ASSESMENT OF INTERNAL SUPPLY CHAIN PERFORMANCE OF TEXTILE INDUSTRY IN ETHIOPIA

THESIS SUBMITTED TO THE ADDIS ABABA UNIVERSITY COLLEGE OF BUSINESS AND ECONOMICS, FOR THE PARTIAL FULFILMENT OF MASTERS OF ARTS DEGREE IN LOGISTIGS AND SUPPLY CHAIN MANAGEMENT

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MAY, 2017

ADDIS ABABA UNIVERSITY

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This is to certify that the thesis carried out by **Eskinder Ayele Beyene**, entitled: "*Assessment of Internal Supply Chain Performance of Textile Industry in Ethiopia* " and submitted in partial fulfillment of the requirements of the Degree of Master of Art in Logistics and Supply Chain Management complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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Declaration

I, the under signed, declare that this thesis entitled "*Assessment of Internal Supply Chain Performance of Textile Industry in Ethiopia* ", is my original work and to the best of my knowledge has not been presented for a degree by any other person, and that all the sources of material used for the thesis have been duly acknowledged.

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This is to certify that the thesis carried out by **Eskinder Ayele** on the topic entitled: "*Assessment of Internal Supply Chain Performance of Textile Industry in Ethiopia*" is his original work and is suitable for submission for the award of Masters of Art Degree in Logistics and Supply Chain Management.

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Acknowledgements

In the beginning, I thank my Lord Jesus Christ for giving me the strength to accomplish this.

I would like to express my deepest gratitude to my advisor Dr Shiferaw Mitiku for his goodwill, support and guidance throughout the research. His continued support led me to the right way.

I also want to thank all of the respondents for their willingness during my data collection times.

Finally but majorly it is must to pass my deepest appreciation to my friend Tamirat Gezahegn for his kindness and help throughout this study

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LIST OF ACRONYMS

ETGMA Ethiopian Textile and Garment Manufacturers Association

ETIDI Ethiopian Textile Industry Development Institute

ICT Information and communications technology

KPI Key Performance Indicator

PMS Performance Measurement System.

QM Quality Management

QRPMS quantitative relationships performance measurement system

SC Supply Chain

SCM Supply Chain Management

USAID United States Agency international Development

WIP Work in Progress

Abstract

This study assessed the internal supply chain performance of Ethiopian textile industry with key performance indicators namely Quality, cost, productivity and time. Possessing to the small number of the total population, the study has employed census survey to quantitatively and qualitatively assess the supply chain performance of textile industries. Questionnaire was used as the official instrument of data collection. A total of 68 questionnaries were distributed and 60 of them were filled and returned to make the response rate 88%.Major findings suggested that all the four dimensions of supply chain performance have statistically significant result. The study findings have suggested that the levels of Supply chain performance is approximately moderate in the case of Textile industries in Ethiopia in terms of the four key performance indicators. It has also discovered that, among the four key performance indicator, measurement of the supply chain performance based on dimension of productivity is comparatively in a better position in the textile companies. This study gives special insights regarding performance of the supply chain management and its need in improving the business activities in textile industry of Ethiopia. Future studies can take other factors affecting on performance of SCM those are not considered in this study. With the help of these results organizations can use best approaches to improve their supply chain strategies.

KEY WORDS*:* Supply chain, performance, performance indicators.

1. CHAPTER ONE: INTRODUCTION

The research aims to assess supply chain performance that hinder the industries' competitiveness and to point out the strategic objectives, which could be taken as a guide to the textile industry that improve their performance. Ethiopia's textile industry comparative advantages namely its low labour cost, cheap and sustainable electricity, preferential market access, and relative proximity to important markets have been complemented by reforms to the business environment that have reduced trade hurdles. Besides to this, Ethiopian government is waiving taxes for both exports and the import of raw materials and machinery in order to encourage investors. Despite such incentives, Ethiopian Textile industries cannot compete in the global markets because of poor performance.

1.1.Research Background

Textile refers to the yarns, threads and wools that can be spun, woven, tufted, tied and otherwise used to manufacture cloth. The production of textiles is an ancient art, whose speed and scale of production has been increased almost beyond recognition by mass-production with the introduction of modern manufacturing techniques. The textile industry comprises of establishments that produce yarn, thread, and fabric and a wide variety of other textile products for use by individuals and businesses, but not including apparel or garment(Amare,2006).

The global textile sector has been in a constant state of change since the turn of the century, characterized by a continual evolution in the location of both the most significant producing and exporting countries and regions, and the main end markets. Demand surged in developing countries, production was consolidated in Asia, and new countries such as Viet Nam, Myanmar and Cambodia emerged as fast-growing exporters of textile products. Buyers are looking to shift more activities to their suppliers (while at the same time demanding larger volumes and quicker turnaround times). consumers are pressuring the industry to adhere to CSR standards; information and communications technology (ICT) is becoming critical to modern production and inventory management; and man-made fibres have taken their place as the sector's preferred material (ETIDI Value Chain Roadmap,2015).

Ethiopia has the largest potential domestic market in Africa for textile products. Although the purchasing power of the people is still limited, the fast growing economy of Ethiopia would

create a better scenario for the local textile market. Given the large size of the local market, the huge textile and apparel imports, it is obvious that there is unexploited potential for producers. And also the global textile market has become increasingly accessible to developing countries including Ethiopia. As a result Ethiopia's advantages have been recognized globally and the industry has now parallel support and access both to the domestic and international markets. Most textile enterprises in Ethiopia are situated in densely populated large or medium cities. Out of the total textile enterprises in Ethiopia, Most of them are in Addis Ababa, the capital city, others textile enterprises located in Amhara, Oromia, Tigray and Southern (S.N.N.P) regions. Their main engagements of companies are spinning, weaving, dyeing and finishing. The Ethiopian textile industry is the third largest manufacturing industry, only second to the food processing, beverage and leather industry. (ETIDI Value Chain Roadmap,2015).

Textile is a sector where quality is one of the key competitive factors, and current competition does not only concern the individual firm but, rather, involves the entire supply chain. Indeed, the quality of the final product that reaches the customer is clearly the result of a chain of successive, inter-linked phases: spinning, weaving, apparel and distribution. In this new competitive environment, quality, but must be a feature of all market segments—basic and fashion—to meet the specific requirements and tastes of all types of customers. Furthermore, quality cannot be restricted to the area of the intrinsic quality of the goods themselves, but must also take even more operational aspects into account (Romano & Vinelli,2004).

It is to be noted that it is impossible to improve performance of an operation and company without measuring it, performance measurement is vital in organizational management and operational system. In order to improve performance effectively, organizations must identify factors of performance that should be particularly monitored, which are either key to success or identify under-performance. Depending on the type of the industry there are different key performance factors, where it is impractical to review all possible measures of performance since it is a broad topic (Nicolas & Game,2015). Thus important key performance factors that are associated to textile industry are considered; these are cost, time, productivity and quality.

The Ethiopian textile mills are mainly producing cotton products, with the low turnout of synthetic fiber /cotton blends. Since production is mainly for domestic market these enterprises had no innovation in quality control, product development and other marketing aspects over a long period of time. The products of each enterprise are similar and the variety

is small; while the quality is low. They have not established the product structure of multi-levels and large variety. The product is primarily concentrated on cotton yarn, gray drills, khaki, bed sheet cloth, and cloth for Ethiopian dresses. The deficiency caused by the singular product structure can be seen in at least three aspects. First, it cannot compete with imported textiles. Second the market opportunity for export is low. Third, it cannot satisfy the demand of garment sub sector of diverse fabric requirements; unable to work to satisfy and work along the value chain of the sector.

Regarding the Supply of raw material and accessories out of the raw materials used by textile enterprises, cotton is widely grown in Ethiopia and it is easily available from local suppliers. Other materials including chemical fiber, wool, dyestuffs and chemicals as well as a small share of lint depends on imports. Hence; the domestic supplying ability for raw and auxiliary material and spare parts for textile production is weak(ETIDI,2014). It is highly dependent on import, except cotton raw material; even the cotton has not been improved in its quality for a long time and there exist a problem of quality. All this restricts the development of the sector;

1.2 Statement of the Problem

Measuring supply chain performance reveals the gap between planning and execution and helps companies to identify potential problems and areas for improvement. However, it is recognized that developing performance measurement factors, is very challenging and a set of practical guidelines is not readily available for companies and supply chain management practitioners (Lambert and Pohlen, 2001).

The Ethiopian textile sector has yet to realize its full potential: sales are heavily concentrated among a few product. Productivity meanwhile continues to suffer as a result of limited skills in the workforce, weak management capacities that relies on outdated equipment, among other issues. In addition, remaining problems in the business environment create unnecessary cost burdens and delays (ETIDI Value Chain Roadmap,2015).

Ethiopia's textile sector suffers from a lack of sufficiently skilled manpower and specialists in the industy, despite the presence of a large labour pool in the country. The lack of skills leads directly to lower productivity and quality, which inhibit the ability of the sector to add value, meet buyer requirements and increase profitability. The reasons for the dearth of adequately skilled workers are numerous and include factors that are both internal and external to the sector's enterprises.

Small and medium enterprise are unable to align product development, supply chain management and internal skills development with the requirements of final buyers. The reasons for this disconnect are numerous. This stems largely from limited Trade intelligence. Many companies suffer from a cost and quality disadvantage vis-à-vis both domestic and foreign competitors because of a lack of upgrading equipment. For many companies, particularly spinning mills, the lack of newer machinery leads to overstaffing. Even where equipment has been upgraded, it is often not used to its full potential (Lee, David Yuen Hoi 2010).

The other problem area is input supply. Limited quantity and quality of local cotton reduces competitiveness. Local production is unable to supply an adequate quantity and quality of cotton. Where quantity is limited, the sector has no choice but to import the difference, this has also an impact on flexibility with which the local sector can operate. Since cotton is subject to lengthy transport, a textile company would be less able to respond to rapid changes in market demand(ETIDI Value Chain Roadmap 2015).

The other point is trade facilitation issues. Inefficient Customs system leads to high costs and delays. The high cost of trade is particularly troubling most of imported inputs, meaning that many exporting companies are hit twice with the cost burden. The length of time required for trade procedures is just as worrisome, as it reduces the ability of the sector to respond flexibly to buyer demands after receiving an order. Expensive and unreliable transportation reduces the price competitiveness of Ethiopian goods. İn international markets it hinders the ability of enterprises to deliver goods in a timely fashion. As a landlocked country, Ethiopian goods must travel long distances before reaching the port of Djibouti, from where they are shipped throughout the world, despite Ethiopia's proximity to important markets and lower labour and electricity costs.

There are a variety of causes for the weak logistics system, the road infrastructure in rural areas where many textile mills are located is quite poor. As a result, transport to and from these facilities can be slow(ETIDI Value Chain Roadmap,2015).

The shortage of foreign currency in the country delays the opening of letter of credits which increases the lead time to import textile raw materials and spare parts. Energy short falls reduce profitability and diminish the ability of companies to meet buyer requirements. The current power outages represent a pressing challenge for the textile sector. Blackouts result in under production and can also lead to failure to deliver orders and breach of contract, resulting in both reputational and financial damage that may be irreparable. Lastly, the

outages themselves may contribute to the continued reliance on basic, low value added and low-risk goods (ETIDI Value Chain Roadmap,2015).

As stated on the above statement, there are gaps which are identified, besides there is no research based study on supply chain performance of Textile mills in the country. Hence, the study was conducted to fill the gaps on the sector, particular to the Assessment of supply chain performance on textile industry in Ethiopia to improve the Ethiopian Textile sector competitiviness on the global market.

1.3 Reasearch Question

1.How do quality, productivity, time and cost affects performance of textile companies in Ethiopa?

2. What kind of strategies would be relevant to improve the performance of textile industries?

1.4 Research Objectives

General objectives

- The general objective of this study is to assess the supply chain performance of textile industries in Ethiopia.

Specific objectives

- To evaluate how quality, productivity, time and cost affects the performance of the Ethiopian textile companies.
- To determine supply chain management strategies applicable for the Ethiopian Textile industries to improve their supply chain performance.

1.5 Significance of the Study

Most research on supply chain management concerns developed countries. Consequently, there is a lack of significant study on supply chain performance of textile industry in developing countries, in general, and Ethiopia, in particular. It is hopefully believed that the Ethiopian textile industries will improve their supply chain performance. Government bodies such as Ministry of Industry, Textile Industry and Development Institute, Ethiopian Textile and Garment manufacturers Association and other related sectors can also utilize important concepts out of the research.

The study serves as a spring board to conduct further and more detail study in the area; this is because currently there are only few related researches that are conducted regarding the issue of supply chain performance of the Ethiopian textile industry. The study contributes for academic purpose by paving the way for more detail study.

1.6 Scope of the Study

Depending on the type of the industry there are different key performance factors, where it is impractical to review all possible measures of performance since it is a broad topic. Thus important key performance factors that are associated to textile industry namely cost, time, productivity and quality were considered.

This research focused on selected four textile Mills namely Ayka Addis Textile and Investment Group, Arbaminch Textile Sh. Co.,Yirgalem Addis Textile Factory PLC and Kombolcha Textile sh.co. out of seventeen textile companies located in Addis Ababa, Oromia, Tigray, Amhara, South and Diredawa regions. The rationale behind to select these companies i) All are integrated textle mills which can manufacture different textile products instead of only one type ii)They are prominent in exporting which can shows the supply chain process in a better way iii)All are operating with better capacity utilization and production. In addition, some are authorized economic operator named by Ethiopian revenue and customs authority it is a title given for few companies with better performance in their transaction through out the country. with all mentioned factors they can be a good representative of the industry and are convenient to focus on the study area which is supply chain performance.

1.7 Organization of the Study

This project paper is organized into five chapters: Chapter one provides an overall introduction of the thesis, including the background of the study and the industry. research problem, the study objectives, scope, significance of the study.

Chapter two explains the literature review about the subject matter, key concepts and approaches help to establish and justify the study's theoretical basis and that would help to understanding the study. Chapter three provides details of the research methodology and methods used in this study. In chapter four, results and discussion of the study are presented and finally, chapter five has the summary of major findings, conclusions and recommendation.

2. CHAPTER TWO: RELATED LITERATURE REVIEW

Introduction

The literature review of this study is composed of basic theories which provides definition and explanation about supply chain performance. In order to achieve the proposed objectives, Complete literature surveys were conducted regarding the concept of supply chain,supply chain performance, performance measurement systems, performance indicative factors and improvements, overview about Ethiopian textile manufacturing. Related works which present different scholars‟ point of view with regard to supply chain performance on manufacturing industry

Globalization has a critical impact on manufacturing, both locally and internationally. Through broadening the marketplace and increasing competition, globalization leads customers to place greater demands on manufacturers to increase quality, serviceability and flexibility, while maintaining competitive costs (Laosirihongthong and Dangayach,2005). Hence, firms are now looking at securing cost, quality, technology and other competitive advantages as strategies to pursue in a globally competitive environment. Currently, one popular route to competitive advantage is to add value for customers by performing supply chain activities efficiently. As a result, many manufacturers are focusing on their supply chain management practices (Goh and Pinaikul,1998).

2.1 Theoretical Analysis

2.1.1 Supply chain

A supply chain is characterized by the flow of goods, services, money, and information both within and among business entities including suppliers, manufacturers, and customers. It also includes all types of organizations engaged in transportation, warehousing, information processing, and materials handling. Sourcing, procurement, production scheduling, manufacturing, order processing, inventory management, warehousing, and finally customer service are the functions performed throughout the supply chain. A typical supply chain commonly involves a network of tiered suppliers producing raw materials, parts, components, subassemblies, assemblies and final products together with business process and customers (Mentzer *et al.*,2001). An effective supply chain may be defined as the art of bringing the right amount of the right product to the right place at the right time while minimizing related costs within and between all parties (Saad *et al.*,2002).

2.1.2 Supply chain management

Supply chain management is an important multi-disciplinary topic in modern business management and research. It enhances organizational productivity and profitability through a revolutionary philosophy to managing the business with sustained competitiveness (Gunasekaran *et al*,.2004). Supply chain management has become increasingly important to businesses which supply goods and services to the end customers (Waller,2003). The focus on, and relationships with, different stakeholder groups are of great importance to all businesses, regardless of size or whether they supply products and services. However, supply chain management is perhaps most easily conceptualized in manufacturing, since there is a physical flow of goods (Waller,2003).

Industry practicing SCM seek to reduce waste throughout the supply chain by minimizing duplication, harmonizing operations and systems, and enhancing quality. When production and logistics processes are accomplished in less time, all entities in the supply chain are able to operate more efficiently, and primary result is the reduced inventories throughout the system. Flexible response is in order handling, including how orders are handled, product variety, order configuration, order size, and several other dimensions means that a customer's unique requirements can be met in a cost-effective manner. Overall, all of these goals help keeping the costs at the minimum for a given value for the customer.

The SCM function involves a number of people and organizations who interlink and exchange information, money or goods, and thus a need is felt to assess the supply chain performance to ascertain success all along the chain. Two terms namely efficiency and responsiveness are considered as the main parameters of assessment. Efficiency indicates how well a supply chain meets the demand in terms of availability, volume and variety. Whereas the responsiveness indicates how quickly the supply chain rises to meet the demand, and ensures stability in spite of the uncertainty. In terms of these two parameters the supply chain performance is dependent on several drivers (Chopra & Meindl,2007)

2.1.3 Internal supply chain management process

The internal supply chain management macro process aims to fulfill demand generated by the customers in a timely manner and at the lowest possible cost (Chopra and Meindl,2004). Internal supply chain management process needs to balance the customers' requirements with the company's supply capabilities, which includes forecasting demand and synchronizing it with production, procurement, and distribution (Vollmann *et al.*,1997).

A key to effective internal supply chain management is to meet customer requirement in terms of order fulfilment. Effective order fulfilment requires integration of the firm's manufacturing, logistics, and marketing plans. The company should develop partnerships with key members of the supply chain to meet customer requirements and reduce total delivered cost to customer (Kumar and Sharman,1992). Customer relationship management and supplier relationship management form the critical links in the supply chain and the internal supply chain management process is coordinated through them. Each of the macro processes is cross-functional and cross-firm. Cross-functional teams are used to define the structure for managing the process at the strategic level and implementation at the operational level (Lambert *et al*.,2005).

2.1.4 Advantages of supply chain management for manufacturers.

Tan *et al.* (2002) note that as product life cycles shrink and global competition intensified in the 1990s, many manufacturers collaborate with their suppliers to improve product quality and lead time. Correspondingly, many wholesalers and retailers also integrate their logistics functions to enhance competitive advantage. Eventually, these two functional areas of a corporation evolve and merge into a holistic and strategic approach to materials and logistics management. Supply chain management is viewed as a viable initiative to enhance competitive advantage. Many manufacturers and merchants have embraced the concept of supply chain management to improve product development, quality and delivery goals, and to eliminate waste. It has enabled firms to exploit supplier strengths and technologies to support new product development efforts (Morgan and Monczka,1995) and seamlessly integrate logistics functions with transportation partners to deliver directly to the point of use. Supply chain management is a management philosophy that extends traditional internal activities by embracing an inter-enterprise scope, bringing trading partners together with the common goal of optimization and efficiency (Harwick,1997).

2.1.5 Supply Chain Strategy

Cohen and Rousell (2005),defined supply chain strategy as part of the overall business strategy designed around a well-defined basis of competition (innovation, low cost, service, quality). It is integrated with the marketing strategy, customers' needs, the product strategy, and power position. Furthermore, it should be aligned with business or competitive strategy of the organization. Besides, the following issues noted, Supply chain strategies are pivotal to the success of most contemporary businesses and equally important for not-for-profit organizations. Strategies exist, whether they are planned or not. In other words all organizations have a de facto strategy. Hence, supply chain strategy can also be emergent rather than deliberate and defines the concept as a 'deliberate and/or emergent conceptual framework by which a company involves its supply chain and supply chain members in its efforts to reach its own corporate strategic objective. Supply chain strategies need to focus on customer demand patterns to ensure capacity to plan, source, make and deliver superior performance compared with competitors. SC strategies may be designed to do existing things better (through more efficiency in current operations) and/or to do better things (through designing more effective systems, processes, policies, facilities and modus operandi).

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2.1.6 Performance measurement

To fully understand what performance measures are, the first step is to know what performance is. According to Lebas (1995), performance can be viewed as being subjective and it depends on the targets and goals that each firm set for themselves. In other words, performance is the ability to meet certain criteria's, the time it takes, and the path used to get there. Performance is the efficiency with which inputs are converted in to outputs, it is the efficiency and effectiveness of action(Andy Neely *et al.*,2005) thus to improve the performance of an operation, performance has to be measured, hence performance measurement is fundamental in organizational management.

Organizational performance refers to how well an organization achieves its market-oriented goals as well as its financial goals(Yamin S *et al*.,1999).The short-term objectives of supply chain managment are primarily to increase productivity and reduce inventory and cycle time, while long-term objectives are to increase market share and profits for all members of the supply chain. Any organizational initiative, including supply chain management, should ultimately lead to enhanced organizational performance.

Browne *et al*. (1998) develop the ENAPS approach of performance measurement, which consists of a generic set of performance measures and indicators and uses a process-oriented top down approach. It contains a large number of performance measures or factors. Hudson *et al*. (2001) investigate strategically aligned performance measures, which can help stimulate continuous improvements; this is achieved by linking performance measures to specific improvement efforts and helping to drive performance towards critical strategic objectives, which are designed to be revisited and updated regularly.

Rouse and Putterill (2003) argue that a performance measurement framework assists in the process of performance measurement system building, by clarifying performance measurement boundaries, specifying performance measurement dimensions or views and may also provide initial institutions into relationships among the performance measurement dimensions. Folan and Browne (2005) present different performance measurement frameworks specifically designed for the inter-organisational environment. They further develop a performance measurement system looking into the requirements of extended enterprise, via two performance measurement frameworks: the structural extended enterprise balanced scorecard and the procedural framework for the selection and implementation measures.

Development of the literature on performance measurements can be divided into two distinct phases (Dixon *et al.*, 1990). The first phase relates to the period until the 1980s and concentrates on financial measures such as profit, return on investment and productivity. The second phase, which commences in the late 1980s, corresponds to the emergence of new management concepts such as supply chain management. It attempts to place a greater emphasis upon the inclusion of less tangible and non-financial measures in performance measurements. There are the range of limitations of existing measurement systems for manufacturing, including: they lack strategic focus (the measurement system is not aligned correctly with strategic goals, organization culture or reward systems) (Banks and Wheelright,1979)

Performance in manufacturing constitutes several aspects including quality, effectiveness, efficiency, productivity and safety etc. In textile industry, performance improvement may include the increase in product quality together with increase in productivity along with the lowering of production costs and lead times etc.

Performance measures should be indicators of how well this is being done. Performance measurement is defined as the process of quantifying effectiveness and efficiency of action (Neely *et al.*, 1995). Effectiveness is the extent to which a customer's requirements are met

and efficiency measures how economically a firm's resources are utilised when providing a pre-specified level of customer satisfaction.

2.1.7 Supply chain Performance measurement system

Performance measurement systems are described as the overall set of factors used to quantify both the efficiency and effectiveness of action. Lee and Bilington (1992) suggested supply chain performance measurement systems (PMSs) are necessary for firms to successfully implement supply chain management. According to Neely *et al*. (2002) "A Performance Measurement System is the set of metrics used to quantify the efficiency and effectiveness of past actions" and "it enables informed decisions to be made and actions to be taken because it quantifies the efficiency and effectiveness of past actions through the acquisition, gathering, sorting, analysis and interpretation of appropriate data". PMSs are considered as a tool to gain competitive advantages and continuously react and adapt to external changes (Cocca,2010). An important step to transform the individual business units into a fully operational integrated supply chain member is to design and implement supply chain performance measures and performance measurement systems. From such design each business enterprise will take a responsibility not only for its own business performance but also for the overall performance of the supply chain (Gunasekaran, Patel and Tirtiroglu,2001).Hence there is now an increasing focus on supply chain measures and the overall performance.

The performance of supply chain management is required to measure with respect to some standard models or frameworks. Beamon (1999) presents an overview and evaluation of the performance measures used in supply chain models and also presents a framework for the selection of performance measurement systems for manufacturing supply chains. Three types of performance measures (resources, output and flexibility) are identified as necessary components in any supply chain performance measurement system, and flexibility quantitative measurement approach for supply chains are proposed. However, it lacks of system thinking, in which a supply chain must be measured widely across the whole

Gunasekaran *et al*. (2001) illustrate and discuss different performance measures and metrics of the supply chain management with the help of a framework that gives cohesive picture to address what needs to be measured, and how it can be dealt with. The framework is classified into strategic, tactical and operational levels of management. The metrics are also divided into financial and non-financial so that a suitable costing method based on activity analysis can be applied. However, due to the large number of metrics and measures given in the framework,

firms find it difficult to use. Not many firms use all metrics and measures in day-to-day business operations. Also, the framework does not provide guidelines to prioritise these metrics. Further firms require a comprehensive way to analyse their operations from every angle that covers all perspectives of business.

2.1.8 Performance measurement factors for supply chain performance measurement

The performance measurement factor is the term for an element, activity or variable that is required for an organization to achieve its mission (Rockart and Bullen,1981). These performance measurement factors refer to the number of areas in which the companies should consider when they measure the performance of supply chain. In order to improve performance effectively, organizations must identify factors of performance that should be particularly monitored, which are either key to success or identify under-performance.

Several types of indicators have been developed to measure many supply chain and logistics activities. According to a guide line prepared by USAID (2010),Choosing the type of indicator to measure can be daunting, and it could be dangerous to simply focus attention on one area. For example, focusing only on cost containment could improve one area but not affect the overall performance of the supply chain. For this reason above mentioned guide line chose a model developed by (Edward Frazelle,2001) that is more holistic and consists of four types of factors: quality, time, financial, and productivity. To complete the analysis, all indicator types need to be considered, and they need to work together, thus important key performance factors that are associated to supply chain performance on textile industry are considered; these are quality, cost, productivity and time.

2.1.8.1 Quality

Quality is not only a bonus for the customer; it is expected and is also important for the sale of a product. Poor quality means high costs, low productivity, and loss of market shares. Quality is meeting or exceeding the customer requirements (Bishop,1990).

Textile is a sector where quality is one of the key competitive factors, and current competition does not only concern the individual firm but, rather, involves the entire supply chain. Indeed, the quality of the final product that reaches the customer is clearly the result of a chain of successive, inter-linked phases: spinning, weaving, apparel and distribution. In this new competitive environment, quality, but must be a feature of all market segments, basic and

fashion to meet the specific requirements and tastes of all types of customers. Furthermore, quality cannot be restricted to the area of the intrinsic quality of the goods themselves, but must also take even more operational aspects into account (Romano & Vinelli,2004). Quality indicators are often the simplest to implement and measure. Typically, they tell you how well you are performing a specific activity. The common indicators are order accuracy, inventory accuracy, picking accuracy, shipping accuracy, on time arrival, shipping accuracy etc.

Quality management is the system which leads to long term benefits by continuous improvements in processes through using different quality techniques. Due to globalization companies adopted those suppliers and partners who provide them good quality of raw material for final product. When the practices of SCM and quality management are integrated and communicated then it leads to continuous improvement and gain competitive advantage. Quality management activities like quality policy, objectives, responsibility and quality planning are important for efficient processes. Quality control, quality assurance and quality improvements leads to effective supply chain and increases the value of products and systems *(*Abbasi, M.N. and M. Afzal,2011*)*

2.1.8.2 Cost

In manufacturing production cost mainly includes labor cost, material cost, overhead cost. Overhead costs include all the costs except material and labor costs(Gachora *et al.*, 2014) who made a remark that cost factor is a key determinant of the performance of a firm,in this regard, to excel, the manufacturing firms today are realigning their activities in way that maximizes revenue and minimizes cost. Different business firms are moving towards (1) lowering operating costs, (2) decreasing procurement costs, (3) reducing marketing costs, and (4) lower distribution costs

Cost indicators help managers identify the supply chain cost drivers and help move toward a more efficiently managed supply chain. Some of the indicators are total supply cost, inventory holding cost, total transportation cost, warehousing cost, total manufacturing cost.

2.1.8.3 Productivity

Productivity is defined as the effective and efficient utilization of all organizational resources, including capital, labor, materials, machineries, energy, land, information and time. Productivity is an output generated and input provided ratio of a production system. Thus main indicator of improving productivity is decreasing the ratio of output to input at constant or improved quality (Rahel,2010).

Productivity implies a company's production ability. There are many different examples of productivity measurements used in industries and organizations including single dimensional

and multidimensional measures. These measurements are both used for monitoring and development of the daily operation as well as for long-term strategic considerations of the business. Productivity indicators examine how well resources are used. For example, filling vehicles to their capacity, instead of sending out vehicles half-full, could reduce costs and improve efficiency (USAID,2010) some of the indicators are working capital productivity, labor productivity, capital productivity, inventory turnover rate and storage space utilization

2.1.8.4 Time

In competitive industries, short lead time will differentiate a company from its competitors, leading to increase sales. Lead-time begins with the first receipt of a customer order and ends with customer receipt of the product or service. Total lead-time includes four main components; order lead times (i.e., the time it takes to process an order), supply lead times (i.e., the time it takes to purchase item), manufacturing lead time (i.e. this refers to the time span from material availability at the first processing operation to completion at the last operation) and delivery lead time (i.e. this refers to the time taken to final receipt to the customer (Rahel,2010).Time indicators focus on the time in takes to complete specific activities. They show where saving time during specific activities can improve the overall supply chain performance, besides the mentioned once customs clearance cycle is also included.

Time delivery is another factor influences on supply chain efficiency. Contacting ability of the retailers to respond is important, if they respond quickly then material will reach on time for activities and demand will be fulfilled easily. The functions of auto identification to recover four basic logistics activities: distribution, transportation, getting and in-capability operations. Assign the unique number to every item, store the product information and work electronically. That has ultimate affected on time delivery it reduces the cost and lead time. Beginning of such systems represents a main prospect to repair and develop tracing, Tracking operations, procedure control and management of inventory. New technologies are useful to do the work efficiently in supply chain and refused the cost and wastes (Mc Farlane, D. and Y.Sheffi,2000).

2.1.9Competitive Advantage

Competitive advantage is the extent to which an organization able to create a defensible position over its competitors(Mc Ginnis and Vallopra RM,1999).It comprises capabilities that allow an organization to differentiate itself from its competitors and is an outcome of critical management decisions (Tracey M *et al*,,1999).The empirical literature has been quite consistent in identifying price/cost, quality, delivery, and flexibility as important competitive capabilities (Tracey M *et al*,,1999).In addition, recent studies have included time-based competition as an important competitive priority. SCM practices impact not only overall organizational performance, but also competitive advantage of an organization. They are expected to improve an organization's competitive advantage through price/cost, quality, delivery dependability, time to market, and product innovation.

2.2 Emperical Review

According to Chopra and Meindl (2004), supply chain performance is optimized only when an "inter-organizational, inter-functional" strategic approach is adopted by all chain partners. Such an approach maximizes the supply chain surplus available for sharing by all supply chain members. Meredith and Shafer (2002) argue that "if each segment of the supply chain is acting in a way to optimize its own value, there will be discontinuities at the interfaces and unnecessary costs will result. If an integrated view is taken instead, there may be opportunities in the supply chain where additional expense or time in one segment can save tremendous expense or time in another segment." Organizational strategies that support supply chain strategies should strengthen the competitive position of the supply chain which, in turn, enhances performance of each of the individual supply chain partners. While the link from supply chain performance is theoretically justified, no empirical evidence related to the link was identified.

Companies and managers have started to realise the potential benefits with supply chain management, and also that competition now increasingly exists between different supply chains rather than between two companies. In spite of companies' and managers' recognition of supply chain management they often lack the ability to develop effective performance measures and metrics (Gunasekaran *et al*.,2001). This is supported by Bourne *et al.* (2003) who state that approximately 70 percent of the attempts to implement performance measurement systems (PMS) fail. Measuring supply chain performance might lead to a greater understanding of the supply chain and helps to test and reveal the viability of a firm's strategies. In addition, Ramaa *et al.* (2009) state that measuring supply chain performance provides important feedback information, helps to reveal progress, increase employers' motivation and communication, and helps to diagnose problems. The measures that help a company measure their progress on performance objectives in everyday work are often referred to as key performance indicators (KPIs)

Cai *et al.* (2009) propose a framework using a systematic approach to improve the iterative key performance indicators (KPIs) accomplishment in a supply chain context. The proposed framework quantitatively analyzes the interdependent relationships among a set of KPIs. This framework can provide an effective approach to managing supply chain performance in a dynamic environment.

Rodriguez *et al.* (2009) propose the quantitative relationships performance measurement system (QRPMS) that clearly establishes traceability between a group of strategic objectives

and associated key performance indicators (KPIs). This study presents a unique proposal able to objectively identify and quantify relationships between KPIs defined within a performance measurement system base on the balanced scorecard (BSC), that offering additional information to managers to make cross- enterprise decisions. Then, the research projects KPIs upstream in the performance measurement system, establishing meaningful cause and effect relationships at the objectives levels. The proposed model is applied to a baby clothing manufacturer in Spain.

Quality in manufacturing can be termed as production of superior goods. In order to produce value and optimize profitability, it is fundamental to establish successful partnerships with the supply chain organizations that can be achieved by new models of cooperation, improved communication and integration among all the supply chain partners(Bozarth,2009).

Many studies have been undertaken to investigate how the quality management can be used to improve the performance of the entire supply chain and inclusive solve some problems within the supply network (Lin and Gibson *et al*.,2005).Improving the quality of all supply chain processes leads to cost reductions, improved resource utilization, and improved process efficiency, quality level has a significant influence on the performance of the supply chain(Lin and Gibson *et al*.,2005). The study by Lin *et.al* (2005), concluded that key QM practices could be integrated in the supplier participation programs to provide needed collaboration, which in turn would result in improved organizational performance and also that organizational performance can be optimized when the organization considers its suppliers as important trading partners and members of the value chain(Lin and Gibson, 2011).

In certain developing countries, such as India, performance improvement efforts are being concentrated on improving productivity(Bheda,2002)and (Bheda,2003). However, instead of simply improving productivity, companies should understand the basis of performance measurement in their supply chain and improve their operations to meet the terms of performance of their suppliers and customers.

The literature review by Gachora *et al.*(2014) who made a remark that cost factor is a key determinant of the performance of a firm. In this regard, to excel, the manufacturing firms today are realigning their activities in way that maximizes revenue and minimizes cost. Different business firms are moving towards (1) lowering operating costs, (2) decreasing procurement costs, (3) reducing marketing costs, and (4) lower distribution costs(Gachora *et al.*,2014). According to Shukla *et al.* (2011) supply chain involves the cost to convey the information, produce components, store them, transport them, and transfer funds. According

to Gachora *et al.* (2014) costs along the supply chain emanate from poor coordination among the supply chain members what results in dysfunctional operational performance. Further inventory costs, warehousing costs, transportation costs and distribution costs are the most common types of costs along the supply chain (Pasula *et al.*,2013). Ideally, improvement of the supply chain translates to benefits for all supply chain members. Costs decrease as a result of reduced redundancies, lower inventory levels, shorter lead time and lessened demand uncertainties. Improved supply chain performance result in enhanced product quality, customer service, market responsiveness, and target market access. Supply chain performance is thus improved through better use of internal and external capabilities creating a seamlessly coordinated supply chain, elevating inter-company competition to inter-supply chain competition (Salonen,2012).

The time-based measuring approach seems to be one of the most wide-known SCM capability measures among researchers. Time is also identified as the next source of competitive advantage(Balsmeier & Voisin, 1996), (Kessler & Chakrabarti,1996),(Mehrjerdi,2009),(Stalk, 1988),(Vesey,1992).Therefore it seems that even though time has been quite a common measure in SC performance it is still an accurate and useful measure. Lead-time, order cycle time, time-to-market and other time measures are actually relevant for every management level. Operational, tactical and strategic management are of interest for time measurement of SC performance.

De Toni and Tonchia (2001) present several indicators of internal and external time performance. According to their research, time performance indicators in order of superiority are the following: time-to-market, distribution lead-times, delivery reliability, supplying lead-times, supplier delivery reliability.

manufacturing lead-times, standard run times, actual run times, wait times, set-up times, move times, inventory turnover, order carrying-out times and flexibility. Time performances are divided into external and internal times. Internal times can be split into run and set-up times on one hand and wait and move times on the other. Externally-perceived time performances can be divided in three parts: system times (including supplying, manufacturing and distribution leas times),delivery speed and delivery reliability (both from suppliers and to customers) and time-to-market (or time required to develop a new product). These time measures presented are called time performance. Toni and Tonchia (2001) furthermore, state that performance can be present in four indicators: 1. cost/productivity, 2. time, 3. flexibility, 4. quality. First measure is cost-based and other three are non-cost performance measures. Cost-based performance include the following measures: affordability of the production cost,

the productivity and the control of the working capital. Time is a performance measure which covers internal times and external times. Internal time stands for the time controlled by a firm but that is not perceived by a customer. External time is understood as the time that the customer perceives, such as delivery time and frequency of introducing new products. Performance measures in the quality approach are produced quality, perceived quality(customer satisfaction), in-bound quality (supplier's quality) and quality in terms of costs (cost of maintaining a high standard of quality). The most measured performance metrics are direct costs, labour productivity, the inventory and the net process times. Time-to-market, non-value-added times, delivery, quality produced and customer satisfaction are not measured. Delivery of the garments from textile factory depends on effectiveness of supply chain management because it reduces the cost and lead time to provide the quality products to the end customers. SCM is an emerging trend in Pakistani textile firms(Ghani A,2006).

According to Salonen (2010) excellent supply chain performance can yield 25-50% reduction in total supply chain costs; 25-60% reduction in inventory holding; 25-80% increase in forecast accuracy and 30-50% improvement in order-fulfillment cycle time. Bourne *et. al*, (2005) further stated that the costs associated with production material; raw materials, Work In Progress (WIP), and finished goods account for 50% to 60 % of the company's total production cost.

2.2.1 Identified Literature Gap

Research studies both local and international have been conducted and majorly in the manufacturing sector. Studies by Monk (2006), Vorster (2007), Henry *et. al* (2012), Ambrose *et.al* (2010) have observed varied effects resulting from implementation of various integrated manufacturing systems on supply chain performance in the manufacturing sector. Some of the key findings include, and not limited to, customer satisfaction, supply chain relationships, improved customer service, cost reduction, improved collaboration, improved communication, organizational policies and buyer-supplier integration. However, the supply chain performance in the manufacturing sector has not been well covered. Today, the manufacturing supply chain is more complex as a result of increased number of suppliers, sellers, buyers and even middlemen within the supply chain structure. The complexity of the manufacturing supply chain has been observed to call for highly integrated systems or models to coordinate the flow of goods, services, information and finances within the sector, to enhance supply chain performance.

Fasika *et al*,(2013) the manufacturing industry in developing countries performs supply chain functions in the upstream supply chain as the source of raw material, which has low barriers to entry, such as textile & garment, leather and leather products industries, food industries and other's basic commodities. However, recent advancements in manufacturing Technologies and dynamic market competitiveness strategies, it is supply chains (SC) rather than companies that compete. This new trend of competitiveness will be and has already affected developing countries at large. For the intended purpose of integration and collaboration, companies in the developing countries need to upgrade their manufacturing performance with the help of new manufacturing technologies such as supply chain and performance measurement systems. The manufacturing industry in the developing companies is less likely to have formal performance measurement system, and they are concerned, basically, with survival. The industries are fewer sophisticated companies, with little automation and few design/development capabilities.

According to Fasika *et al,(*2013) it appears that Ethiopian manufacturers are not only aware of, but some industries have started to implement the modern performance measurement system. Furthermore, the financial measures are being used more frequently than the non financial measures. There is an increasing awareness about the need to integrate and collaborate with world-class players and enhance performance through the use of supply chain concepts and performance measurement systems. Ethiopian manufacturing industries are increasingly attempting to improve the coordination and integration with their suppliers both within and outside the national boundaries, especially those who have already engaged in export activities with foreign companies. However, most measurement activities are influenced by improving the tangible factors which are easy to measure such as cost and productivity. Similarly, there is reluctance to adopt and adapt already tested and proved models for performance measures and improvement purpose. There is also a less an awareness and tendency to believe that key performance measures such as quality, delivery and lead time can be improved by selecting the suppliers and customers who possess significant technical experience and expertise. The existing performance measures should be tailored to include time, quality and other supply chain performance measures. Although implementation of the performance measurement system has been highly recommended in literature for better integration and benefits from supply chain concepts, the majorities of organizations are not using this performance measurement innovative and is still lying on the traditional financial measures. The results show clearly that there is a need to better understand how an organization in the developing countries can adapt and implement

performance measurement systems and how they can manage their supply chain to improve their competitiveness with better integration with their counterpart companies in developed countries

2.3 Conceptual Framework of The Study

Figure 2.1

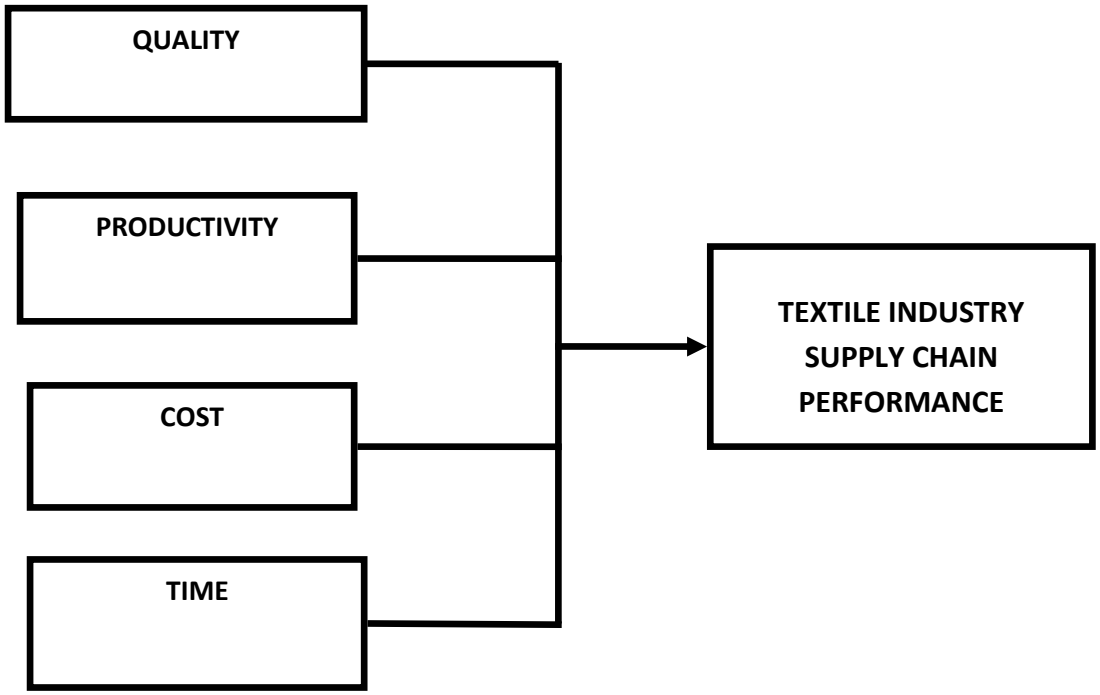

Figure 2.1 Conceptual frameworks (Own Model) This conceptual framework of the thesis adopted from Edward Frazelle(2001) cited in measuring supply chain performance guide line to key performance indicators(USAID report,2010) and (Nabila Noor *et al,2013)*.

3. CHAPTER THREE: METHODOLOGY OF THE STUDY

Introduction

This part describes the methodologies that are employed in this study, a detailed account has been given to the description of the study area, research approach and design employed; the data sources and methods of collection; the target population, unit of analysis and respondents; the types of instruments and their development procedure; the dimensions and corresponding measurement items; and data processing, analysis and presentation procedures.

3.1 Description of the Study Area.

The study focused on the supply chain performance of textile sub sector in Ethiopia, particularly on four integrated textile mills located in Amhara regions,SouthNations, Nationalities People,Oromia region and Addis Ababa regions.These companies are engaged in the production of different textile products such as Yarn and Gray Fabrics, Knitted Fabrics, Woven Fabrics and Garments.

3.2 Research Approach and Design

This particular study adopted a cross-sectional census survey. Both qualitative and quantitative approaches were used to assess the supply chain performance of textile industries. This research decided to employ a combination of qualitative and quantitative approaches of doing research, which has been practiced, as recommended by (Creswell, 2003). The researcher used a descriptive and explanatory research study to provide conclusion and recommendation.

3.3 Target Population

All items in the field of inquiry will constitute a universe or population.A complete enumeration of all items in the population is known as a census inquiry. It can be presumed that in such an inquiry, when all items are covered, no elements of chance are left and highest accuracy is obtained. (C.R.Kothari, 2004). All personnel and others department which has direct relation and knowledge with supply chain activity are taken to constitute the study population. Due to the very small number of the target population, which was 68 in number, it has been decided to consider the entire population in the study, i.e. to conduct census survey, rather than sampling from the population.

Currently there are 17(Seventeen) textile mills engaged in the manufacturing of textile product. The questionnaires were distributed and collected from four textile mills.

3.4 Types and Sources of data

The data was gathered from selected textile companies and secondary sources. Both primary and secondary sources of data/information are used for the purpose of conducting this particular research.

3.4.1 Primary Data Sources

The primary data was gathered through a well-developed questionnaire from the entire targeted population of the integrated textile mills and Ethiopian Textile Industry Development Institute. Questionnaires were developed after conducting an extensive review of literature on supply chain performance of the textile sector.The layout of the questionnaire is kept very simple to encourage meaningful participation by the respondents. The questions is kept as concise as possible with care taken to the actual wording and phrasing of the questions. The questionnaire is designed in a way that enabled to capture the demographic information of respondents, on the one hand, and their evaluation of supply chain performance, on the other hand

3.4.2 Secondary sources of data.

Relevant secondary data were collected from annual reports, books; manuals, journals internet and seminar report of Textile Industry Development Institute, as well as any other concerned bodies are used to extract any sort of essential information to strengthen the study findings.

3.5 Data collection Procedure

In order to guarantee the validity and reliability of the research with qualified data different data collection methods and techniques were employed. As far as the procedure of data collection is concerned, contacts had been initially made to respondents to explain the purpose and nature of the study so as to achieve the desired response rate. Subsequently, the questionnaire was distributed to and collected physically from the potential respondents at their site by the researcher.

3.5.1 Survey Instrument

As it has been mentioned on the preceding part, questionnaire is employed as the instrument of data collection. Multi-item scales that were meant to capture factors/dimensions of the theoretical constructs, namely Quality, cost, productivity and time are developed on the basis of an extensive review of the extant literature. The items were measured on five point Likert scale that range from strongly disagree to strongly agree and also some additional qualitative questions related to the study objective and questions. Respondents were requested to allocate/select scores for each of the items on the instrument by taking their knowledge and actual situation in mind.

Basically, the instruments was developed based on the objectives of the study and research questions. The principles of questionnaires such as, use simple and clear languages, statements should not be too long and use of appropriate punctuations also considered when developing the instrument.

Reliability analysis

Reliability of an instrument is the ability to produce consistent and stable results. One of the most common reliability coefficient is the Cronbach‟s alpha which estimates internal consistency by determining how all items on a test relate to all other items and to the total test -internal coherence of data. The reliability is expressed as a coefficient between 0 and 1. The higher the coefficient, the more reliable is the test. According to Malhotra (2004), a standard Minimum value of alpha of 0.7 is recommended. The resulting Cronbach's alpha values of the dimensions are presented in the subsequent table.

Table 3.1 Cronbach's alpha

Dimension/Scale	No. of Items	Cronbach's Alpha
Quality Indicators	11	0.853
Cost/Financial Indicators	7	0.801
Productivity Indicators	8	0.854
Time Indicators	6	0.797
Performance	4	0.882

Source: Survey Result, 2017

Instrument Validity

Validity is the degree to which a test measures what it purports to measure (Creswell, 2009). Validity defined as the accuracy and meaningfulness of the inferences which are based on the research results. It is the degree to which results obtained from the analysis of the data actually represents the phenomena under study.

To ensure internal validity, the research builds on explanations drawn from supply chain management theory and existent literature.

A pilot study were conducted to refine the methodology and test instrument such as a questionnaire before administering the final phase. Questionnaires was tested on potential respondents to make the data collecting instruments objective, relevant, suitable to the problem and reliable. Issues raises by respondents was gathered and questionnaires was refined accordingly. Besides, proper detection by an advisor and subject matter expert was also taken to ensure the content validity of the instruments. Finally, the improved version of the questionnaires was printed, duplicated and dispatched.

3.6 Methods of data analysis and presentation

The data which was collected from primary sources was validated, edited, coded and entered in to computer soft ware program Statistical Package for the Social Science (SPSS) Version 20 and checked for consistency and completeness and analysed.

The results findings were presented in tables. Frequency tables and percentages were used to summarize the demographic information of respondents; whereas, descriptive statistics such as Mean, Standard deviation, Correlation and Multiple regression of the respondents' scores on all the dimensions were assessed in order to determine the extent of supply chain performance of textile mills. Finally, detail interpretation and discussion of the results of the statistical analysis was provided.

3.7 Ethical Consideration

All the research participants included in this study were appropriately informed about the purpose of the research and their willingness and consent was secured before the commencement of administering the questionnaire and asking questions. Regarding the right to privacy of the respondents, the study maintained the confidentiality of the identity of each participant. In all cases, names were kept confidential thus collective names like 'respondents' was used. Respondents have been assured that no meaningful damage inflicted on them due to

their participation in this particular study by boldly explaining to them the apparent purpose of the study (which is actually for academic purpose) and ensuring the confidentiality of their identity and whole part of the information they provided for the purpose of undertaking this study.

4. CHAPTER FOUR: RESULT, DISCUSSION AND INTERPRETATIONS

Introduction

This chapter deals with result, discussion and interpretation of the data collected through questionnaire. The primary focus of this study is to assess the supply chain performance of textile industries in Ethiopia. Therefore emphasis was put on first by demographic information of respondents followed by presentation of descriptive statistics to answer the research questions. Thus, based on the responses obtained from the respondents data analysis were made as follows.

4.1 Respondents' Demographic Information

As inferred in the preceding part of this study, the entire population of the companies that have relation to the area were considered in the study. Including all the stakeholder of the phenomena, hence making the total number of respondents 68. However, only 60 respondents have filled and returned the questionnaire, which essentially made the response rate about 88%. The demographic information of the respondents who have filled and returned the questionnaire is presented onTable 4.1

As depicted on the below table, males dominate the respondents' list registering about 61.7 % of the total respondent with females taking the remaining 38.3 % of the respondents. As far as respondents' age is concerned, the majority of the respondents (51,7 %) were aged between 26 to 35 years followed by the age categories of 36 to 45 years, 18 to 25 years and above 45 years respectively with percentage scores of 23.3 %, 16.7% and 8.3 % in that order.

With regard to educational qualification, significantly higher percentage of the respondents(68.3%) were first degree holders, whereas those having diploma and post graduate degree stand second and third in the ladder of educational qualification accounting for 25 % and 6.7% of the total number of respondents. The current position of the respondents shows 53.3% are on supervisor level followed by Middle Managers with 31.7% and those at managerial position are 15%.On the other hand, being an important element of the profile of the respondents, years of service under the relevant job positions was also assessed and it has been revealed that those who have served 5 to 10 years dominate the list by taking 48.3% of the entire respondents. Those who have served below five years on the positions of concern

came second on the ladder followed by the category of respondents who have served 11 to 15 years and above 15 years respectively with the corresponding percentage scores of about 20 % ,18.3% and 13.3% respectively. Considering the fact that respondents' relative work experience in the job positions of concern has a direct bearing on the quality of response that might be provided, it seems very desirable to have the lines share of respondents (80 %) having served more than five years on their positions.

Table 4.1 Respondents demographic information

Variable	**Choice**	**Frequency**	**Percent**
Gender	Male	37	61.7
	Female	23	38.3
	Total	60	100
Age	18-25 years	10	16.7
	26-35 years	31	51.7
	36-45 years	14	23.3
	Above 45 years	5	8.3
	Total	60	100
Educational Qualification	College Diploma	15	25
	First Degree(BSc,MA)	41	68.3
	Second Degree(MSc,MA)	4	6.7
	Total	60	100
Current position	Manager	9	15
	Middle Manager	19	31.7
	Supervisor	32	53.3
	Total	60	100
Work Experience	Below 5 years	12	20
	5-10 years	29	48.3
	11-15 years	11	18.3
	Above 15 years	8	13.3
	Total	60	100

***Source**: Survey Result, 2017*

4.2 Descriptive Statistical Analysis

As it were revealed in the methodology part, the designed method is descriptive statistical analysis to analyze the components of the conceptual framework developed for this study.

Descriptive statistics was assessed in an effort to examine the mean scores and the corresponding standard deviations under the respective scales of each of the measurement items of the dimensions. Hence, this particular attempt has the importance of answering some of the research questions on the basis of the perceptions of the respondents on the level of supply chain performance of their company and also to answer on which key performance indicator the companies perform better. . In addition to the quantitative analysis, the qualitative information obtained from the respondent is used to analyze the following issues.

For the analysis of all these variables, mean and standard deviation is used. Particularly mean value of the respondents has considered as an important indicator to the extent of the company's practices on each items. To conclude, the overall performance of the case company's practices on each variable, group mean was calculated and used.

How do quality, productivity, time and cost affects performance of textile companies in Ethiopa?

Table 4.2 Quality indicator measurement items mean and standard deviation

Measurement Items (Quality Indicators)	Mean	Standard Devation
Your company measures order compliance, in the purchase order that meet the set criteria	3.30	0.889
Your company measures the accuracy of shipments in terms of the products and quantities shipped	3.72	0.846
Your company rate the average percentage of the defects and scrap in the production process	3.80	0.684
In your warehouse, items are placed in the correct location	3.93	0.710
In your company warehouse items are picked accurately	3.87	0.747
The rate of accidents are minimal or not occurred in your company warehouse	3.17	0.847
There are guidelines that provide instructions to prevent theft or leakage at a given storage location	3.53	0.769
Your company rates the percentage of shipments arriving on time for a set delivery date	3.07	0.710
Your company measures average number of accidents per route over a period of time	2.72	0.846
. The company measures stockout rates that experienced a stockout of a specific product .	3.47	0.791
. The company measures order fill rates to determine how effective a distributing facility is in satisfying customer orders	3.45	0.723

***Source**: Survey Result, 2017*

4.2.1.1 Respondents' Perception on Quality Indicator

The group mean of quality indicator is **3.46** which is moderate performance with respect to the overall measures taken into consideration. The mean values of each of the measurement items of quality indicator were calculated between 2.72 and 3.93 with almost comparable standard deviations that range between 0.68 and 0.89. The lowest mean value is registered in the case of average rate of accidents per route with mean value of 2.72 and percentage of shipments arriving on time for a set delivery date with mean value 3.07 in the second place followed by the mean score for warehouse accident rate, order compliance in purchase order,order fill rates,stockout rates,guide lines to prevent theft,accuracy of shipments,average percentage of defects and warehouse items picking accuracy rate which are comparably with mean values of 3.17,3.30,3.45,3.47,3.53,3.72,3.80, and 3.87 respectively; while placement of warehouse items in the correct location, comes last in the ascending order with mean value of 3.93.

The represented mean scores of the measurement items of quality indicator suggest that respondents in the companies believe that lower efforts have been made by their respective companies to enhance supply chain performance in the case of measuring average number of accidents per route over a period of time. Quality sub indicators, such as order compliance in the purchase order, rate of accidents that are minimal or not occurred, guidelines that provide instructions to prevent theft, percentage of shipments arriving on time, stockout rates that experienced a stockout of a specific product and order fill rates scores are moderate suggesting that these factors moderately affects supply chain performance of the companies. The finding implies that companies should focus more on the effectiviness of these factors to enhance SC performance. The remaining quality indicators observed which are the accuracy of shipments in terms of the products and quantities shipped, rate of the average percentage of the defects and scrap in the production process,placing of warehouse items in the correct location and picking accuracy shows relatively good efforts have been exerted.This findings are consistent with the literature that states.Improving the quality of all supply chain processes leads to cost reductions, improved resource utilization, and improved process efficiency, quality level has a significant influence on the performance of the supply chain(Lin and Gibson *et al*.,2005).This interprates the fact that the attempts made by the enterprise are in a better move pertaining to these factors to improve SC performance.

Table 4.3 Cost\Financial Indicator measurement items mean and standard deviation

Measurement Items(Cost/Financial Indicators)	Mean	Standard Devation
Total supply cost is measured per purchase order executed, during a defined period of time	3.52	0.770
.Your company rate measures to reduce operating cost	3.53	0.791
Your company is successful in minimizing total carrying/holding cost?	3.25	0.876
Your company is successful in minimizing total product damage in the warehouse	3.38	0.761
Your company measures the all transportation costs	4.00	0.552
Your company rates the ratio of all transportation costs to the value of the products	3.30	0.850
The company measures average response cost, the costs associated with fulfilling resupply orders	2.97	0.688

***Source**: Survey Result, 2017*

4.2.1.2 Respondents' Perception on Cost\Financial Indicator

The group mean of cost indicator is **3.42** which is moderate performance with respect to the overall measures taken into consideration. The mean values of each of the measurement items of Cost indicator were calculated between 2.97 and 4.00 with almost comparable standard deviations that range between 0.55 and 0.88. The lowest mean value is registered in the case of average response cost with mean value of 2.97 and company success in minimizing total carrying/holding cost with mean value of 3.25 in the second place followed by the mean score for the ratio of all transportation costs to the value of the products, company success in minimizing total product damage in the warehouse, Total supply cost and measures to reduce operating cost which are comparably with mean values of 3.30,3.38,3.52 and 3.53 respectively; while measurement of all transportation costs, comes last in the ascending order with mean value of 4.00.

The represented mean scores of the measurement items of Cost/Financial indicator suggest that respondents in the companies believe that the mentioned factors moderately affect supply chain performance made by their respective companies to enhance supply chain performance,however,due attention must be given to sub indicator average response cost, the costs associated with fulfilling resupply orders in line with this the cost indicator that companies measures all transportation costs is with mean value of 4.00. This reveals the fact that it highly affects supply chain performance. The literature review by Gachora *et al.*(2014) who made a remark that cost factor is a key determinant of the performance of a firm. In this

regard, to excel, the manufacturing firms today are realigning their activities in way that maximizes revenue and minimizes cost.

Table 4.4 Productivity Indicator measurement items mean and standard deviation

Measurement Items(Productivity Indicators)	Mean	Standard Devation
Your company measures the ability of the supplier to fill purchase orders correctly	3.23	0.810
Your company rate the productivity of the workforces	3.55	0.891
Your company measure its labor utilization rate	3.67	0.837
Your company measure its machine utilization rate	3.60	0.867
Your company rate measures to improve operating efficiency	3.37	0.780
Warehouse personnel utilizes warehouse spaces properly i.e. the total storage space actually being used out of the total storage space available	3.83	0.806
Your company rate daily laborer i.e. the number of units(e.g., boxes, pallets) or weight moved during a defined period of time, per person-hour	2.92	0.787
Your company monitor container capacity utilization for a given route to ensure the efficient use of vehicles and resources	3.67	0.629

***Source**: Survey Result, 2017*

4.2.1.4 Respondents' Perception on Productivity Indicator

Table 4.4 above indicates the extent how productivity affect the supply chain performance of the companies. Accordingly, the group means of productivity indicators is **3.48** which is above moderate performance with respect to the overall measures taken into consideration. The mean values of each of the measurement items of productivity indicators were calculated between 2.92 and 3.83 with almost comparable standard deviations that range between 0.63and 0.89. The lowest mean value is registered in the case of rating daily laborer with mean value of 2.92 and measuring the ability of the supplier to fill purchase orders correctly with mean value of 3.23 in the second place followed by the mean score for measures to improve operating efficiency, productivity of the workforces, machine utilization rate, labor utilization rate and container capacity utilization for a given route which are comparably with mean values of 3.37,3.55,3.60,3.67,3.67 respectively; while proper utilization of warehouse spaces comes last in the ascending order with mean value of 3.83.

The represented mean scores of the measurement items of Productivity indicator suggest that respondents in the companies believe that lower efforts have been made by their respective companies to enhance supply chain performance in the case of rating daily laborer Productivity sub indicators, such as measuring the ability of the supplier to fill purchase orders correctly, measures to improve operating efficiency are moderate suggesting that these factors moderately affects supply chain performance of the companies. The finding implies that companies should focus more on the effectiviness of these factors to enhance SC performance. The remaining Productivity indicators observed which are measuring productivity of the workforces, machine utilization rate, labor utilization rate and container capacity utilization for a given route and finally proper utilization of warehouse spaces shows relatively good efforts have been exerted since their result shows above moderate. Overall the findings reveal that most of the productivity sub indicators are better performed by the companies and productivity indicator is well perceived. This result related to a literature stating In certain developing countries, such as India, performance improvement efforts are being concentrated on improving productivity(Bheda,2002)and (Bheda,2003). However, instead of simply improving productivity, companies should understand the basis of performance measurement in their supply chain and improve their operations to meet the terms of performance of their suppliers and customers.

This interprates the fact that the companies focus on their in plant activities well so they should also extend their efforts across the chain.

Table 4.5 Time Indicator measurement items mean and standard deviation

Measurement Items(Time Indicators)	Mean	Standard Devation
Your company rates all orders delivered by the requested delivery date,i.e there is a proper monitoring of supplier response time on shipments over a specified period of time	3.32	0.833
your company rate measures to reduce manufacturing lead time	3.60	0.807
Warehouse personnel serve your customer on the reasonable time	3.57	0.831
The average transit time (hours or days) from when a shipment leaves a facility until it arrives at its destination is measured during a defined period of time	3.30	0.671
The company measures order entry time	3.72	0.691
The company measures order turn around time i.e the time between when the request was received by the distribution source and the time the order was actually shipped	3.18	0.911

***Source**: Survey Result, 2017*

4.2.1.5 Respondents' Perception on Time Indicator

Table 4.5 above indicates the extent how Time affect the supply chain performance of the companies. Accordingly, the group means of response time indicators is **3.45** which is above moderate performance with respect to the overall measures taken into consideration. The mean values of each of the measurement items of time indicators were calculated between 3.18 and 3.72 The lowest mean value is registered in the case of measures in order turn around time with mean value of 3.18 and The average transit time (hours or days) from when a shipment leaves a facility until it arrives at its destination in the second place followed by the mean score for rates to all orders delivered by the requested delivery date,, customer service of warehouse personel on reasonable time and measures to reduce manufacturing lead time which are comparably with mean values of 3.30,3.32,3.57 and 3.60 respectively; while measures of order entry time comes last in the ascending order with mean value of 3.72.The result depicts that time factors moderately affects supply chain performance according to respondents perception and rating of order entry time more affects supply chain performance.

4.2.2.1 Correlation between variables

According to Sekaran (2003), in research project that included several variables, beyond knowing the means and standard deviation of the dependent and independent variable, the researcher would often to know how one variable related to another. Correlation analysis indicate the nature, direction and significant of the bivariate relationship of the variables used in the study.

4.2.2.2 Interpreting the r-value for Correlations

Hinkle, et.al (1998) Cite from Herman proposed the rules of thumb that need to be used in interpreting the r-value obtained from correlation analysis in Table 4.6 as below

Table-4.6: Interpreting the r-value for Correlations

r-value	Relationship
Above0.70	Very Strong Relationship
0.50-0.69	Strong Relationship
0.30–0.49	Moderate Relationship
0.10–0.29	Low Relationship
0.01 – 0.09	Very Low Relationship

The results of the correlation between the variables are shown in Table 4.7

Theoretically, correlation is a measure of the relation between two or more variables. Correlation coefficients can range from -1.00 to +1.00. The value of -1.00 represents a perfect negative correlation while a value of +1.00 represents a perfect positive correlation. A positive correlation between two variables means that if the one increases, the other one increases. On the other hand, a negative correlation means if one increases, the other one decreases. A value of 0.00 represents a lack of correlation.

Table 4.7: Correlation between variables

Correlations						
		Quality	Cost	Productivity	Time	Performance
Quality	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	60				
Cost	Pearson Correlation	.802**	1			
	Sig. (2-tailed)	.000				
	N	60	60			
Productivity	Pearson Correlation	.724**	.853**	1		
	Sig. (2-tailed)	.000	.000			
	N	60	60	60		
Time	Pearson Correlation	.747**	.700**	.757**	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	60	60	60	60	
Performance	Pearson Correlation	.837**	.776**	.714**	.786**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	60	60	60	60	60
**. Correlation is significant at the 0.01 level (2-tailed).						

***Source**: Survey Result, 2017*

Based on the correlation matrix, the highest correlation variables is between Productivity and Cost (r=.853).This was expected since Productivity increases the cost incurred also increases. The second highest correlation is between Cost and Quality (r=.802). The third highest correlation is between Time and Productivity (r=.757). The fourth highest correlation is between Time and Quality(r=.747). The fifth highest correlation is between Productivity and Quality(r=.724) and finally The sixth highest correlation is between Time and Cost (r=.700)

In summary, by looking at the bivariate correlation of the four independent variables, there is evidently significant multicollinearity and very strong relationships between

variables. In this research the correlation coefficients were in the range of 0.700 to 0.853 between four supply chain performance determinant elements. This reflects, The varaibles have strong and significant positive relationship to affect the supply chain performance of the textile industries.

The model summary of the multiple regression analysis in this thesis has an important contribution to analysis the relationship between independent and dependent variables. In this case the results of R square can explain the variance contribution on the dependent variable

In order to obtain the variance result the researcher multiply R square with 100, then the outcome obtained in percentage (Pallant, 2007). The results after multiplying the R square value with 100 (.774*100) was 77.4%. Basically this is an acceptable result as according to (Pallant, 2007). The function of the adjusted R square is to provide the revised figure to get the best outcome of population. The result of R square and adjusted R square is hanging on the Sig. value present in the ANOVA table (Pallant, 2007).

In this analysis section no major difference was found between R Square (77.4%) and the adjusted R square (75.7%) value and the Sig. (.000). The result explains that researcher‘s model touched statistical significance (Pallant, 2007).

Table 4.8 summary of multiple regression analysis

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	336.585	4	84.146	47.058	.000[b]
	Residual	98.349	55	1.788		
	Total	434.933	59			

a. Dependent Variable: Performance

b. Predictors: (Constant), Time, Cost, Quality, Productivity

***Source**: Survey Result, 2017*

The ANOVA table helps to show the adequacy of the model. The regression sum of squares indicates information about the variation accounted by the model, while the residual sum of squares indicate information about variance not accounted for the model. The significance value of the F statistic is less than 0.05 which is an indication of the variance explained by the model is statistically significan

Table 4.9: Final Model summary of multiple regression analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.880[a]	.774	.757	1.33722	.774	47.058	4	55	.000

a. Predictors: (Constant), Time, Cost, Quality, Productivity

***Source**: Survey Result, 2017*

The model summary table shows the strength of relationship between the model and the dependent variable. R is the multiple correlation coefficients which is the linear correlation between the observed and predicted values of the dependent variable. The larger its value is the stronger the relationship. This model had a very strong coefficient of determination R-square=0.774 which means about 77.4 % of the variation in supply chain performance is explained by the model.

What kind of strategies would be relevant to improve the performance of textile industries?

Strategic Supply Chain Management is an emerging discipline dealing with creating sustainable value and achieving competitive advantage from the supply chain. It explores how to make the supply chain front and center as a company's strategy is developed.

Supply chain strategy is considered critical for a firm's long-term competitive success. Thus, the ability to design and reformulate supply chain strategy is often regarded as the ultimate core competency of an organization. Strategy development involves defining an overriding principle of how the company will try to manage its supply chain. It is the process of evaluating the internal and external imperatives, analyzing the industry, products, and customers. This is equivalent to defining the ''what'' and ''why'' of the problem.

There is no one best way to formulate strategy and the debate on whether strategy should be internal, resource-based or fully externally market-driven may be seen as of intellectual interest only. In practice, many organizations will combine both internal and external considerations in the same way that they tend to innovate as a result of both 'push technology' from internal developments and 'pull demand' from market requirements (Cohen and Rousell,2005)..

In the textile industry, sourcing strategies must reflect the performance capabilities of the supply base. In most cases there are a variety of possible vendors that differ in cost, lead times and flexibility of production. Vendors with lowest cost generally offer virtually no flexibility booking capacity and shipment times of several weeks and often require that the total production be allocated relatively evenly throughout the year. More responsive vendors may have shorter lead times and allow greater flexibilty vis-a-vis production commitments. Additionally, different vendors may be willing to store limited amounts of finished product prior to delivery for a fee. (Agrawal, Smith & Tsay, 2002).

Most respondents did not attempt this question, however, there are managers and experts who gave their opinion regarding this issue, Based on the answers, it is possible to observe that the most common answer was that their company did not use properly defined strategy to enhance the supply chain performance of the sector but they mentioned the challenges that need strategic actions, The relative high cost of medium range quality cotton is causing high production cost which in turn is making it difficult for spinners to compete in the international market, shortage of availability of yarn, inadequate supply of inputs such as dyes and chemicals in the local market, absence of commercial finishing and dyeing facilities, technical expertise and skilled manpower challenges in production, especially in process technology, finishing and maintenance and high cost of transportation and infrastructural challenges.

After mentioning the afformentioned constraints the experts gave opinion that the sector's strategic orientation should follow a twofold approach. Firstly, Ethiopia can build on its current success and leverage its cost competitiveness to expand market diversification and penetration. Secondly, the sector can capture greater value by pursuing full value chain integration, first by bridging the skill gap to increase productivity, especially considering upcoming wage increases, and later by enhancing weak upstream capacities. In order to realize these goals, structural deficiencies identified as competitive constraints supply side, business environment, market entry and development issues should be addressed
and opportunities shouldl be leveraged.

5. CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This research was conducted in an attempt to reveal the status of supply chain performance of textile mill industries in Ethiopia. In the previous chapter, data were analyzed based on the descriptive analysis and basic question testing. Therefore, based on the analysis and interpretations the following summaries, conclusions and recommendation are made

5.1 SUMMARY OF FINDINGS.

The following summaries have been drawn on the bases of the findings of the data analysis effort.

A total of 60 respondents have filled and returned the survey questionnaire making the response rate about 88%. About 61,7 % of the respondents are males, while females constituting the remaining 38.3 % of the total respondents. Considering the fact that respondents' relative work experience in the job positions have a direct bearing on the quality of response that might be provided. It seems very desirable to have the lines share of respondents (80 %) having served more than five years on their positions who had relatively better information regarding the Supply chain practices of their respective company with a knowledge of supply chain performance.

The composite mean scores of the scales of the dimensions, namely quality, cost/financial, productivity and time indicators, revealed that the respondents perceive that Ethiopian textile companies exert relatively moderate efforts in cost/financial indicator and above moderate in productivity indicator of supply chain performance. whereas, their perceived evaluation of the respective organizations actions as expressed by the composite mean values, suggests that over all moderate efforts have been exerted by companies in enhancing their performance. The productivity dimension was at best rated as moderate and a little bit above in improving performance of companies supply chain performance.

looking at the bivariate correlation of the four independent variables, there is evidently significant multicollinearity and very strong relationships between variables. In this research the correlation coefficients were in the range of 0.700 to 0.853 between four supply chain performance determinant elements. This reflects, The varaibles have strong and significant positive relationship to affect the supply chain performance of the textile industries

The model summary of the multiple regression analysis in this thesis has an important contribution to analysis the relationship between independent and dependent variables. In this case the results of R square can explain the variance contribution on the dependent variable.
This study model had a very strong coefficient of determination R-square=0.774 which means about 77.4 % of the variation in supply chain performance is explained by the model.

5.2 Conclusions

Generally, the study findings have suggested that the levels of supply chain performance is moderate in the case of Ethiopian Textile Companies. The four key performance indicators as the perceived evaluation of the respondents moderately affect supply chain performance. It has also revealed that, all the independent variables (Quality, Cost, Productivity and Time) have positive correlation with the dependent variables (Supply chain performance), they have the potential to affect the organization performance and competitive advantage of the sector.
The Ethiopian textile sector, requires to focus on the existing supply chain performance based on the four key performance indicators. Make the necessary actions strategically in order to benefit from the performance improvements through the achievement of minimum total supply chain cost, improved quality, improved response and cycle time and improved efficiency or productivity.

5.3 Recommendations

On the basis of the findings and conclusions reached, the following recommendations were forwarded in order to improve the Supply Chain performance of the textile companies. It is noticeably explained on the result that key performance indicators quality, cost, productivity and time affects the sectors performance. The Ethiopian textile industries should give ranked emphasis to each of the sub indicator of their supply chain performance to identify which dimension contributed a lot in enhancing performance.
Ethiopian Textile companies shall give special emphasis in the improvement of Supply chain performance in line with its corporate and functional strategies and objectives in order to operate according to international best practices and consistently offering quality products at affordable prices to the community.
The study advocated that a lot of emphasis need to be directed to SC management and performance measurement based on key performance indicators and the industry should maintain the effort made on productivity in enhancing performance of their organizations which is still need to be improved and also the company managers should know the level of

efficiency in the industry and makes sufficient amount of effort in utilizing of key performance indicators to measure SC performance by placing efficiency(performance) level targets. The study advocated that a lot of emphasis need to be directed to quality and cost indicator in order to achieve significant cost savings from minimized total supply chain cost and improved quality.

The companies should assure quality aspects through each and every activities of the SC like marinating good quality procedure manual, placing products in their designated place, picking or loading accurately and reducing accidents.

The companies should exert a tangible effort in reducing total cost (carrying or holding cost) includes cost of product damage, cost of obsolescence, rental costs, insurance costs etc

The companies should assure the level of satisfaction of warehouse customers (Suppliers and internal customers) by reducing the total serving time.

The textile companies need to focus on their supply chain activities. In order to move forward, public and private stakeholders must work together and build on the successes that have been achieved thus far.

Improve productivity and employment outcomes through skills development: Although Ethiopia enjoys a large workforce, it requires extensive training in a wide range of areas and at different levels of specialization. This training, which will ensure that the industry's growth is supported by an adequate labour supply, which in turn improve plant efficiency.

skills need to be strengthened in the areas of input sourcing, quality assurance and compliance, focus needs to be given to the handloom subsector to ensure that they are fully integrated in overall sector growth. These issues are therefore of the utmost priority and will require immediate action on a variety of fronts including the Government, institutions and enterprises themselves. To effect these improvement moves the required operational strategic objectives are i)improve productivity and employment outcomes through skills development. ii)Increase the level of technical and supervisory skills at textile firms, iii)Improve sourcing and supply chain management performance. iv)Improve quality management skills in line with international standards and finally design and implement a nationwide compliance programme.

Strengthen the enabling environment to favour the textile sector development. Ethiopian companies must be able to certify their production to the relevant standards of their target markets. To support these changes, key regulations must be adjusted so as to streamline the sector's functioning. The enabling environment objectives that has to be performed with the collaboration of textile industries and stakeholders should increase the capacity of the

Customs service to regulate imports and exports of textile products, improve the efficiency and cost competitiveness of transportation and logistics. Greater use of domestic inputs, including raw materials(cotton, dyes and chemicals) and intermediary inputs(fabrics, accessories and packaging materials). value addition in the textile knitting segment as well as market and product diversification.

Finally eventhough these are the major issues where each one is needed be resolved in order to be efficient, responsive and competitive in the market; These issues will be resolved if the textile companies adopt the appropriate supply chain strategy according to their size, operational needs and customer focus. The supply chain strategy needs to be according to type of the offerings and the target customer group. Companies need to work on the zone of strategic fit between their product strategy and their supply chain strate

5.3.1 Limitations of research

This particular study is also subjected to some limitations like other research Works. The research have delimited to the internal process of Supply Chain Management, the study does not include supply chain macro processes such as supplier relationship management (SRM) and customer relationship management (CRM) as its approach to the study of the holistic supply chain performance assessment. The companies have no lists of registered suppliers and customers so that it is time consuming to found all the upstream and downstream stake holders. All variables of the supply chain performance factors are not included since they are difficult to manage in this context

The determinants i.e. quality, cost, productivity and time are not enough to describe a broader term like supply chain management. Future studies can take other factors affecting on supply chain performance of textile industries in Ethiopia which are not considered in this study.

REFERENCE

Abbasi, M.N. and M. Afzal(2011). Impact of E-Source Application on Key Business Strategies Evidence from Automotive Industry of Pakistan. Journal of Quality and Technology Management, 7(2), p 37 - 62.

Ambrose E, Marshall D, Lynch D.(2010). Buyer supplier perspectives on supply chain relationships. International Journal of Operations & Production Management v30:1269

Andy Neely, Mike Gregory and Ken Platts(2005). performance measurement system design original paper, , international journals of operation and production.Emerald group publishing limited. Vol 25, No 12

Balsmeier PW & Voisin WJ (1996) Supply chain management:A time-based strategy.Industrial Management 38(5): p 24–27.

Baron, Dominique (2010). The Impact of Telecommunications Services on Doing Business in Ethiopia. Addis Ababa: Addis Ababa Chamber of Commerce and Sectoral Associations/

Bheda, R. (2002)"Productivity in Indian apparel industry: Paradigms and paragons". Journal of Textile and Apparel, Technology and Management, 2(3), p 1-9.

Bheda, R. (2003) "Apparel manufacturing: A strategy for improvement". Journal of Fashion Marketing and Management, 7(1), p. 12-22.

Bishop J.(1990) In value-added manufacturing,customer calls the shots. Forest Industries: p29-31

Bourne,M.,Neely, A., Mills, J. & Platts, K. (2003), Implementing performance measurement systems: a literature review, International Journal of Business Performance Management, vol. 5, no. 1,

C,R. Kothari. (2004). Research methodology, methods and techniques. 2nd edition. New edge international publisher

Cai, J., Liu, X., Xiao, Z. and Liu, J. (2009). Improving supply chain performance management: A systematic approach to analyzing iterative KPI accomplishment.Decision Support Systems, 46, p.512-521.

Chae, B. (2009). Developing key performance indicators for supply chain: an industry perspective. Supply Chain Management: An International Journal, 14 (6), p.422-428.

Chopra, S. and Meindl, P. (2004). Supply Chain Management: Strategy, Planning, and Operation. 2rd ed. Upper Saddle River, NJ: Prentice Hall.

Chopra, S. and Meindl, P. (2007). Supply Chain Management: Strategy, Planning, and Operation. 3rd ed. Upper Saddle River, NJ: Pearson Education.

Cocca, P., Alberti, M. (2010)"A framework to assess performance measurement systems in SME

Creswell,W., (2003) Research design: Qualitative, Quantitative and mixed approaches. 2nd edition. 5age publication California.

De Toni A & Tonchia S (2001) Performance measurement systems Models, characteristics and measures. International Journal of Operations and Production Management 21(1–2): p46–70

Ethiopian Textile and Garment Manufacturers Association (2015). About ETGMA.available from www.etgama.com / about.php.(Access date dec 21,2016)

Ethiopian Textile Industry Development Institute (2014). Textile Industry Development in Ethiopia: an Overview of Facts and Opportunities.

Ethiopian Textile Industry Development Institute (2015). Textile and Clothing Value Chain Roadmap.

Gachora j.w,.Kibet,j& Museiga,d(2014) supply chain cost reduction impact on performance of small scale Agricultural enterprise.International journal of Education and Research,v2(4),p 377-390.

Ghani, A. (2006). Issues in Textile Supply Chain Management of Pakistan.

Gibson, B. J., Mentzer, J. T., & Cook, R. L. (2005). Supply chain management: the pursuit of a consensus definition. Journal of Business Logistics, 26 (2): p 17-25.

Goh, M. and Pinaikul, P. (1998). Logistics management practices and development in Thailand. Logistics Information Management, 11 (6), p.359-369.

Gunasekaran, A., Patel, C. and McGaughey, R.E. (2004). A framework for supply chain performance measurement. International Journal of Production Economics, 87 (3),p.333-347.

Gunasekaran, A., Patel, C., & Tirtiroglu, E.(2001) "Performance measures and metrics in a supply chain environment". International Journal of Production and Operations Management,21(1/2), p71–87.

Harwick, T. (1997). Optimal decision-making for the supply chain. *APICS – ThePerformance Advantage*, 7 (1), p.42-44.

Henry, Quesada, Rado, Gazo and Scarlett, Sanchez (2012). Critical Factors Affecting Supply Chain Management: A Case Study in the US Pallet Industry

Information for Development Programme (2008). *The Global Textile and Garments Industry: The Role of Information and Communication Technologies (ICTs) in Exploiting the Value Chain*

Kessler EH & Chakrabarti AK (1996) Innovation speed: A conceptual model of context,antecedents, and outcomes. Academy of Management Review 21(4): p 1143–1191

Kumar, A. And Sharman, G. (1992). We love your product, but where is it? Sloan Management Review, 33 (2), p.93-99

Lambert, D.M. and Pohlen, T.L. (2001). Supply chain metrics. *International Journal of Logistics Management*, 12, p.1-19.

Lambert, D.M., Garcia-Dastugue, S.J. and Croxton, K.L. (2005). An evaluation of process-oriented supply chain management frameworks. Journal of Business Logistics, 26 (1), p.25-51.

Laosirihongthong, T. and Dangayach, G.S. (2005). New manufacturing technology implementation: a study of the Thai automotive industry. Production Planning & Control, 16 (3), p.263-272.

Lebas,M.J.(1995)Performance measurement and performance management.International Journal of Production Economics, 41(1-3), p.23–35

Lee, David Yuen Hoi (2010). Benchmarking of the Ethiopian Textile Industry Vision . Project No. YA / ETH / 001. UNIDO p.124

Lee, H.L., Billington, C. (1992) Managing supply chain inventory: Pitfalls and opportunities". Sloan Management Review 33 (3), p, 65–73.

Lin, C., Chow, W., Madu, C.N., Kuei, C.H. and Yu, P.P. (2005). A structural equation model of supply chain quality management and organizational performance, International Journal Production Economics, vol. 96, no. 3, p. 355-365.

Lin, L. and Gibson, P. (2011). Implementing Supply Chain Quality Management in Subcontracting System for Construction, Quality Journal of System and Management Sciences, vol. 1, no. 1, p. 46-58.

McFarlane, D. and Y.Sheffi,(2000). The Impact of Automatic Identification on Supply Chain Operations, p1-27

McGinnis MA, Vallopra RM. (1999) Purchasing and supplier involvement in process improvement: a source of competitive advantage. Journal of SupplyChain Management; 35(4):p42–*50.*

Mehrjerdi YZ (2009) excellent supply chain management. Assem Autom 29(1): p 52–60.

Mentzer, J., DeWitt, W., Keebler, J., Min, S., Nix, N., Smith, C. and Zacharia, Z. (2001). Defining supply chain management. Journal of Business Logistics, 22 (2), p.125.

Meredith, J.R. and Shafer, S.M. (2002), Operations Management for MBAs, 2nd ed., Wiley, New York, NY.

Monk, E. and Wagner, B. (2006),, Concepts in Enterprise Resource Planning, 2nd Edition, Editor, MacMendelsohn, Canada: Thomson Course Technology.

Morgan, J. and Monczka, R.M. (1995). Alliances for new products. *Purchasing*, 118 (1), p.103-109.

Neely, A., Adams, C.and Kennerley, M., (2002) The Performance Prism: The Scorecard for Measuring and Managing Business Success, FT Prentice Hall, London.

Neely, A., Gregory, M. and Platts, K. (1995). Performance measurement systems design: a literature review and research agenda. International Journal of Operations & Production Management, 15 (4), p.80-116.

Pasula, Milan, Nerandzic, Branislav and Radosevic, Milan. (2013). Internal Audit of the Supply chain Management in function of cost reduction of the company. Journal of Engineering Management and Competitiveness (JEMC), Vol. 3, No. 1, p. 32-36.

Rahel Sorri,(2010) Performance Measurement and Improvement of Ethiopian Garment Industries

Ramaa, A., Rangaswamy, T.M, Subramanya, K.N., (2009), A Review of Literature on Performance Measurement of Supply Chain Network, in: Emerging Trends in Engineering and Technology (ICETET), 2nd International Conference on. IEEE, p. 802–807.

Rockart, J. and Bullen, C. (1981). A primer on critical success factors. Center for Information Systems Research Working Paper.Cambridge, Massachusetts: Sloan School of Management, MIT No 69

Rodriguez, R.R., Saiz, J.J.A. and Bas, A.O. (2009). Quantitative relationships between key performance indicators for supporting decision-making processes. Computers in Industry, 60, p.104-113.

Romano, P. & Vinelli, A. (2004). Quality management in a supply chain perspective. International Journal of Operations and Production Management, 21(4),p 446-460

Saad, M., Jones, M. and James, P. (2002). A review of the progress towards the adoption of supply chain management (SCM) relationships in construction. European Journal of Purchasing & Supply Management, 8, p.173-183.

Salonen, A. (2010). Reducing supplier risk. Strategic Finance. The next source of competitive advantage. Harvard business review 66(4): p 41–51.

Tan, K.C., Lyman, S.B. and Wisner, J.D. (2002). Supply chain management: a strategic perspective. *International Journal of Operations & Production Management*, 22 (6),p.614-631.

Toni AD & Tonchia S (2001) Performance measurement systems - Models, characteristics and measures. International Journal of Operations & Production Management 21(1/2):p 46–71

TraceyM,VonderembseMA,LimJS.(1999) Manufacturing technology and strategy formulation: keys to enhancing competitiveness and improving performance. Journal of Operations Management ;17(4):4 p11–28

USAID | DELIVER PROJECT (2010), Task Order 1. U.S. Agency for International Development.

Vesey JT (1992) Time-to-market: Put speed in product development. Industrial Marketing Management 21(2): p 151–158.

Vollmann, T.E., Berry, W.L. and Whybark, D.C. (1997). Manufacturing Planning and Control Systems. New York, NY: Irwin/McGraw-Hill.
Vorster, Jacobs, Hendrik. (2007). The need for a manufacturing resource planning system within a manufacturing company: a case study. Dissertation pappers. p. 1-56.

Waller, D. (2003). Operations Management: A Supply Chain Approach. 2nd ed.London: Thomson Learning

Yamin S, Gunasekruan A, Mavondo FT. (1999) Relationship between generic strategy, competitive advantage and firm performance: an empirical analysis. Technovation; 19(8): p507–18

APPENDIX

ADDIS ABABA UNIVERSITY
COLLEGE OF BUSINESS & ECONOMICS GRADUATE STUDIES
SCHOOL OF COMMERCE DEPARTMENT OF LOGISTICS AND SUPPLY CHAIN MANAGEMENT

ASSESSMENT OF SUPPLY CHAIN PERFORMANCE ON TEXTILE INDUSTRY IN ETHIOPIA.

Dear Sir/Madam,

I'm a graduate student at Addis Ababa University School of Commerce in the Department of Logistics and Supply Chain Management. I would like to request your assistance,as a participant,with this research,which is being conducted as a partial requirement for the award of Masters of Art Degree in Logistics and Supply Chain Management.
The purpose of this questionnaire is to gather data for the proposed study. Your participation is entirely voluntary and the questionnaire is completely anonymous. I confirm you that the information you share will stay confidential and only used for the aforementioned academic purpose, thus not affects you in any way rather it may help in improving the supply chain performance of your company. Please answer the questions in the attached questionnaire as completely and honestly as possible. I hope completion of the survey will not take more than 20 minutes. I recognize the value of your time, and sincerly appreciate your efforts.

Should you require any further information about this study,please contact me through E-mail address: ayele.eskinder@yahoo.com, Cell phone :+251930804909
I would like to thank you in advance for your cooperation and timely response to this survey.

Best Regards,

Eskinder Ayele

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SCHOOL OF COMMERCE DEPARTMENT OF LOGISTICS AND SUPPLY CHAIN MANAGEMENT

PART I GENERAL INFORMATION

1) How long have you been engaged in textile industry ?

A) Less than 1 year B) 1-4 years C) 5-10 yeras D) Over 10 years.

2) Present status of the organization?
A) Governmental public enterprize.
B) Private company(PLC)
C) Share company.(S.C)
D) Sole proprietership(Individual).

PART II PERSONAL DATA

3) Age: A) 18-25 years B) 26-35 years C) 36-45 years D) above 45 years

4) Gender: A) Male B) Female

5) Educational Levels:
A) Below college diploma B) College diploma C) First Degree (BSc, BA)

D) Second Degree (MSc, MA) E) PhD and above

6) Current Position A) Manager B) Middle Manager C) Supervisor

7) Work Experience A) Below 5 years B) 5-10 years C) 11-15 years D) Above 15 years.

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PART III ASSESSMENT OF SUPPLY CHAIN PERFORMANCE

The following set of statements related to your perceptions of each feature that deal with quality,cost,productivity and time indicators to measure supply chain performance.After reading each statement,tick the column of your choice to indicate how much you agree or disagree with it,using a rating scale of 1 = Strongly disagree,2= Disagree,3=Neutral,4= Agree and 5= Strongly agree.There are no right or wrong answers. The student researcher interest is on a number that best shows your perception about supply chain performance in textile sector.

Quality Indicator	1	2	3	4	5
8. Your company measures order compliance, in the purchase order that meet the set criteria					
9. Your company measures the accuracy of shipments in terms of the products and quantities shipped					
10. Your company rate the average percentage of the defects and scrap in the production process					
11. In your warehouse, items are placed in the correct location					
12. In your company warehouse items are picked accurately					
13. The rate of accidents are minimal or not occurred in your company warehouse.					
14. There are guidelines that provide instructions to prevent theft or leakage at a given storage location					
15. Your company rates the percentage of shipments arriving on time for a set delivery date					
16. Your company measures average number of accidents per route over a period of time					
17. The company measures stockout rates that experienced a stockout of a specific product .					
18. The company measures order fill rates to determine how effective a distributing facility is in satisfying customer orders					
Cost/Financial Indicator	1	2	3	4	5
19. Total supply cost is measured per purchase order executed, during a defined period of time					
20.Your company rate measures to reduce operating cost					
21. Your company is successful in minimizing total carrying/holding cost?					
22. Your company is successful in minimizing total product damage in the warehouse					
23. Your company measures the all transportation costs					
24. Your company rates the ratio of all transportation costs to the value of the products					
25. The company measures average response cost, the costs associated with fulfilling resupply orders					

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Productivity Indicator	1	2	3	4	5
26. Your company measures the ability of the supplier to fill purchase orders correctly					
27. Your company rate the productivity of the workforces					
28. Your company measure its labor utilization rate					
29. Your company measure its machine utilization rate					
30. Your company rate measures to improve operating efficiency					
31. Warehouse personnel utilizes warehouse spaces properly i.e. the total storage space actually being used out of the total storage space available					
32. Your company rate daily laborer i.e. the number of units(e.g., boxes, pallets) or weight moved during a defined period of time, per person-hour.					
33. Your company monitor container capacity utilization for a given route to ensure the efficient use of vehicles and resources					

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Time Indicator	1	2	3	4	5
34. Your company rates all orders delivered by the requested delivery date,i.e there is a proper monitoring of supplier response time on shipments over a specified period of time					
35. your company rate measures to reduce manufacturing lead time					
36. Warehouse personnel serve your customer on the reasonable time					
37. The average transit time (hours or days) from when a shipment leaves a facility until it arrives at its destination is measured during a defined period of time					
38. The company measures order entry time					
39. The company measures order turn around time i.e the time between when the request was received by the distribution source and the time the order was actually shipped					
Overview of performance measurement regarding the four indicator areas	1	2	3	4	5
40.Over all quality is a determining factor in measuring supply chain performance of textile industry					
41.Taking everything in to consideration cost determines supply chain performance of textile industry					
42.In general productivity indicators are decisive to measure the supply chain performance of textile					
43.All time sub indicators are effective in measuring the supply chain performance of textile industry					

44). What kind of strategies would be relevant to improve the performance of textile industries?

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45). Do you have additional comments/recommendations.If any ?

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THANK YOU