transport optimization, it is because of the fact that IT implementation for transport is still in nascent stage of implementation in Indian context. As of now it is seen that besides a few large players the country is dominated by small truck owners and implementation of technology (RFID/TMS/GIS) is a way forward. For transport optimization, the faster turnaround of vehicle and vehicle optimization are the main area of attention. Besides capacity utilization and vehicle routing it is important that there is minimal waiting time for the vehicle at loading and unloading dock. The detention/waiting time of the vehicles affects the vehicle optimization or its complete utilization. As any delay in turnaround time of the vehicle is the cost to the operator. Hence for optimal utility it is significant to efficiently and effectively control the dock operations at DCs/ROs for faster turnaround of vehicles.

Thus, the current research represents one of the first empirical efforts to systematically investigate the relationship between key components of retail supply chain management in the developing economy. Finally it can be concluded that all the relationship variables incorporated in the model are significant for Retail Supply Chain Performance.

The thesis consists of eight chapters. The first chapter, Introduction to Supply Chain Performance Measurement, presents the evolution of
Supply Chain and defines SCM with the help of various definitions and theories influencing SCM philosophy followed by objective of SCM, the challenges and opportunities in SCM. Thus, establishes a need for measuring SC performance and discussing the various theories used for measuring SC performance.

The second chapter, Retail Supply Chain Management, discusses the concept of retailing and evolution of retail in India. It also throws light on the contribution of retail to GDP of Indian economy and also presents various attitudinal changes in the demographic profile of consumers, which have transformed the retailing face of India. Further this chapter describes the various formats of retail, its organizational structure and a brief profile of foremost retail companies operating in India.

The third chapter, Literature Review, presents a review of the available literature on supply chain performance management, and aims to classify the performance indicators into various groups, specifically for measuring retail supply chain performance with the help of a theoretical framework. It highlights the research gaps, while outlining the importance of measuring SCM performance through metrics/KPIs, and also explores different approaches for developing performance measurement tools.

The fourth chapter, Research Method, discusses the rationale of the study, problem statement, research questions, and objectives of the study, the research design, conceptual model and hypotheses. Also presents the constructs of the model and measurement of these constructs followed by sampling process, method of data collection, and statistical tools used for analysis, and finally research flow diagram in the end.
The fifth chapter, **Data Analysis**, discusses the sample profile of the respondents and the frequency distribution of the responses. From the frequency analysis, the indicators, respondents displayed the most agreement with, are also discussed. Finally, importance ratings are assigned to the categories based on weights obtained through Principal Component Analysis (PCA).

The sixth chapter, **Key Performance Indicators for Retail Supply Chain**, discusses missing value analysis and imputation, which was conducted for the purpose of preparing data for factor analysis and SEM. Thereafter results obtained from factor analysis for each category of KPIs are presented i.e. for Transport Optimization, Information Technology Optimization, Inventory Optimization and Resource Optimization.

The seventh chapter, **Developing and Testing Model**, gives an overview of classification of models, followed by structural equation modeling (SEM). Covariance based (CB) SEM and PLS SEM was used to identify the underlying structure of the data. Due to restrictions associated with CB SEM, PLS-SEM was found to be a better technique to develop a performance model for measuring retail supply chain performance. In the last section chapter is thus concluded with summary of final results.

The eighth chapter, **Conclusion and Recommendations** presents the conclusion of the study, exhibiting the relative importance of the variables identified in the study. It also discusses the limitations and directions for future research, thereby followed with recommendations based on findings.