Addis Ababa University

School of Commerce

An Assessment of the Effect of Supply Chain Management Practices on Organizational Performance in the case of Modern Building Industries PLC

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A Thesis Submitted to Addis Ababa University School of Commerce for the Partial Fulfillment of the Requirements Award of Master of Arts Degree in Logistics and Supply Chain Management

May, 2017

Addis Ababa, Ethiopia

ADDIS ABABA UNIVERSITY

SCHOOL OF COMMERCE
GRADUATE STUDIES

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Approved by Board of Examiners:

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DECLARATION

I, Eyob Mengesha, declare that this thesis is my own work and to the best of my knowledge. It has never been submitted for the award of any degree in any University. Even though the community help to prepare this report any error or fault by omission or commission remain entirely my own and should not be associated with them.

Declared by:

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ACKNOWLEDGEMENT

First of all I would like to give thanks to God for helping me writing this research thesis.

I have taken efforts in this thesis. However, it would not have been possible without the kind support and help of many individuals. I would like to extend my sincere thanks to all of them. I would like to express my gratitude to my advisor Shiferaw Mitiku (PhD) for the useful comments, remarks and engagement throughout the learning process of writing this thesis.

LIST OF ABBREVIATIONS/ACRONYMS

CEO -	Chief Executive Officer
CPM-	Communication Privacy Management
GDP-	Gross Domestic Product
Kms-	Kilo Meters
MBI-	Modern Building Industries PLC
MIDROC-	Mohammed International Development Research and Organization Companies
NPM-	Net Profit Margin Ratio
RBV-	Resource-Based View
ROA-	Return on Assets
ROI-	Return on Investment
SMEs-	Small Medium-sized Enterprises
SCM-	Supply Chain Management
SPSS-	Statistical Package for Social Science
TCE-	Transaction Cost Economics

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ABSTRACT

The main purpose of conducting this study was to investigate the understanding, practical implementation of Supply chain management practices towards organizational performance in Modern Building Industries PLC, a member of MIDROC Technology Group. Five key dimensions of Supply chain management practices (strategic supplier partnership, customer relationship, quality and level of information sharing and lean practices) were used as independent variables accompanied by different measurement instruments under each variable, while market and operational/financial performance variables were used to measure the organizational performance. Data were obtained via questionnaires from a sample of 121employees which worked in different functional area. Quantitative methods were applied to analyze data. Chi-square test was used to assess the understanding and practical implementation of Supply chain management practices in Modern Building Industries PLC, while Spearman's correlation and Kruskal Wallis test were used to examine the relationship between supply chain management practices and organizational performance. From the study findings, it showed majority of Modern Building Industries PLC employees not understood the concept of implementing Supply chain management practices. The level of practical implementation was at moderate extent. In addition to organizational performance, the result showed that Supply chain management practices of degree and quality of information sharing and lean practices were positively related to organizational performance in a weak level, while strategic supplier partnership and customer relationship were not related. Finally the researcher made some recommendations for further studies in the field of supply chain management practices implementation.

***Key Words**: Supply Chain Management, Supply Chain Management Practices and Organizational Performance*

CHAPTER ONE
Introduction

1.1. Introduction

This chapter indicated that the general overview on the concept of supply chain management and organizational performance, background of the company, statement of the problem, the research questions, research objectives, significance of the study, scope of the study and also discussed organizations of the study.

1.1.1 Background of the study

In the 1990`s competition intensified and markets became global resulting to challenges associated with getting a product and service to the right place at the right time and at the lowest cost. Organizations began to realize that it is not enough to improve efficiencies within an organization but their whole supply chain has to be made competitive. The understanding and practicing of supply chain management practices has become an essential for staying competitive in the global market and for enhancing profitability (Storey, 2005).

However the new source of business competition link their operation with their supply chain partners; suppliers, distributors, wholesalers, retailers and end customers (Petrovic, 2007). Being able to create business relationships with customers, suppliers and other strategic partners anchored on trust and long term commitment then becomes a crucial competitive parameter (Mattson, 2002). For this and other factors like shorter product lifecycle and customer expectation, businesses have had to invest and re-focus greater attention on relationship with customers and suppliers. Consequently an organization supply chain has become a strategic agenda driving decision making at senior management level.

Recently, many firms have shown great interest in supply chain management because they finally realized can no longer compete effectively in isolation of their suppliers or other entities in the supply chain since better management of the supply chain improve customer delivery and at the same time reduce overall costs. From his research findings Christopher (1998) found out that currently businesses no longer compete as solely autonomous entities, but rather as supply chain. Therefore effective management of supply chains is seen as a must strategy for the survival of any company for purpose of staying competitive in the local market as well as in the

global market. This involves managing the marketing link to the supply chain and linking supply chain strategies to the overall company strategy.

Effective supply chain management practices are important to build and sustain competition in products and services of the firm. Gunaseken, Patel and Tirtiroglu (2001) states that the performance of supply chain influenced by managing and integrating key element of information into their supply chain. To achieve effective supply chain integration the firms need to implement information technology which will see them gain competitive advantage through numerous supply chain dimensions such as quality, cost, flexibility, delivery and profit.

Previous studies suggest that effective SCM practices have a direct impact on the overall financial and marketing performance of an organization (Ho, L.A., 2008). Indeed, SCM practices is expected to increase an organization's market share, return on investment and improve overall competitive positions. For instance, Tan *et al*. (1998) asserted that customer relations and purchasing practices impact the effectiveness of SCM strategy and lead to financial and market performance. Merit (2015) on the other hand suggested that companies with broader supply chain integrations with suppliers and customers showed the largest performance improvement in business achievements.

Based on the above framework, in this study the researcher is to assess the impact of supply chain management practices on organizational performance of Modern Building Industries PLC (MBI), the member of MIDROC Technology group companies.

1.1.2 Background of the company

Modern Building Industries PLC (MBI) is a manufacturing company which organized under the Office of the Chief Executive Officer of MIDROC Technology Group, and is lead by a General Manager, directly reporting to the CEO. The company has four Operation Units: Filler Factory Operation, Paint Factory Operation, Plastic Tiles Factory Operation and Concrete Blocks & Tiles Factory; and eight service units; all of which are managed by qualified managers endowed with rich experience, and geared up for company future growth.

In order to facilitate the operational effectiveness of the company, the Management has placed different Policies and Procedures into practice which is Human Resources Services Policy and Procedure Manual, Financial Services Policy and Procedure Manual, Attest Plan, Materials Management Services Policy and Procedure Manual, Organizational Structure Manual,

Collective Agreement, Protection Services Policy and Procedure Manual and Education Policy. All Policy and Procedure Manuals are subject to revision and hence more than 200 directives have been released to date to improve the original policy issues of MIDROC Technology Group.

MBI is established to accomplish four major business purposes. The first purpose is to establish and operate industrial mineral-based plants related to cement and cement products, ceramics, paints, sanitary ware, adhesives, glues, plastic rubber, terrazzo tiles, and cultured marble, for domestic, commercial and industrial applications. The second one is to establish chemical, metal and foreign market based woodworks processing plants. The third purpose is to establish and operate electrical materials manufacturing plants. Finally, to engage in establishing and operating quarries and mineral processing plants.

MBI has produced different building products which is paints, varnishes, lacquers, tiles, glue, inorganic mineral fillers, hydra form blocks and cultured marble. (MIDROC Technology Group, 2016)

1.2. Statement of the problem

For the manufacturing companies, supply chain management practices play a major role on their performance given the nature of competition in the environment that they operate in both locally and internationally. The importance of adopting supply chain management in the company was further explained by Choy (2002) where in his research at multinational manufacturers, has concluded by saying supply chain management practices contribute 50% to the profitability and performance of any organization. Therefore, organizations have to understand the concepts and the practices of SCM for the intention of achieving competitiveness as well as for increasing profits (Qayyumet *et al*., 2013).

The concept of SCM has received increasing attention from academicians, consultants and business managers alike. Many organizations have begun to recognize that SCM is the key to building sustainable competitive edge. Despite this increased attention, the literature has not been able to offer much way of guidance to help the practice of SCM (Sandberg, 2007).

Ethiopian manufacturing industries have serious weaknesses and facing obstacles hampering their productivity and competitiveness. Most of these manufacturing industries are plagued with the problem of low financial and managerial capacity, lack of machineries and facilities,

inability to satisfy customer demands, and shortage of highly qualified workers. Moreover, they have poor or under capacity utilization and low level of total resource productivity. Even if the contribution of the sector to import-substitution has increased over the last few years, the unexploited potential, low market share of the manufacturing industry and unutilized capacity show that there is a lot that remains to be done (Dereje, 2012).

Thus, one of the problems which contributed a lot towards backwardness of the sector could be the lack of conceptual framework and basic knowledge of SCM amongst the business practitioners. Moreover, even though some of the practitioners have realized the importance of SCM, they lack an understanding of what constitutes a comprehensive set of SCM practices.

In this regard, the researcher had hardly found any previous studies which were specifically conducted to examine the practical implementation of SCM practices as well as their impact on the organizational performance in Ethiopian's Manufacturing industry. From the study in the title "the impact of supply chain management practices on the organizational performance of basic metal and engineering industries in Ethiopia" by Dereje in 2012, the researcher has seen that supply chain management practice in Ethiopia is in the beginning stage and the implementation practice is week, there are small numbers of companies integrating into their organization system. Therefore the researcher believes that in order to achieve better organizational performance the supply chain management practices will have a major role.

Therefore this study intended to answer some questions related to SCM practices in MBI by assessing the understanding and the extent of practical implementation SCM practices as well as their impact on the overall organizational performance.

1.3. Research Questions

In this research the researcher to found answers for the following questions:

- ✓ How is supply chain management currently practiced in MBI?
- ✓ What is the extent of MBI's staff understanding about SCM practices implementation?
- ✓ How does SCM practice affect MBI's performance?

1.4 Research hypotheses

According to Leedy et al., (2010), the research hypothesis is a reasonable conjecture, an educated guess and its purpose is to provide a temporary objective, an operational target, a logical

framework that guides researchers as they collect and analyze data. Therefore in this study the researcher used the following hypothesis:

To investigate the understanding of SCM practices implementation among MBI:

- ✓ Ho1: The understanding of SCM practices implementation among MBI is not low.
- ✓ Ha1: The understanding of SCM practices implementation among MBI is low.

To assess the level of practical implementation of SCM practices in MBI

- ✓ Ho2: Strategic supplier partnership practice is not weak in MBI.
- ✓ Ha2: Strategic supplier partnership practice is weak in MBI.
- ✓ Ho3: Customer relationship practice is not weak in MBI.
- ✓ Ha3: Customer relationship practice is weak in MBI.
- ✓ Ho4: The quality and degree of information sharing practice is not weak in MBI.
- ✓ Ha4: The quality and degree of information sharing practice is weak in MBI.
- ✓ Ho5: Lean practice is not weak in MBI.
- ✓ Ha5: Lean practice is weak in MBI.

To examine the relationship between SCM practices and organizational performance in MBI

- ✓ Ho6: There is no relationship between the strategic supplier partnership and organizational performance in MBI.
- ✓ Ha6: There is relationship between the strategic supplier partnership and organizational performance in MBI.
- ✓ Ho7: There is no relationship between the customer relationship and organizational performance in MBI.
- ✓ Ha7: There is relationship between the customer relationship and organizational performance in MBI.
- ✓ Ho8: There is no relationship between the degree and quality of information sharing and organizational performance in MBI.
- ✓ Ha8: There is relationship between the degree and quality of information sharing and organizational performance in MBI.
- ✓ Ho9: There is no relationship between lean practices and organizational performance in MBI
- ✓ Ha9: There is relationship between lean practices and organizational performance in MBI.

Whereas;

Ha: The Alternative Hypothesis- the effect observed in the data (the sample) reflects a "real" effect (in the population)

Ho: The Null Hypothesis- there is no "real" effect (in the population). The effect observed in the data (the sample) is just due to chance (sampling error).

1.5. Research Objectives

1.5.1. General Objective

The general objective of this study is to assess the impact of supply chain management practices on the performance of MBI.

1.5.2. Specific objectives of the study

The specific objective of this study will be the following:

- ✓ To investigate the understanding of SCM practices in MBI.
- ✓ To assess the level of practical implementation from the five SCM practices perspective in MBI.
- ✓ To examine the relationship between SCM practices and organizational performance in MBI.

1.6. Significance of the study

The study established some valued information that determined the current situation of case company in their overall understanding, practical implementation of SCM practices and their organizational performance. Therefore the study has the potential to influence different groups in the society such as regulators and the government, business entities and academicians.

Policy Makers

The government can use the findings of this study for policy formulation towards their development process of improving the manufacturing industry in the country. The study came up with an understanding and encouragement to the regulatory organs, policy makers to take some necessary actions to address the importance of implementing efficiently and effectively SCM practices in manufacturing firms so as to improve their organizational performance and increase their competitive advantage in the local and global markets.

Business entities

Findings from this study indicated the performance of organization depended on how well it implements SCM practices. The main reason to why companies struggle to accomplish in the business world is to maximize profits while minimizing operation costs and this cannot be successfully achieved unless their organizational performance is higher in terms of deliver dependability, cost saving, quality products and services, forecasting accuracy, flexibility, sales growth, market share growth, profit margin, return on investment, return on assets, just to mention the few. Therefore the study demonstrated tangible benefits organization achieved when effectively and efficiently implement SCM practices and vice versa is true.

Academicians

The study's findings provided a room to other researchers to use it as reference point to their future studies related to this subject matter. It will enable them to see the gap of what is unknown, what needs further research, elaboration and improvement. It added value to the body of knowledge in bridging the gap between theories and practical implementation of SCM practices in manufacturing firms.

1.7. Scope of the study

The study was limited to Addis Ababa and around (within 50kms) and carried out in private manufacturing firm whereby the sample population was derived from the company's permanent management and employees.

This study deals only to assess the impact of SCM practices on the performance of Modern Building Industries PLC and also it doesn't compare the findings from other company within the same industry.

The primary goal of the study was to assess the supply chain management practices implementation in ensuring organizational performance in MBI.

1.8. Definition of Key Terms

The following are the key terms used in the study. They are defined and briefly described in order to meet the purpose of understanding the study:

Manufacturing

Manufacturing is the physical or chemical transformation of materials or components into new products.

Supply chain

Supply chain is a network of organizations that are involved, through upstream and downstream linkages in the different processes and activities that produce value in the form of products and services in the hand of the ultimate consumer.

Supply chain management

Supply chain management is the integration of key business processes from end user through original suppliers that provides products, services, and information that add value for customers and other stakeholders'.

SCM practices

SCM practice is the set of activities undertaken by an organization to promote effective management of its supply chain. In this study the researcher has used five dimensions of SCM practices include strategic supplier partnership, customer relationship, quality and degree of information sharing and lean practice.

Organizational performance

Organizational performance is how well an organization achieves its market-oriented goals as well as its financial goals.

1.9. Organization of the paper

Generally the paper is organized in to five chapters. The first chapter provided an introduction to this research dealing with back ground of the study, the research problem, research questions, research objectives, scope and significance of the study. The second chapter discusses the related literature review about the subject matter. In chapter three the research methodologies were presented. In chapter four presents results and discussion of the study and finally, chapter five presents the summary of major findings, conclusion and forwarded suggestions.

1.10. Limitation of the study

Confidentiality of information

Some of the respondents in the firm refused to provide some information in the questionnaires they were distributed with and in the collection of secondary data. This was because of confidentiality information the firm feared could be spread to their competitors hence the

researcher tried the level best to persuade them to provide such information by attaching approved letter from chief executive officer.

Time constraints

There was time constraint in the collection of filled questionnaires that hindered the researcher to collect some questionnaires. Some employees failed to submit its questionnaire on time which reduced the sample size. The researcher mitigated the effect of time constraints by constant reminding the selected employees for feedback through phone calls and massages or e-mails.

CHAPTER TWO
RELATED LITERATURE REVIEW

2.1. Introduction

This chapter aimed at giving insight to the researcher regarding the study. It included literature works from the books, articles, journals and previous studies which are relevant to SCM applications in different fields. The literature review is divided into two major parts; theoretical review and empirical review. This chapter will also provide a conceptual framework to show the relationship between the dependent and independent variables.

2.2 Theoretical literature review

This section introduced the theories related to the study. A theoretical part focused on the adoption theories and concepts that were presented by distinguished authors in relation to SCM practices implementation and organizational performance. SCM had been linked to theories borrowed from fields such as accounting, management, economics, sociology and engineering. Majority of these theories that are currently explored in SCM literature has existed for a very long time so they are actually older than the SCM concept itself (Pala, 2013). Therefore, the study adopted five (5) common theories. These theories include institutional theory, resource-based view, customer service theory, communication privacy theory and transaction cost economic.

2.2.1 Institutional Theory

The institutional theory is used to examine how external pressures influence a company (Sarkis, *et al.*, 2010). According to the institutional theory "external pressure", play a major role in shaping organizational strategies associated with supply chain management. For example, strategies associated with the organizations' choices of technology adoption and supply chain collaboration (Lavassani and Movahedi, 2010).

Within institutional theory, there are three forms of isomorphic drivers a company tends to be induced to adopt certain practices, namely; coercive, normative, and mimetic. Coercive isomorphic drivers occur from influences exerted by those in power. Government agencies are an example of powerful institutions that may coercively influence the actions of an organization through, for example, fines and

trade barriers. Normative isomorphic drivers cause enterprises to conform in order to be perceived as having legitimate organizational activities. Mimetic isomorphic drivers occur when enterprises imitate the actions of successful competitors in the industry, in an attempt to replicate the path of their success (Sarkis, *et al.*, 2010).

In relation to SCM practices, institutional environment where the firm operate exert an influence on adoption process. Coercive pressure is seen important in imposing authorize standard in shaping firm operational conduct through regulatory mechanism. Mimetic pressure is seen as following other organization successful implementation practices. And finally, normative pressure is seen as firm accepting best practice for SCM adoption in fast changing environment (Shamsuddin *et al.*, 2013).

2.2.2 Resource-based view theory (RBV)

The RBV is a theoretical perspective that attempts to describe, explain, and predict, how firms can achieve a sustainable competitive advantage through acquisition and control over resources (Arifin and Baihaqi, 2012). In order to provide competitive advantage a resource must fulfill four criteria: Valuable: must have strategic value to the organization, Rare (uniqueness): must be unique or rare to find amongst the current and potential competitors, Imperfect immutability (inimitable): must not be possible to perfectly imitate or copy the resource, and Non-substitutability: competitors cannot substitute the resource by another alternative resource to achieve the same results (Liou *et al.*, 2009).

Organization resources can be easily categories into three building block, that is, physical assets (example: technological equipment, plant), human assets (example: deployment, competency and skill resources), and organizational assets (example: culture, business process, and management resources) (Shamsuddin *et al.*, 2013). The resources are also categorized as tangible or intangible (Curado, 2006). Furthermore, the RBV theory is used to examine the impact of organization resources and capabilities on competitive advantage that leads to overall organizational performance.

In the context of SCM practices in the real environment, RBV can be used to understand the link between SCM practices and competitive advantage, that is how the application become one of organization resources and contribute to SCM excellence performance (Shamsuddin *et al.*, 2013).

2.2.3 Customer Service Theory

The theory of customer service is based on identifying and satisfying your customers' needs and exceeding their expectations. A company must be totally committed to delivering consistently high standards of service to gain and retain customer loyalty. Everyone from top management on down must be tuned into what the customer wants. Creating a customer service culture within a company can help build success. Customer satisfaction and loyalty are inextricably linked to the quality of customer service and, ultimately, to the company's profitability (Mbuthia and Rotich, 2014).

Key assumptions of the theory are; build a customer service culture, know your customers, set customer expectations and communication (Mbuthia and Rotich, 2014; Dorling, 2015).

Build a Customer Service Culture

Indoctrinate new employees into the customer service culture immediately. Provide comprehensive training programs that make them experts in their field. Ensure the front-line customer service team is personable, friendly and knowledgeable. Empower employees to make decisions that lead to customer satisfaction. Reward outstanding employee performance with recognition in the company newsletter, celebratory dinners, prizes and other perks (Mbuthia and Rotich, 2014).

Know Your Customers

Get to know your customers by profiling them. You can ask them directly, through customer comment cards and surveys at your place of business and on your website. In addition to demographic details, learn what they like and dislike, and how your product or service directly benefits them. Note their buying preferences and interests. Consider how your customer perceives quality (Mbuthia and Rotich, 2014).

Set Customer Expectations

Set realistic expectations for your customers about your products and services. Savvy marketing and exaggerated claims might attract customers, but the product or service must always accurately meet customer expectations.

Deliver on every promise to win customer loyalty. When customers are happy, they recommend your business to their friends and family. Increased levels of customer satisfaction

also mean increased expectations. Look for ways you can improve your products, services and the overall customer experience (Mbuthia and Rotich, 2014).

Communication

Establish a continuing dialog with your customers. Keep them informed of special promotions that appeal to their interests. Tell your customers how much you appreciate their business by letter, email or a telephone call. Ask for your customers' opinions on a regular basis to ensure you are consistently delivering good customer service. Pay attention to their changing needs, and introduce new products and services based on customer feedback gathered from surveys. Continually explore new ways to keep your customers engaged. Focus on caring for your existing customers and new ones will naturally follow (Dorling, 2015).

2.2.4 Communication Privacy Management Theory (CPM)

CPM theory basically addresses how individuals understand and manage their privacy and disclosure decisions (Petronio, 2002). That is, the CPM theory describes the ways in which relational actors manage their privacy boundaries and the disclosure of private information. The theory focuses heavily on the processes that people employ to determine when and how they choose to conceal or reveal private information. The theory describes the ever-present dialectic of privacy and openness within various relationship models, explains how relationships develop as public and private boundaries are negotiated and coordinated, and demonstrates how individuals regulate revealing and concealing information through communication.

The theory focuses on the idea that there are not only two contradictory stances within a relationship, but that at any given moment decisions are weighed using multiple viewpoints. CPM theory considers those rules for access and protection of information by examining the following about information sharing: the types of ownership of information, the circumstances under which sharing occurs, and the expectations of sharing (Petronio and Durham, 2014; Mbuthia and Rotich, 2014).

2.2.5 Transaction Cost Economics (TCE)

Transaction Cost Economics (TCE) had been developed to facilitate an analysis of the "comparative costs of planning, adapting, and monitoring task completion under

alternative governance structures" (Williamson, 1985). Transaction cost economics (TCE) support the role of supply chain management in the organizations as it act as an economic theory that provides an analytical framework for investigating the governance structure of contractual relations within a supply chain (Garfamy, 2012). Furthermore, the Transaction cost economics (TCE) has been the most utilized theory of outsourcing. TCE is perceived to provide the best decision making tools to help organizations to decide to outsource and to prepare themselves for forthcoming outsourcing arrangements (Perunović and Pedersen, 2007).

2.3 Empirical Literature Review

This section of the literature review builds its strength on the empirical findings that have been presented by different authors following series of tests of the adoption theories that were tested in the practical world of the SCM practices implementation. The review is segmented into five (5) segments that is, SCM overview, SCM practices, organizational performance, SCM practices and organizational performance and SCM practices in Ethiopia.

2.3.1 Supply chain management overview

The term supply chain management (SCM) is relatively a new concept in the business world, (Tan *et al.,* 1999; Ardianto *et al.,* 2013; Mensah *et al.,* 2014) that has received an increasing attention from many academicians, consultants, and business managers from different field (Li *et al.*, 2006).

The basic objective of supply chain management is to optimize performance of the chain to add as much value as possible for the least cost possible. In other words, it aims to link all the supply chain agents to jointly cooperate within the firm as a way to maximize productivity in the supply chain and deliver the most benefits to all related parties (Finch 2006). According to Li *et al.* (2006) categorized the objectives of SCM into two groups; short-term and long-term objectives. Whereas the short-term objectives of SCM 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.

However, the scope of SCM is functional and organizational. The functional scope of SCM refers to which traditional business functions are included or excluded in the implementation and the process of SCM. The organizational scope of SCM concerns what kinds

of inter-firm relationships are relevant to the participating firms in the implementation and the process of SCM (Mentzer, *et al.*, 2001).

SCM comprises of a lot of issues related to different stages in the supply chain. According to Liu (2011)'s study identified six key elements of SCM from different perspectives whereby the coordination and integration between them have been given extensive research attention from different studies they include:

- Service level management, including customer segmentation, service level management
- Order and demand management, including sales demand planning and forecasting, inventory management, order entry and fulfillment.
- Production management, including network configuration/rationalization, production planning and scheduling, production execution
- Supply management, including procurement planning, supplier performance management
- Distribution management, including network configuration/rationalization, warehousing, transportation
- Integrated SCM planning and execution, which is enabled by the SCM processes, IT systems, organization and performance measurement

The main reason to why many companies (including Small and Medium-sized Enterprise (SME) companies) in today's era of globalization are striving for ways to effectively implement the Supply Chain Management (SCM) is to achieve competitive advantage at the same time minimize the manufacturing operation costs (Ab Rahman, *et al.*, 2008).

2.3.2 Supply chain management practices

From exploratory research done by Omain *et al.* (2010) based on previous studies argued that the implementation set of SCM practices differ depending on the country and type of organization involve. This means different organizations and countries have a different set of practices in implementing SCM this is due to the fact different managerial perceptions of how supply chain components are related to each other and to the organization example different style of management, different world views from different country and cultural differences. Therefore, there is no clear set of supply chain practices suitable for all industries or countries.

SCM practices' is defined as "the set of activities undertaken by an organization to promote effective management of its supply chain" (Li *et al*, 2006). He proposed SCM practices as a multi

dimensional construct that includes both upstream and downstream sides of the supply chain. Mentzer, *et al.,* 2001 considered outsourcing, supplier partnership, information sharing, cycle time compression, and continuous process flow, as SCM practices. Tan *et al,* 1998 used quality, purchasing, and customer relations to represent SCM practices, in their empirical study.

2.3.3 Organizational performance

Organizational performance is the ultimate dependent variable of interest for researchers concerned with just about any area of management. This broad construct is essential in allowing researchers and managers to evaluate firms over time and compare them to rivals (Richard *et al.,* 2009), that is, organizational performance is an indicator that measures how well an organization is achieving its goals (Ho, 2008).

Measuring organizational performance is inherently difficult process (Dess and Robinson, 1984; Venkatraman and Ramanujam, 1986) since there is no singled consensus definition as well as how it should be measured (Perry II, 2012). A number of prior studies had measured organizational performance using different dimensions. However, for over a long period of time financial metrics have served as a tool for comparing organizations and evaluating an organization's behavior (Holmberg, 2000; Li *et al.,*2006; Karimi and Rafiee, 2014). Several studies have pointed out different dimensions of measuring organizational performance, whereby majority of these studies have utilized financial and market indicators as main measures of organizational performance (Li *et al.,* 2006; Arifin and Baihaqi, 2012; Perry II, 2012; Bahri - Ammari, 2013; Hussain *et al.,* 2014; Arun and Kumar, 2014) such as, market share, return on investment, the growth of market share, the growth of sales, growth in return on investment, profit margin on sales and overall competitive position of the organization (Li *et al.,* 2006).

2.3.4 SCM practices and Organizational performance

SCM practices impact not only overall organizational performance, but also competitive advantage of an organization (Mwale, 2014). This means, SCM practices can act as the means for creating and sustaining a competitive advantage and enhancing organizational performance for the firm and for the entire supply chain (Perry II, 2012). This statement was empirically justified by Li *et al.,* (2006), Bahri-Ammari (2013), and Rotich (2014). Regarding SCM practices in relation with organization performance a number of prior studies were conducted to determine such relationship (Li *et al.,* 2006).

Major findings found from these studies justified presence of positive relationship between SCM practices and Organizational performance therefore the higher levels of SCM practice implementation can lead to higher levels of organizational performance and vice versa is true. Example; Li *et al.*, (2006) had conceptualized and developed five dimensions of SCM practices (strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing, and postponement) and tested the relationships between these SCM practices and organizational performance (market and financial performance). The result indicated that higher levels of SCM practice can lead to higher organizational performance.

Furthermore, Mensah *et al.* (2014) have justified effective application of the principles of SCM practices as asserted by Li *et al.* (2006) as instrumental in ensuring sustainable business performance of Kasapreko Company Limited in Ghana. Karimi and Rafiee (2014) provided an empirical justification for a framework that identifies four key dimensions of SCM practices (Strategic supplier and partnership, customer relationship, level and Quality of information sharing) and their direct impact on organizational performance (market and financial performance, customer ok).

2.3.5 SCM practices in Ethiopia

Ethiopia‘s economy is based on agriculture which in 2015, contributed about 41.4 percent of the gross domestic product (GDP), 90 percent of foreign currency earning, and 85 percent of employment. The industrial sector, which mainly comprises small and medium enterprises, accounted for about 15.6 percent of the GDP. Generally, the overall economic growth of the country has been highly associated with the performance of the agricultural sector (Ethiopian Investment Guide, 2016).

The country adopted a free market economic policy in 1992, and in line with this has promoted private investment. With the introduction of a free market economy, Ethiopia has implemented a number of reforms including the privatization of state owned enterprises, liberalization of foreign trade, deregulation of domestic prices, and devaluation of the exchange rate. With its enormous resources, the country has untapped investment opportunities, huge market access and low cost of doing business. The country has an excellent climate, fertile soil and huge domestic raw material base. Its location is strategically close to the lucrative markets of the Middle East, Asia and Europe (Embassy of FDRE in London, 2011).

However, Ethiopia has not benefiting from these resources and opportunities available due to several reasons including poor infrastructure in transport and communication as well as shortage of electric power supply which created a challenge for most companies in doing business in the country.

Limitations in physical infrastructure increase the cost of transportation and also hinder the fast movement of products, information and money in business transactions. Poor infrastructure also limits the size of the market available in nearby countries such as Sudan and Kenya which could provide a potential source of customers for Ethiopian business people. Air transport is also very limited access and at the same time the carrier cost to use this route is too high (Dereje, 2012).

Since SCM is concerned with cost effective ways of managing materials, information and financial flows from the point of origin to the point of utilization to satisfy customer requirements (Narasimha,2007), it is difficult to consider that SCM is properly practiced in Ethiopian business environment.

Manufacturing industries are indispensable to build up any country's physical economic base. In Ethiopia, however, since these industries are not developed enough to meet emerging demand from user industries both quantitatively and qualitatively, it is necessary to rely heavily on imports. Manufacturing and delivery of product involve many parties that encompass foreign and local suppliers of different kinds of inputs like raw materials, chemicals and others; manufacturers of products, and distributors up to the end users.

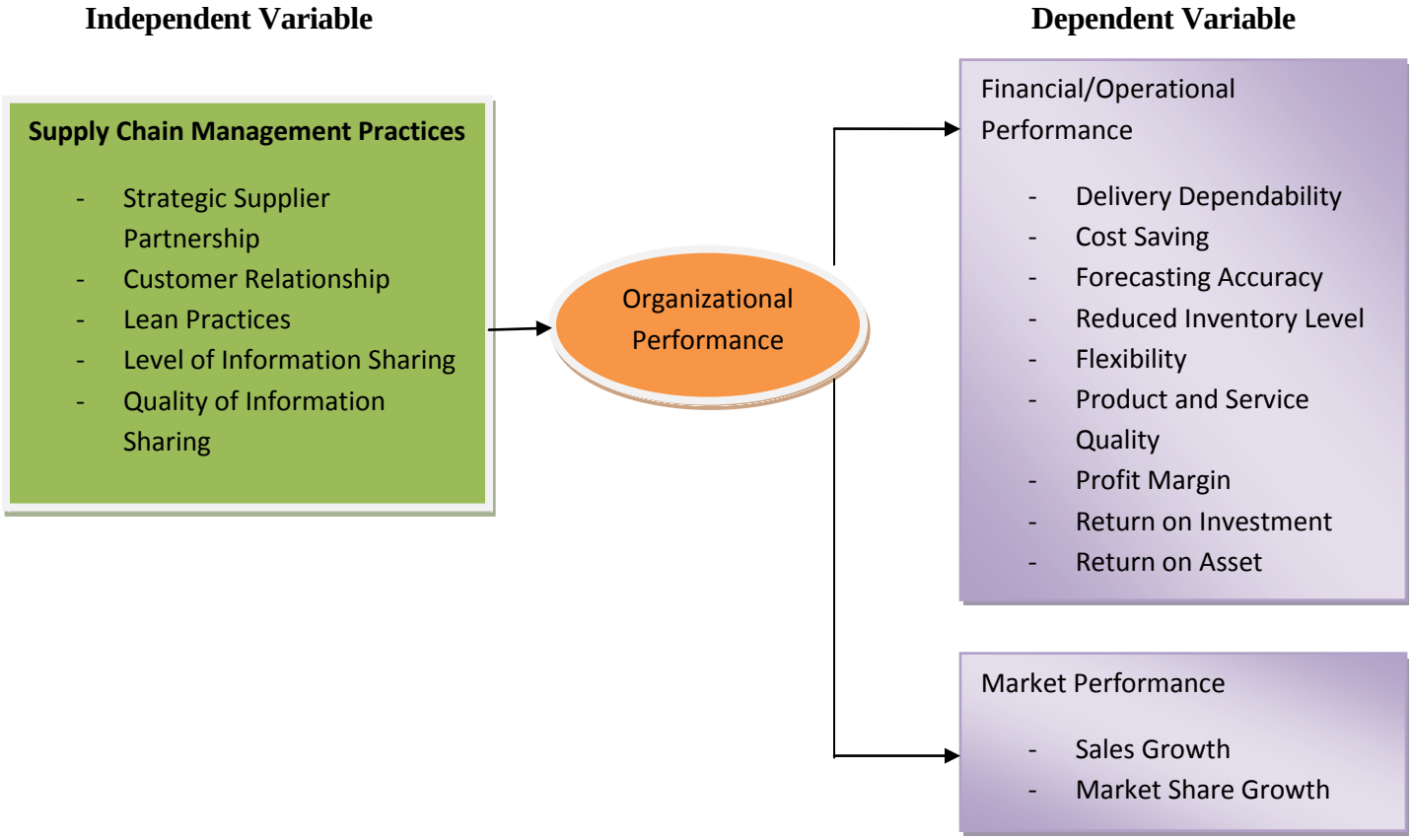
Supply of raw materials for the case company industries heavily depend on imports. Like other businesses activities in the country, the flow of money along the supply chain of the case company is conducted in cash and cheque transactions or transfers to the beneficiary account, while information about business transactions are communicated through FAX, telephone, and internet.

2.4 Conceptual framework of the Research

Considering the various dimensions of supply chain management practices and measurement of organizational performance proposed by several researchers, the researcher adapted a research framework that encompassed the following five dimensions of supply chain management practices: strategic supplier partnership, customer relationship, lean practices, degree and quality of

information sharing. For organizational performance measurement nine financial/ operational (deliver dependability, cost saving, product and service quality, forecasting accuracy, reduced inventory level, flexibility, profit margin, return on investment and return on assets) and two market (sales growth and market share growth) performance measurements were adapted.

Fig: 2.1 Conceptual framework of the Research



Source: based on literatures

Based on theoretical and empirical findings from previous studies the researcher developed a number of dimensions in relation to the implementation of SCM practices. These dimensions were regarded as independent variables, discussed as follows:

- ✓ **Strategic supplier partnership**

The relationship is designed to control the strategic, tactical and operational capabilities of individual participating organizations to help them achieve major ongoing mutual benefits (Jie *et al.*, 2007).

A strategic partnership emphasizes direct, long-term association and encourages mutual planning and problem solving efforts (Gunasekaran, 2001). Such strategic partnerships are

entered to promote shared benefits among the parties and on-going participation in one or more key strategic areas such as technology, products, and markets. Strategic partnerships with suppliers enable organizations to work more effectively with few important suppliers who are willing to share responsibility for the success of the products. Suppliers participating early in the product-design process can offer more cost effective design choices, help select the best components and technologies, and help in design assessment (Tan *et al.,* 2002). Strategically aligned organizations can work closely together and eliminate wasteful time and effort.

According to Noble (1997) an effective supplier partnership can be a critical component of a leading edge supply chain (Bratić, 2011; Karimi and Rafiee, 2014; Mbuthia and Rotich, 2014).

- ✓ **Customer relationship**

Customer relationship is the key element in today SCM practices implementation in any organization (Ho, 2011; Mbuthia and Rotich, 2014; Hussain *et al.,* 2014). This is because the world today is in the era of massive growth of mass customization and personalized service which had forced organizations to maintain good relationship with customers for the sake of their survival (Jie *et al.,* 2007). Close customer relationship allows an organization to differentiate its products from the competitors, and sustain customer loyalty (Bratić, 2011).

- ✓ **Lean practices**

The term ‘‘lean’’ is used to refer to a system that uses less input to produce at a mass production speed, while offering more variety to the end customers. Elimination of waste is a fundamental idea within the lean system. The core thrust of lean practices are that these practices can work synergistically to create a streamlined, high quality system that produces finished products at the pace of customer demand with little or no waste (Dereje, 2012). Today, lean is evolving into a management approach that improves all the processes at each level of an organization (Mwale, 2014).

- ✓ **Level of information sharing**

Information sharing has two aspects: quantity and quality. Both aspects are fundamental for the practices of supply chain and have been treated as independent constructs in the past supply chain management studies (Jie *et al.,* 2007; Karimi and Rafiee, 2014). Simatupang and Sridharan (2005) brought forth some of the elements that comprised information sharing, including data acquisition, processing, storage, presentation, retrieval, and broadcasting of demand and forecast

data, inventory status and locations, order status, cost-related data, and performance status (Somuyiwa *et al.,* 2012). Shared information can vary from strategic to tactical in nature and from information about logistics activities to general market and customer information (Mentzer, 2001). Many researchers have suggested that the key to the seamless supply chain is making available undistorted and up-to-date marketing data at every node within the supply chain (Childhouse and Towill, 2003). By taking the data available and sharing it with other parties within the supply chain, information can be used as a source of competitive advantage (Jones, 1998).

Lalonde (1998) considers sharing of information as one of five building blocks that characterize a solid supply chain relationship. According to (Stein and Sweat, 1998) supply chain partners who exchange information regularly are able to work as a single entity. Together, they can understand the needs of the end customer better and hence can respond to market change quicker. Moreover, (Tompkins and Ang, 1999) consider the effective use of relevant and timely information by all functional elements within the supply chain as a key competitive and distinguishing factor. The empirical findings of (Childhouse and Towill,2003) reveal that simplified material flow, including streamlining and making highly visible all information flow throughout the chain, is the key to an integrated and effective supply chain (Jie *et al.,* 2007).

- ✓ **Quality of information sharing**

While information sharing is important, the significance of its impact on SCM depends on what information is shared, when and how it is shared and with whom (Holmberg, 2000). Literature is replete with example of the dysfunctional effects of inaccurate/delayed information, as information moves along the supply chain (Stock *et al.,* 2010). Divergent interests and opportunistic behavior of supply chain partners, and informational asymmetries across supply chain affect the quality of information (Kroes *et al.,* 2010). It has been suggested that organizations will deliberately distort information that can potentially reach not only their competitors, but also their own suppliers and customers (Karimi and Rafiee, 2014). This is because information is generally viewed as providing an advantage over competitors (loss of power), and organizations resist sharing with their partners due to the fear of giving away competitive and sensitive information such as inventory levels, production schedules (Somuyiwa *et al.,* 2012). Given these predispositions, ensuring the quality of the shared information becomes a critical aspect of effective SCM (Feldmann *et al.,* 2003). Organizations

need to view their information as a strategic asset and ensure that it flows with minimum delay and distortion.

Furthermore, (Karimi and Rafiee, 2014; Mbuthia and Rotich, 2014; Hussain *et al.*, 2014) proposed various lists of metrics for assessing the quality of information sharing (Tutorialspoint, 2016). A list of the most essential characteristic features for information quality includes the following:

- Reliability - It should be verifiable and dependable.
- Timely - It must be current and it must reach the users well in time, so that important decisions can be made in time.
- Relevant- It should be current and valid information and it should reduce uncertainties.
- Accurate - It should be free of errors and mistakes, true, and not deceptive.
- Sufficient - It should be adequate in quantity, so that decisions can be made on its basis.
- Unambiguous - It should be expressed in clear terms. In other words, in should be comprehensive.
- Complete - It should meet all the needs in the current context.
- Unbiased - It should be impartial, free from any bias. In other words, it should have integrity.
- Explicit - It should not need any further explanation.
- Comparable - It should be of uniform collection, analysis, content, and format.

The dependent Variables

The study main dependent variable is organizational performance which divided into two categories financial/operational and market performance. A total of twelve (12) construct measures will be used to measure organizational performance. They are briefly described as follows:

Financial/operational performance

- ✓ **Deliver dependability**

Is the ability of an organization to provide on time the type and volume of product required by customer (Somuyiwa *et al.*, 2012). According to Zhang *et al.* (2002) delivery dependability includes on-time delivery, order fill rate, frequency of delivery, and delivery speed (Thatte *et al.*, 2009). This has far been made possible by the implementation of lean practices

such as Just-in-Time. Hill (2000) states that "if companies continue to miss due dates, customers will increasingly stop considering them as potential suppliers, leading to loss of market share or even the whole business". These firms will need to improve upon their delivery dependability without which they may not get a chance to compete in the marketplace (Hill, 2000). According to Fawcett *et al.* (1997) have empirically justified delivery dependability to positively and significantly impact organizational performance. Thus in today's competitive business environment, delivery dependability is considered as critical and vital source of competitive advantage (Thatte *et al.,* 2009).

- ✓ **Cost saving**

With appropriate strategic planning, it may be anticipated that the utilization of resources will be optimized leading to cost savings. For example, reduced cycle time in production could be materialized through reducing set-up time and/or eliminating non value-added activities. With a shortened cycle time, more orders could be processed, which would then result in improved efficiency and reduced production cost per unit (Hill, 2000).

- ✓ **Product and service quality**

The ability of an organization to offer product quality and performance that creates higher value for customers (Somuyiwa *et al.,* 2012). A lot of companies emphasize quality as a means to stay competitive in the marketplace over the long run. They have a reputation of high quality as representing future market share for new customers and maintaining market share for existing customers over their lifetime. Further, improving quality can provide term financial savings (Bratić, 2011). Implementation of SCM practices like customer relationship, strategic supplier partnership, information sharing, lean practices will ensure production of high quality products as well as provision of quality services. Example, good cooperation and close exchange of information with customers will ensure production of quality products that customers' desire.

- ✓ **Forecasting accuracy**

Forecasting accuracy is the most important feature in the performance of supply chains. It is a joint performance of a combination of resources such as supply of material, manufacturing, production planning and customer demand prediction. Wickramatillake *et al.* (2006) applied the baseline forecast to consider the major milestones of a large-scale project in order to measure

the performance of the supply chain with respect to meeting the delivery targets. Through closer partnerships with suppliers and customers, it is anticipated that information could be shared, and thus, fed into demand forecasts to improve the accuracy of predictions. This forecast will in turn enable the firm to deliver the order more confidently (Koh *et al.,* 2007). Example, sharing of quality information among the members along the supply chain minimizes bullwhip effects.

- ✓ **Reduced inventory level**

Lean practices such as Just-in-Time supply allows minimum inventory holding through supplies delivered when they are needed. This SCM practice will not only reduce inventory level, but will also free up warehouse space and free cash flow (Mistry, 2006). Therefore, effective implementation SCM practices can reduce the level of high inventory keeping which in return will lead to problems such as piling up of the stocks in the processors' warehouses, spoiled products due to obsolescence, increased distribution and recall costs, increased inventory cost and significant decrease in profit margin resulted from spoiled products (Ruteri and Xi, 2009).

- ✓ **Flexibility**

SCM practices may enhance a firm's flexibility, which could be defined as the firm's ability to adapt to the changes in its business environment. Example, the adaptation of the postponement practice could increase flexibility by creating a balance between market demand and company capabilities to fulfill that demand hence reduce supply chain risk. Building long-term partnership relations with suppliers and customers also helps to improve the flexibility of the supply chain by creating a mutual understanding among the members (Mistry, 2006).

- ✓ **Profit margin**

Profit margin is the ratio of net operating profit to sales (Richard *et al.,* 2009). It refers as a measure of profitability since it measures how much out of every dollar of sales a company actually keeps in earnings. Implementation of SCM practices such as customer relationship, information sharing improve organizational profit margin because it allow organizations to access valuable information which will enable them to differentiate its products from the competitors, and hence sustain customer loyalty.

- ✓ **Return on investment (ROI)**

ROI is usually defined as the ratio of net operating profit to the net book value of assets. The net book value of assets is equal to the firm's assets less the value of intangibles and total liabilities (Richard *et al.,* 2009). Return on investment (ROI) is one of the most popular performance measurement and evaluation metrics used in business analysis (Andru and Botchkarev, 2011).

- ✓ **Return on assets (ROA)**

This is a very popular measure of performance. It is defined as the ratio of net operating profit to the firm's assets recorded on its balance sheet (Richard *et al.,* 2009). ROA is fundamental gauge of efficiency, measuring how well your business is using its assets to generate profit. Supply chain management, meanwhile, is all about improving efficiency, gaining a competitive advantage by streamlining the way you get products into your company and then out to your customers. Improving supply chain management boosts ROA through its effect on both profit and assets. Lean practices like just-in-time boost profits (reduces operating costs) by eliminating excess inventory.

Market performance

- ✓ **Market share growth**

A competitive supply chain in the market might be characterized by efficient use of chain resources which would lead to lower product cost, better product quality, faster response and therefore eventually higher market share (Koh *et al.,* 2007).

- ✓ **Sales growth**

This is the change in sales over the period, expressed as the difference between sales last period and those this period as a percentage of the sales last period (Richard *et al.,* 2009). Through practice of supply chain benchmarking, emerging as a leader in the industry would provide a firm with the opportunity of increased sales. If an industry leader position is still far reaching, benchmarking the supply chain performance against the best practice in the industry would provide incentives for further improvement that will eventually lead to increased sales (Koh *et al.,* 2007).

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is the path of finding answers to the research questions (Dereje, 2012). In this chapter, the researcher provided brief explanation on how the study was conducted it included; the study design, area of the study, sample size, sampling techniques, data collection methods, data analysis, data reliability and validity and ethical issues.

3.2 Research Approach

The study specifically tries to ascertain the SCM practices in MBI and seeks to show their impact on the organizational performance. Thus, the quantitative approach of descriptive survey is appropriate for this study because it is the easiest and economical method of obtaining information through different mechanism. According to Creswell 2003, the quantitative approach is the one in which the investigator primarily uses postpositive claims for developing knowledge, i.e., cause and effect relationship between known variables of interest or it employs strategies of inquiry such as experiments and surveys, and collect data on predetermined instruments that yield statistics data. Therefore, in terms of methods, this research employed mixed method while conducting the study.

3.3 Research design

Designing a study helps the researcher to plan and implement the study in a way that will help the researcher to obtain intended results, thus increasing the chances of obtaining information that could be associated with the real situation (Creswell, 2003). The study adopted quantitative approach which involved the collection of data so that information can be quantified and subjected to statistical treatment in order to support or refute "alternate knowledge claims" (Creswell, 2003). A descriptive survey was used due to nature of study which requires an accurate representation of the characteristics without any intervention.

3.4 Measurement of Variables

The researcher used ordinal level of measurement. At this level numbers are assigned to cases specify only the order of cases permitting greater than and less than distinctions (Engel and Schutt, 2014). Therefore, the study used five-point Likert scale to measure variables since it

support such relationship. Also is commonly used in studies that employs questionnaire. The Likert scale used in this study was considered as categories, not numerical points (that is, 1 - not at all, 2 - to a small extent, 3 - to a moderate extent, 4 - to a great extent 5 - to a very great extent).

3.5 Validity and Reliability

3.5.1 Validity

The study adopted two approaches of validity to ensure validity of measurements. They included as follows;

Criterion validity- is established when the results are obtained from one measure are similar to results obtained with more direct or already validated measure of the same phenomenon (criterion) (Engel and Schutt, 2014). The study used measures which were validated from previous studies to measure the same phenomenon hence increased confidence the measures have measured what they were intended in the first place.

Construct validity - is demonstrated by showing that a measure is related to a variety of other measures of other concepts as specified in the theory (Engel and Schutt, 2014). The study's variables were derived from accepted theories that were tested in previous studies and shown positive results. Example, resource dependent theory supported strategic supplier partnership, customer theory supported customer relationship, transaction cost economics supported lean practice, and communication privacy management theory supported information sharing.

In addition, the validity of research results was increased by using the concept of triangulation. Bryman (2008) defined triangulation as "the use of more than one method or source of data in the study of a phenomenon so that findings may be crosschecked". In the study, triangulation was seen in sampling techniques in order to overcome the weaknesses and biases in selection of respondents and by using other method.

3.5.2 Reliability

The study adopted three approaches of reliability to ensure consistency of scores when measuring the phenomenon in the practical field. They included as follows;

Test-retest reliability - measure a phenomenon that does not change at two different time points,

the degree to which the two measurements are related is the test-retest reliability of a measure.

Internal consistency- multiple items are used to measure a single concept. The stronger association among individual items and the more items are included the higher the reliability of scale.

Inter-rater reliability- more than one observer rate the same people, events, or places, inter-rater is their goal. If observers are using the same instrument to measure the phenomenon, their rating should be similar. The higher the same results the higher the reliability of scale.

Therefore, the reliability and validity's strength of the selected measures/instruments used in the study were proven in the context. Previous studies such as Li *et al*., (2006), Agus (2011), Ho (2011), Bratić (2011), Chen, *et al*. (2014), Kumar and Nambirajan (2014), Hussain *et al*. (2014), Arun and Kumar (2014) and Karimi and Rafiee (2014) have tried to check the strength of these used measures/scales through different phases such as item generation, pre-pilot study, pilot study, factor analysis, large-scale data analysis as well as interviews with academic experts and practitioners in the field. In this process the validity and reliabilities of instruments to measure SCM practices and organizational performance were properly assessed. Therefore, the researcher believed that the adapted instruments have high level of validity and reliability to conduct this study since they have already been tested and shown positive results.

3.6 Study population

Population is defined as the entire set of individuals or other entities to which study findings are to be generalized (Schutt, 2011). The study population was focused on Modern Building Industries PLC's permanent employees located at Addis Ababa and around (within 50kms). The target population of this study was permanent employees, particularly those their educational level is grade ten completed and above. Therefore, out of 440 total employees 295 employees are permanent and out of 295 permanent employees 176 employees are above grade ten.

3.7 Sampling techniques and Sample size

3.7.1 Sampling techniques

The study used purposive and simple random sampling method to select the study sample. This was because purposive sampling method is used when elements are selected due to a specific purpose, usually because of their unique position (Schutt, 2011). According to this study only managers, executive or any individual within the organization of the best knowledge

of SCM practices implementation will be selected. On the other hand, simple random sampling was used because the nature of study was homogeneous (only concerned with one company) hence each individual both lower level and upper level employees has an equal chance of being included in the sample.

3.7.2 Sample size

The size of sample should neither be excessively large, nor too small. It should be optimum. An optimum sample is one which fulfils the requirements of efficiency, representativeness, reliability and flexibility (Kothari, 2004). Therefore the researcher employed Cochran's sample determination formula developed in 1963 to determine the study's sample size.

$$n_o = \frac{Z^2 pq}{e^2} = 385$$

Where: n_o is the sample size, z is the value for the selected alpha level, e.g. 1.96 for (0.25 in each tail) a 95 percent confidence level. p is the estimated proportion of an attribute that is present in the population. q is 1-p. (p)(q) are the estimate of variance. e is the acceptable margin of error for proportion being estimated, so the confidence interval, in decimals.

According to Cochran, when the population is small then the sample size can be reduced slightly. This is because a given sample size provides proportionately more information for a small population than for a large population. Therefore these studies use the following formula:

$$n = \frac{n_o}{1 + \frac{(n_o - 1)}{N}}$$

Where n is the sample size and N is the population size.

Therefore the study sample size n= 385/ (1+ ((385-1)/176)) = 121 employees.

Note: From 121 employees 15 employees are management staffs and 42 employees are degree holders.

3.8 Sources and types of Data

The study used primary data that was collected through questionnaire. The study also used secondary data sources from the company's statement, books, articles, journal, websites and previous studies concerning SCM practices implementation and how it impact organizational performance. These sources provided the study with facts and concepts which later then were used to derive study variables. All the secondary data sources used in this study were listed in the reference section. Additionally, the study was used interview as a primary data for triangulate the findings.

3.9 Data Collection techniques

The study collected primary data. Primary data are first-hand information, data collected directly from an original source. Primary data can be collected through observation, interviews, or the use of questionnaires (Saunders *et al.*, 2009). The study used questionnaires to collect primary data for quantitative analysis. The questionnaires were designed to inquire answers in the form of closed questions. The researcher collect data from Management staffs in the form of interview which is used for triangulate the findings.

3.10 Data processing and analysis

3.10.1 Data processing

The complete questionnaires were edited for the purpose of ensuring completeness and consistency in the responses. The questionnaires' responses were coded to simplify the process of data entry.

The completed questionnaires' data were entered directly into the SPSS Data Editor. At the end of each line of input, all of the data in that line were checked immediately for accuracy.

3.10.2 Data analysis

Data analysis refers to the computation of certain measures along with searching for patterns of relationship that exist among data-groups (Kothari, 2004). In order to analyze the data the two sets of statistics: descriptive and inferential statistics are used through SPSS software. Descriptive statistics were used to describe, present and summarize quantitative information in the form of measures of central tendency (mean was used to describe the central position) and measures of spread (standard deviation was used to describe the spread of score). Furthermore,

tabulated description (that is, tables) and graphical description (that is, charts) was used to analyze preliminary data. Inferential statistics whereby on tests such as chi-square test was used to test for significance of differences between the observed and the expected distributions of data, while correlation was used to measure the direction and strength of relationship between the research variables. Moreover Kruskal-Wallis test was used to test significance (effect) of such relationship of the dependent variable (organizational performance) from independent variables (SCM practices).

3.11 Ethical issue

According to Leedy and Ormrod (2010), most ethical issues fall into one of the following four categories; informed consent, confidentiality, security and honesty. Therefore, the researcher considered all these issues in the questionnaire guidelines in the following manner:

Informed consent: all participants were briefly informed about the reason of conducting such study therefore enabled them to join with full consent.

Right to privacy (confidentiality): the researcher kept the nature and quality of participants' performance strictly confidential. No information was recorded to link respondents with their responses.

Security: the researcher did not expose the participants to unusual stress, embarrassment, or loss of self-esteem.

Honesty: the researcher reported the findings in complete honesty

CHAPTER FOUR

RESULTS, DISCUSSIONS AND INTERPRETATIONS

5.1 Introduction

In this chapter the researcher presented the main findings from which the analysis was made. The researcher analyzed the results with respect to research objectives and research questions from chapter one. The chapter was divided into two major parts; descriptive statistics analysis and inferential statistics analysis. Data analysis for both descriptive statistics and inferential statistics was made possible with the help of Statistical Package for Social Science (SPSS-20) software.

5.2 Descriptive statistics analysis

This section basically analyzed preliminary data for generating descriptive statistics whereby frequencies and percentages were used to present quantitative data in the form of tables and charts for demographic description of respondents. Also calculation of arithmetic means and standard deviations was made to measure the extent of SCM practices implementation and organizational performance of the organization.

4.2.1 Demographical description of respondents

Demographic information described individual profile. The profile section included aspects of job title/position, level of education, and years of experience.

Job title/position of the respondents

As indicated in the below table 4.1, the majority of respondents (85.6%) stated their job titles specifically related to different functions such as materials management department, production/operation department, human resource management department, marketing department, quality control department, finance department and so on.

The second group came from management staff (14.4%) such as, general manager, plant managers, marketing managers, finance managers, materials management managers and so on. Majority of the respondents, this had increased validity of the study because these are the type of people who are well acknowledged in matters concern organizations' activities and performance hence are expected to be well informed about their firm overall activities. Only few respondents were

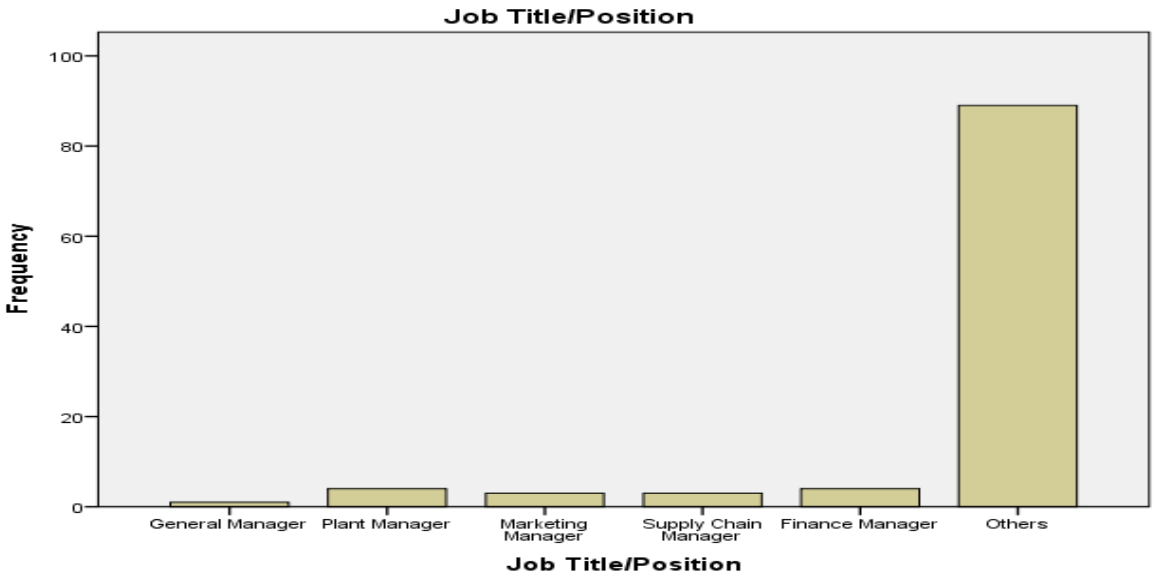
not specifically related to overall activities, that is, they hold administrative positions such as human resource management and general services.

Table: 4.1: Job title of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	General Manager	1	.8	1.0	1.0
	Plant Manager	4	3.3	3.8	4.8
	Marketing Manager	3	2.5	2.9	7.7
	Supply Chain Manager	3	2.5	2.9	10.6
	Finance Manager	4	3.3	3.8	14.4
	Others	89	73.6	85.6	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

Source: Survey data, 2017

Fig 4.1: Job title of respondents



Source: Survey data, 2017

Education level of the respondents

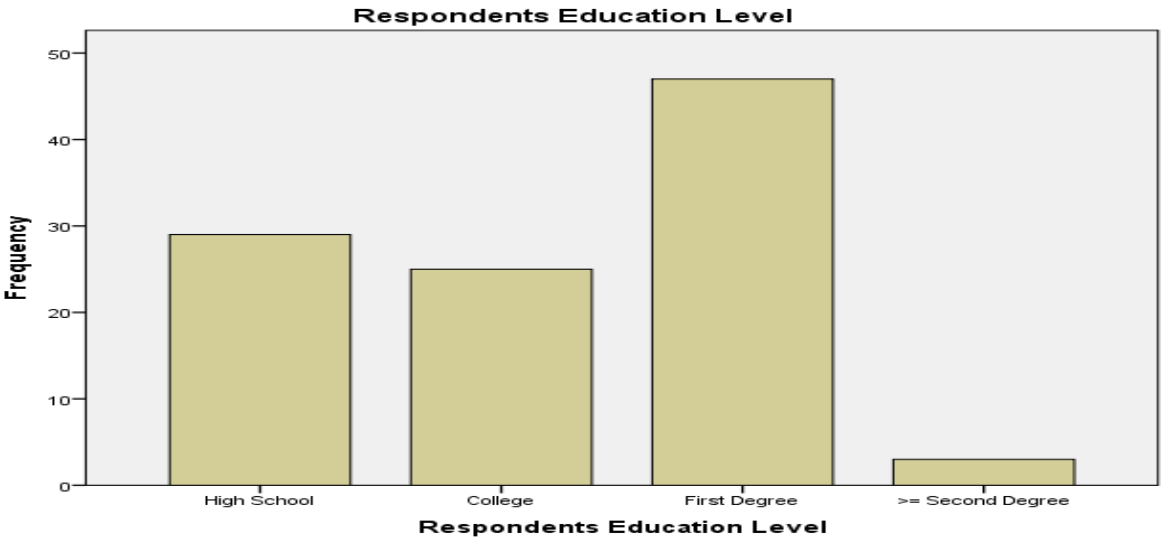
As indicated in the below table 4.2, it showed clearly majority of respondents possessed bachelor degree (45.2%) and advance degree such as master's degree and above (2.9%). Respondents with level of college diploma and high school were of 24% and 27.9% respectively. Therefore 72.1% of respondents was well educated and had the ability to understand the questions they were presented with.

Table: 4.2: Education level of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High School	29	24.0	27.9	27.9
	College	25	20.7	24.0	51.9
	First Degree	47	38.8	45.2	97.1
	>= Second Degree	3	2.5	2.9	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

Source: Survey data, 2017

Fig 4.2: Education level of respondents



Source: Survey data, 2017

Work Experience of respondents

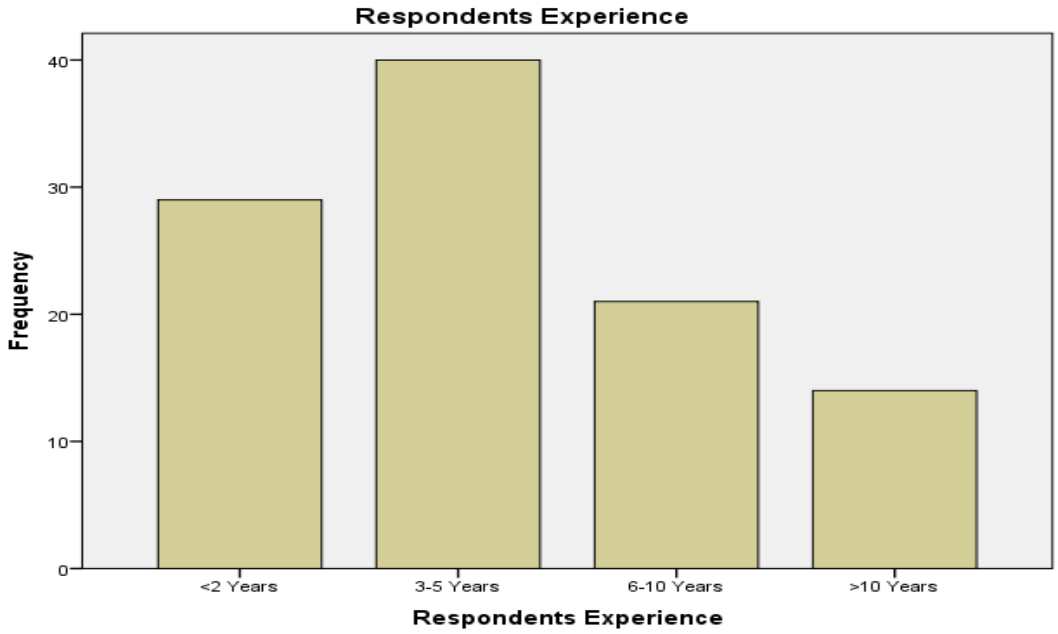
A large number of respondents' work experience lies between 3 to 5 years (38.5%), followed less than 2 years (27.9%) and 6 to 10 years (20.2%). Only few respondents' work experience is over 10 years (13.5%). Therefore, since majority of respondents lie above 3 years of work experience, this shows that the respondents are well knowledgeable about overall activities of their company and its organizational performance.

Table: 4.3: Work experience of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<2 Years	29	24.0	27.9	27.9
	3-5 Years	40	33.1	38.5	66.3
	6-10 Years	21	17.4	20.2	86.5
	>10 Years	14	11.6	13.5	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

Source: Survey data, 2017

Fig 4.3: Work experience of respondents



Source: Survey data, 2017

4.2.2 Means and Standard Deviations of Study Variables on the extent of SCM practices and organizational performance

This section has presented the extent of practical implementation of SCM practices and organizational performance in Modern Building Industries. The main goal was to calculate the percentage, mean and standard deviation of study variables. A number of questions were asked to the respondents who gave their responses on a scale of 1-5 where 1 represents to not at all practiced, 2 - to a small extent, 3 - to a moderate extent, 4 - to a great extent and 5 to a very great extent.

4.2.2.1 Strategic supplier partnership

Respondents were asked to indicate the extent to which the five variables under strategic supplier partnership practice were experienced in its company. These variables include the extent of the company practices in identifying reliable suppliers, regularly solving problems jointly with suppliers, having long term contract agreement with reliable suppliers, organizing continuous improvement programs that include key suppliers, involvement of suppliers in problem solving as well as goal-setting activities.

Table 4.4: Extent of the current strategic supplier partnership practices

Variables	N %	S %	M %	G %	V %	M	SD
Quality as our number one criterion in selecting supplier	-	13.5	44.2	26.0	16.3	3.45	.923
Regularly Solving problems jointly with our suppliers	-	15.4	38.5	30.8	15.4	3.46	.934
Long-term contract agreement with reliable suppliers	1.0	16.3	47.1	30.8	4.8	3.22	.812
Continuous improvement programs that include key suppliers	-	17.3	34.6	36.5	11.5	3.42	.910
Involvement of key suppliers in planning and goal setting activities	-	19.2	34.6	30.8	15.4	3.42	.972

Source: Survey data, 2017

Whereas: N - Not at all, S- Small extent, M- Medium extent, G- Great extent, V- Very great extent, M- Mean and SD- Standard Deviation

It is clear from means of values of variables mentioned in Table 4.4 that suppliers are selected based on the quality of their performance, joint problem solving with suppliers, long term contractual agreement with reliable suppliers as well as involvement of key suppliers

on continuous improvement program and other critical activities were practiced to a 'moderate extent' range between 3.22 and 3.46. Accordingly, one can conclude that strategic supplier partnership practices were averagely applied in Modern Building Industries PLC.

4.2.2.2 Customer relationship

In this section respondents were asked to rate its practice of customer relationship practices in five variables. These variables include the extent of the companies' practice in terms of frequent interaction with customers to set reliability and responsiveness, measure of customer satisfaction and expectation, facilitate customers' ability to seek assistance as well as periodical evaluation of the importance of relationship with customers.

Table 4.5: Extent of the current customer relationship practices

Variables	N %	S %	M %	G %	V %	M	SD
Frequently interaction with customers to set reliability, responsiveness and other standards	-	11.5	37.5	38.5	12.5	3.52	.859
Frequent measure and evaluate customer satisfaction	-	10.6	28.8	47.1	13.5	3.63	.848
Frequent determination of future customer expectations	1.0	6.7	48.1	36.5	8.7	3.47	.750
Facilitate customers' ability to seek assistant	-	11.5	45.2	33.7	9.6	3.41	.820
Periodical evaluation of the importance of relationship with customers	-	16.3	38.5	35.6	9.6	3.38	.874

Source: Survey data, 2017

Whereas: N - Not at all, S- Small extent, M- Medium extent, G- Great extent, V- Very great extent, M- Mean and SD- Standard Deviation

As indicated in Table 4.5, most of the respondents stated that they had good customer relationship practices from moderate up to great extent. Briefly, mean values of frequent interaction with customers to set reliability, responsiveness and other standards (3.52) and measure of customer satisfaction (3.63) is close to great extent and the others were practiced in moderate extent.

4.2.2.3 Information sharing practices

Respondents were asked to assess its information sharing practice in terms of forecast of demands, exclusiveness, timeliness, reliability and the means that information were exchanged.

Table 4.6: Extent of the current information sharing practices

Variables	N %	S %	M %	G %	V %	M	SD
We inform supply chain partners in advance for changing needs	-	13.5	48.1	28.8	9.6	3.35	.833
Sharing proprietary information with supply chain partners	-	8.7	43.3	37.5	10.6	3.50	.800
Information exchange with supply chain partners is timely	-	9.6	39.4	39.4	11.5	3.53	.824
Information exchange with supply chain partners is reliable	-	15.4	25.0	32.7	26.9	3.71	1.030
The information exchange between us and supply chain partners help to establish business planning	-	10.6	32.7	29.8	26.9	3.73	.978

Source: Survey data, 2017

Whereas: N - Not at all, S- Small extent, M- Medium extent, G- Great extent, V- Very great extent, M- Mean and SD- Standard Deviation

Table 4.6 indicates that 48.1% and 28.8% of the respondents had informed its supply chain partners about changing needs to a moderate and great extent respectively, while 13.5% of them did provide such information at small. On the contrary, only 9.6% of the respondents experienced such type of practice to a very great extent. Regarding proprietary information exchange with supply chain partners, 43.3% of respondents rated their experience as being at a moderate extent and 37.5% noted their experience at a great extent. On the other hand, the highest percentages with respect to timeliness 39.4%, reliability of information exchange 32.7% and business planning establishment and information exchange with supply chain partners 32.7% of the respondents indicated that they had such type of experience to a moderate extent and above.

Since all individual mean values of the above five variables in Table 4.6 are close to the highest mean value (3.73) then it can be concluded that information sharing among supply chain partners in MBI is practiced to a medium extent and above.

4.2.2.4 Lean practices

Respondents were asked to indicate the extent to which the five variables under lean practice were experienced in the firm. These variables include the extent of the firm practices related to reduction of set-up time; applying continuous quality improvement program and a ‘‘Pull’’ production system. It also contains variables that could show how the firm are pushing for shorter lead-times as well as using JIT system.

Table 4.7: Extent of the current lean practices

Variables	N %	S %	M %	G %	V %	M	SD
Reducing process set-up time	-	10.6	51.9	36.5	1.0	3.28	.660
Continuous quality improvement program	-	6.7	45.2	37.5	10.6	3.52	.776
Using of pull production system	1.9	10.6	44.2	37.5	5.8	3.35	.822
Pushing suppliers for shorter lead time	-	13.5	36.5	46.2	3.8	3.40	.770
Buying product with a smaller batch (JIT)	1.0	40.4	37.5	19.2	1.9	2.81	.825

Source: Survey data, 2017

Whereas: N - Not at all, S- Small extent, M- Medium extent, G- Great extent, V- Very great extent, M- Mean and SD- Standard Deviation

As can be seen from Table 4.7, 40.4% of the respondents indicated that they had small levels of practice with respect to applying JIT system while for other variables respondents indicated that they had practiced at a moderate and great extent level.

On the other hand, the mean value of the JIT practices is 2.81, which is less than the average mean value (3.27), whereas mean values of other practices such as reduction of set-up time (3.28), continuous quality improvement program (3.52), using of pull production system (3.35) and pushing suppliers for shorter lead-times (3.40) were above the average mean value (3.27) which means the practices are in the moderate and above level.

4.2.2.5 Organizational performance

In this section respondents were asked to rate its level of organizational performance in comparison to their competitors using eight variables. These variables were used to assess the performances of the firm with respect to on-time delivery, product and service quality, operating costs, flexibility, forecasting accuracy, reducing inventory level, sales growth and market share growth. In this stage the researcher used secondary data from actual financial statement for organizational performance measures which help to triangulate the result.

Table 4.8: Extent of organizational performance

Variables	N %	S %	M %	G %	V %	M	SD
Our on time delivery performance is better	2.9	19.2	52.9	22.1	2.9	3.03	.806
Our Product and services quality better than our competitors	-	3.8	30.8	52.9	12.5	3.74	.724
Our operating costs are lower than our competitors	3.8	12.5	56.7	26.9	-	3.07	.741
Our firms quickly adapt changes in business environment (Flexibility)	1.0	7.7	54.8	35.6	1.0	3.28	.660
Forecasting Accuracy	-	10.6	52.9	33.7	2.9	3.29	.692
Reduced Inventory level	-	24.0	44.2	29.8	1.9	3.10	.782
Our sales is growing	-	5.8	57.7	30.8	5.8	3.37	.683
Our market share is growing	1.9	11.5	42.3	37.5	6.7	3.36	.847

Source: Survey data, 2017

Whereas: N - Not at all, S- Small extent, M- Medium extent, G- Great extent, V- Very great extent, M- Mean and SD- Standard Deviation

As indicated in table 4.8, 52.9 % of the respondents had stated that product and service quality of the firm with regard to their competitor had great performance. In response to the other dimensions of organizational performances: on time delivery, reduction of operating costs, flexibility, forecasting accuracy, reduced inventory level, sales growth and market share growth, 52.9%, 56.7%, 54.8%, 52.9%, 44.2%, 57.7% and 42.3% of the respondents were agreed that they had relatively moderate level of performance respectively. On the other hand, in the reducing inventory level, on time delivery, operating cost and market share growth variables, the percentage of small extent practice is interpreted at two digit numbers but the mean values of those variables are shown at the moderate level.

Based on the secondary data, the researcher analyzes the financial statement of the firm by using ratio analysis.

i. Net Profit Margin Ratio (NPM)

The ratio measure the company's percentage of each sales Birr remaining after all costs.

$$NPM = \frac{\text{Net Income (Loss)}}{\text{Sales}}$$

Table 4.9: Net Profit Margin Ratio

Year	2012	2013	2014	2015	2016
Net Income/Loss	30,495,622.00	32,781,753.00	43,059,059.00	(34,668,553.00)	43,677,250.00
Sales	300,292,367.00	353,066,793.00	425,788,670.00	390,148,873.00	305,776,155.00
NPM	**0.10**	**0.09**	**0.10**	**(0.09)**	**0.14**

Source: Financial Statement

In the year 2012 the company net profit margin ratio was 0.10. In 2013 the NPM was decreased by 9% and in the year 2015 it was decreased by 188% as compared to the 2012 base year. In 2015 the company's warehouse attacked by fire accident but with the help of company's management staff; it was fully recovered from accident and increases its NPM by 41% from base year 2012.

In general, on average 7% of net sales is the net income after tax. This indicates that the company was not efficient in resource utilization since the portion of net income for sales is low. This comes because the company did not control its cost efficiently or its marketing strategy is weak.

ii. Rate of Return on Asset (ROA)

It measures the company's profitability per birr of investment in total asset.

$$ROA = \frac{\text{Net Income (Loss)}}{\text{Total Assets}}$$

Table 4.10: Rate of Return on Asset

Year	2012	2013	2014	2015	2016
Net Income/Loss	30,495,622.00	32,781,753.00	43,059,059.00	(34,668,553.00)	43,677,250.00
Total Asset	259,640,677.00	292,219,273.00	352,676,769.00	312,052,792.00	363,451,619.00
ROA	**0.12**	**0.11**	**0.12**	**(0.11)**	**0.12**

Source: Financial Statement

In 2015 ROA was decreased by 195% as compared to the base year 2012 due to fire accident but for the other four years it was constant almost. As a result, the company's utilize its asset efficiently because its ROA is sufficient.

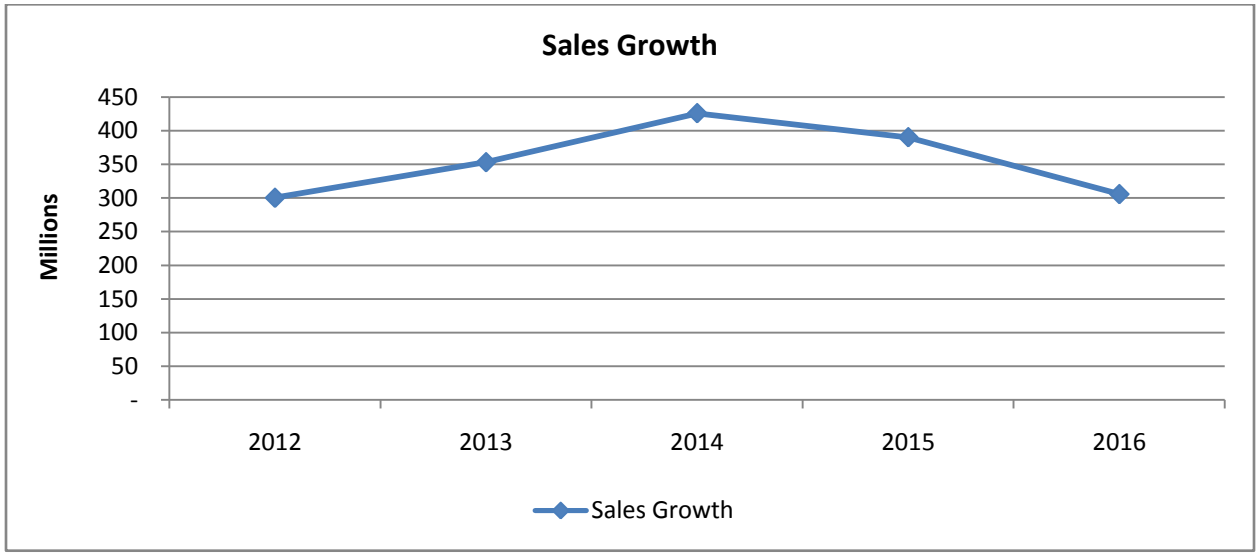
iii. Sales Growth

It measures the company's sales trend year to year.

Table 4.11: Sales Growth

Year	2012	2013	2014	2015	2016
Sales	300,292,367.00	353,066,793.00	425,788,670.00	390,148,873.00	305,776,155.00

Source: Financial Statement



The company's sales growth shows incremental trend for the first three years but in 2015 due to fire accident it was decreased from pick point but as compared to base year the company's sales growth is good with in this research period.

4.2.3 To investigate the understanding of SCM practices implementation among MBI

Respondents were asked to indicate its understanding of SCM practices implementation whereby five SCM practices were listed. They included strategic supplier partnership, customer relationship, level and quality of information sharing and lean practices. As shown from table 4.12, based on the means calculated to each variable, degree and quality of information sharing

is the concept that was well understood by many respondents to a 'moderate extent' (3.53) close to a great extent on average. SCM practices such as strategic supplier partnership, customer relationship and lean practices lie between 3.26 and 3.48 hence were understood to a 'moderate extent'. Nevertheless, many respondents have shown to understand these practices at moderate extent that is 55.8%, 53.8%, 48.1% and 67.3% respectively. Therefore, from these figures, it is clear that majority of Modern Building Industries PLC employees are understand how to implement SCM practices.

Table 4.12: Extent of understanding SCM practices implementation

Variables	N %	S %	M %	G %	V %	M	SD
Strategic Supplier Partnership	-	1.9	55.8	39.4	2.9	3.43	.587
Customer Relationship	-	2.9	53.8	35.6	7.7	3.48	.682
Degree and Quality of Information Sharing	-	2.9	48.1	42.3	6.7	3.53	.668
Lean Practices	-	3.8	67.3	27.9	1.0	3.26	.540

Source: Survey data, 2017

Whereas: N - Not at all, S- Small extent, M- Medium extent, G- Great extent, V- Very great extent, M- Mean and SD- Standard Deviation

5.3 Inferential Statistics Analysis

This section, tried to reach conclusions that extended beyond the immediate data provided by descriptive statistics. To go through this, hypothesis testing as one of the method of inferential statistics was used.

4.3.1 Hypothesis testing

Hypotheses developed were based on study objectives. Hypothesis one (H1) was formulated for objective one, that is, to investigate the understanding of SCM practices implementation in Modern Building Industries PLC. Hypothesis two to five (H2 to H5) were formulated for objective two, that is, to assess the level of practical implementation of SCM practices in Modern Building Industries PLC. Hypothesis six to nine (H6 to H9) were formulated for objective three, that is, to examine the relationship between SCM practices and organizational performance in Modern Building Industries PLC. Three common nonparametric tests were used to test these hypotheses, they included, chi square, Spearman's correlation and Kruskal-Wallis test. Non parametric analysis was used because the empirical data were in form of frequencies and measured at the ordinal level hence did not follow any normal distribution. Therefore, all

formulated hypotheses had alternative hypothesis and null hypothesis.

4.3.1.1 Chi square test

Chi-square goodness of fit test (simple chi-square) was used to compare the observed sample distribution with the expected probability distribution. The first five hypotheses (H1 up to H5) were tested to determine whether there was a significance difference between the expected frequencies and the observed frequencies in one or more categories. To test the null hypotheses the researcher had entered the values for the null hypothesis proportions in numerical order by category value in order to compare sample distribution to a different sort of population distribution by specifying the expected values.

The test statistic value was compared with the p-value (significance value) whereby p= 0.05. If the test statistic value was greater than p-value (> 0.05), then the null hypothesis was accepted and concluded there was no significant difference between the observed and the expected frequency. If the test statistic value was less than the p-value (<0.05), then the null hypothesis was rejected and concluded there is a significant difference between the observed and expected value.

Hypothesis 1

Ho1: The understanding of SCM practices implementation in MBI is not low.

Ha1: The understanding of SCM practices implementation in MBI is low.

Table 4.13: Statistical chi-square test for understanding of SCM practices

	Strategic Supplier Partnership	Customer Relationship	Degree and Quality of Information Sharing	Lean Practices
Chi-Square	90.538[a]	72.077[a]	68.846[a]	117.462[a]
df	3	3	3	3
Asymp. Sig.	.000	.000	.000	.000

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 26.0.

Source: Survey data, 2017

As seen from table 4.13, the calculated chi-square values of all variables were less than the critical value of 0.05. Since the test statistic values for these variables were less than p-value the null

hypothesis was rejected "The understanding of SCM practices implementation in MBI is not low". This means majority of respondents had poor understanding of SCM practices.

Hypothesis 2

Ho2: Strategic supplier partnership practice is not weak in MBI.

Ha2: Strategic supplier partnership practice is weak in MBI.

Table 4.14: Statistical chi-square test for strategic supplier partnership practices

	We consider quality as our number one criterion in selecting supplier	We regularly solve problems jointly with our suppliers	We entered into long term contract agreement with reliable suppliers	We have continuous improvement programs that include our key suppliers	We include our key suppliers in our planning and goal setting activities
Chi-Square	24.077[a]	16.615[a]	75.808[b]	19.385[a]	10.462[a]
df	3	3	4	3	3
Asymp. Sig.	.000	.001	.000	.000	.015

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 26.0.

b. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 20.8.

As indicated in Table 4.14 the calculated chi-square values of all variables were less than the critical value of 0.05. Therefore, the null hypothesis, H_o1: "strategic supplier partnership practice is not weak in MBI" was rejected in favor of the alternative hypothesis, H_a1: "strategic supplier partnership practice is weak in MBI". This clearly shows that MBI have serious weaknesses in practicing strategic supplier partnership practices. It also implies that MBI is weak in applying modern SCM practices in terms of selecting suppliers on the basis of quality performance, regularly solving problems jointly with suppliers, establishing long term contract agreement with reliable suppliers, participating key suppliers in continuous improvement programs and planning activities.

Hypothesis 3

Ho3: Customer relationship practice is not weak in MBI.

Ha3: Customer relationship practice is weak in MBI.

Table 4.15: Statistical chi-square test for customer relationship practices

	We frequently interact with customers to set reliability, responsiveness, and other standards for us	We frequently measure and evaluate customer satisfaction	We frequently determine future customer expectations	We facilitate customers' ability to seek assistant from us	We periodically evaluate the importance of our relationship with our customers
Chi-Square	28.077[a]	35.154[a]	52.692[a]	37.462[a]	25.154[a]
df	3	3	3	3	3
Asymp. Sig.	.000	.000	.000	.000	.000

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 26.0.

The chi-square test results indicated in Table 4.15 show that all calculated chi square values were less than the level of significance 0.05. Therefore, the null hypothesis "customer relationship practice is not weak in MBI" was rejected while the alternative hypothesis "customer relationship practice is weak in MBI" was accepted.

This shows that MBI have challenges with working frequently together with customers to set reliability, responsiveness, and other standards; frequent measure of customer satisfaction; determination of future customer expectations and facilitating customers' ability to seek assistance as well as building and maintaining long term contract agreement with reliable customers.

Hypothesis 4

Ho4: The level of information sharing practice is not weak in MBI.

Ha4: The level of information sharing practice is weak in MBI.

Table 4.16: Statistical chi-square test for degree and quality of information sharing practices

	We inform supply chain partners in advance for changing needs	Our supply chain partners share proprietary information with us	Information exchange between our supply chain partners and us is timely	Information exchange between our supply chain partners and us is reliable	We and our supply chain partners exchange information that help establishment of business planning
Chi-Square	38.154[a]	40.154[a]	34.692[a]	6.462[a]	12.231[a]
df	3	3	3	3	3
Asymp. Sig.	.000	.000	.000	.091	.007

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 26.0.

In Table 4.16 all calculated chi-square values except information exchange between supply chain partners and us were less than significance 0.05. Therefore, the null hypothesis "the level of information sharing practices in MBI is not weak" was rejected and in contrast the alternative hypothesis "the level of information sharing practices in MBI is weak" was supported.

As it is mentioned in the literature review, information exchange among business partners is very important issue for coordinating actions and has an impact on the bullwhip effect. However, MBI is not using it as an effective way of creating value for customers yet. On the contrary, they are relatively strong in information exchange practices between supply chain partners and MBI.

Hypothesis 5

Ho5: Lean practice is not weak in MBI.

Ha5: Lean practice is weak in MBI.

Table 4.17: Statistical chi-square test for lean practices

	Our firm reduces process set-up time	Our firm has continuous quality improvement program	Our firm uses a pull production system	Our firm pushes suppliers for shorter lead time	Our firm buys products in smaller batches only when they are needed at the place where they are needed and exactly in a quantity required (JIT) "Pull" production system
Chi-Square	68.385[a]	46.000[a]	78.596[b]	48.308[a]	73.404[b]
df	3	3	4	3	4
Asymp. Sig.	.000	.000	.000	.000	.000

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 26.0.

b. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 20.8.

As indicated in table 4.17 the calculated chi-square values of all variables were less than the critical value of 0.05. Therefore, the null hypothesis "lean practice is not weak in Ethiopian MBI" was rejected in favor of the alternative hypothesis "lean practice is weak in MBI".

It is evident from the result found that MBI have weaknesses in terms of reducing set-up time, having continuous quality improvement program, using a ''Pull'' production system, pushing suppliers for shorter lead time as well as using JIT system.

4.3.1.2 Spearman's correlation and Kruskal-Wallis H test.

To examine the relationship between SCM practices and organizational performance in MBI

From hypothesis H6 to H9 were formulated to determine whether there was a relationship between SCM practices and organizational performance. Three key features from such relationship were considered that is, their strength, direction and level of significance. Nonparametric tests, that is, Spearman correlation coefficients and Kruskal-Wallis were used respectively. Spearman's rank-order correlation coefficient (r_s) ranges from -1 to +1, whereby when r_s is +1 it indicates a perfect association between variables, as r_s = zero it indicates no association between variables and if r_s is -1 indicates a perfect negative association of variables. Kruskal-Wallis H test was used to determine if there are statistically significant differences between two or more groups of an independent variable on a continuous or ordinal dependent variable. Thus, from the study, Kruskal-Wallis H test was used to make a comparison between responses with

high and low level of SCM practices. This means responses from 1 - "not at all" up to 3 - "to a moderate extent" were considered as low level of SCM practices while 4 - " to a great extent" and 5 - " to a very great extent" were regarded as high level of SCM practices.

Hypothesis 6

Ho6: There is no relationship between the strategic supplier partnership and organizational performance in MBI.

Ha6: There is relationship between the strategic supplier partnership and organizational performance in MBI.

Table 4.18: Correlations between strategic supplier partnership and organizational performance

			Strategic Supplier Partnership	Organizational Performances
Spearman's rho	Strategic Supplier Partnership	Correlation Coefficient	1.000	.028
		Sig. (2-tailed)	.	.779
		N	104	104
	Organizational Performances	Correlation Coefficient	.028	1.000
		Sig. (2-tailed)	.779	.
		N	104	104

As indicated in Table 4.18 the statistical result which equals 0.779 is well above the significance value of 0.05. Therefore, there is no evidence to reject the null hypothesis "there is no relationship between the strategic supplier partnership and organizational performance in MBI" in favor of the alternative hypothesis "there is relationship between the strategic supplier partnership and organizational performance in MBI".

Accordingly, it is evident that there is no statistically significant relationship between the independent variable (strategic supplier partnership) and the dependent variable (organizational performance).The calculated correlation coefficient 0.028 shows that there was a very weak positive relationship between the strategic supplier partnership and organizational performance in MBI, as correlation coefficients between .00 and .40 are considered weak (Diamantopoulos et al., 2000).

Table: 4.19: Kruskal-Wallis test result for strategic supplier partnership practices and organizational performance

	Organizational Performances
Chi-Square	1.399
df	2
Asymp. Sig.	.497

a. Kruskal Wallis Test

b. Grouping Variable: Strategic Supplier Partnership

The test statistics Table 4.19 presents the Chi-square value, the degrees of freedom and the significance level. The Kruskal-Wallis test value indicated that strategic supplier partnership did not influence on the organizational performance of BMEIs because the calculated p-value (0.497) was greater than 0.05 significant value.

Hypothesis 7

Ho7: There is no relationship between the customer relationship practices and organizational performance in MBI.

Ha7: There is relationship between the customer relationship practices and organizational performance in MBI.

Table 4.20: Correlations between customer relationship practices and organizational performance

			Customer Relationship	Organizational Performances
Spearman's rho	Customer Relationship	Correlation Coefficient	1.000	.210*
		Sig. (2-tailed)	.	.032
		N	104	104
	Organizational Performances	Correlation Coefficient	.210*	1.000
		Sig. (2-tailed)	.032	.
		N	104	104

*. Correlation is significant at the 0.05 level (2-tailed).

As indicated in Table 4.20 calculated significance value 0.032 was less than the critical value of 5% significance; as a result, the null hypothesis "there is no relationship between customer relationship practices and organizational performance in MBI" was rejected. But as per the correlation data there was weak relationship between independent variable (customer relationship) and the dependent variable (organizational performance). Because the calculated

correlation coefficient 0.210 shows that there was a very weak, almost zero, relationship between the two variables. This finding was also tested with Kruskal-Wallis test.

Table: 4.21: Kruskal-Wallis test result for customer relationship practices and organizational performance

	Organizational Performances
Chi-Square	2.692
df	2
Asymp. Sig.	.260

a. Kruskal Wallis Test

b. Grouping Variable: Customer Relationship

As can be observed from Table 4.21 the Kruskal-Wallis test value indicated that customer relationship did not influence the organizational performance of MBI since the calculated p-value (0.260) was greater than 0.05 significant value.

Hypothesis 8

Ho8: There is no relationship between the degree and quality of information sharing and organizational performance in MBI.

Ha8: There is relationship between the degree and quality of information sharing and organizational performance in MBI.

Table 4.22: Correlations between degree and quality of information sharing and organizational performance

			Degree and Quality of Information Sharing	Organizational Performances
Spearman's rho	Degree and Quality of Information Sharing	Correlation Coefficient	1.000	.283**
		Sig. (2-tailed)	.	.004
		N	104	104
	Organizational Performances	Correlation Coefficient	.283**	1.000
		Sig. (2-tailed)	.004	.
		N	104	104

**. Correlation is significant at the 0.01 level (2-tailed).

From table 4.22 there was weak correlation between the degree and quality of information sharing and organizational performance which was statistically significant (r_s (104) =0.283, p=0.004). Therefore, the null hypothesis "there is no relationship between the degree and quality of information sharing and organizational performance in MBI" was rejected. But there was a very weak relationship between the two variables.

Table: 4.23: Kruskal-Wallis test

	Organizational Performances
Chi-Square	7.958
df	2
Asymp. Sig.	.019

a. Kruskal Wallis Test

b. Grouping Variable: Degree and Quality of Information Sharing

As can be observed from table 4.23, information sharing did influence on the organizational performance of MBI since the calculated p-value (0.019) was less than the significant value of 0.05.

Hypothesis 9

Ho9: There is no relationship between lean practices and organizational performance in MBI.

Ha9: There is relationship between lean practices and organizational performance in MBI.

Table 4.24: Correlations between lean practices and organizational performance

			Lean Practices	Organizational Performances
Spearman's rho	Lean Practices	Correlation Coefficient	1.000	.260**
		Sig. (2-tailed)	.	.008
		N	104	104
	Organizational Performances	Correlation Coefficient	.260**	1.000
		Sig. (2-tailed)	.008	.
		N	104	104

**. Correlation is significant at the 0.01 level (2-tailed).

From Table 4.24 it can be seen that the calculated significance value 0.008 was less than the critical value of 5% significance; as a result, the null hypothesis "there is no relationship between lean practice and organizational performance in MBI" was rejected. This implies that there was a positive relationship between lean practice and organizational performance. The calculated correlation 0.260 shows that there was a weak positive relationship between the two variables, because correlation coefficients between .00 and .40 are considered weak (Diamantopoulos et al., 2000). This finding was also tested with Kruskal-Wallis test.

Table: 4.25: Kruskal-Wallis test result for lean practices and organizational performance

	Organizational Performances
Chi-Square	7.052
df	2
Asymp. Sig.	.029

a. Kruskal Wallis Test

b. Grouping Variable: Lean Practices

The Kruskal-Wallis test value indicated that lean practices did influence the organizational performance of MBI because the calculated p-value (0.029) was less than 0.05 significant value.

CHAPTER FIVE
SUMMARY OF MAJOR FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter made some discussion on research findings as presented in chapter four so as to extract meaningful information behind such outcomes. Discussion was made possible with the help of cross-referencing to other relevant previous studies. Centre of discussion based on research specific objectives, whereby the first section focused in the understanding of SCM practices implementation, the second section focused on the level of SCM practices implementation and the last section dealt with the relationship between SCM practices and organizational performance. The chapter also discusses conclusions and recommendations were made based on the research findings. Furthermore suggestions for future research were made.

5.2 The extent of understanding SCM practices implementation.

In this study a new discovery was made with regards to an understanding of SCM practices implementation in MBI whereby majority of respondents not understand how to implement such practices. This was evidently proved when the null hypothesis which stated "The understanding of SCM practices implementation in MBI is not low" was rejected. The researcher randomly selected respondents from the firm functional departments. Modern Building Industries PLC employees did not understand SCM practices implementation at great or very great extent in a way it can be concluded by saying they fully understood it at the maximum level since the mean value for practices such as strategic supplier partnership, customer relationship, level and quality of information sharing and lean practices lie between 3.26 and 3.53 which means were understood to a 'moderate extent'.

5.3 The extent of practical SCM practices implementation.

To determine the extent of practical SCM practices implementation in MBI five key SCM practices were selected that is, strategic supplier partnership, customer relationship, degree and quality of information sharing and lean practices. The measures used to measure these SCM practices implementation proved to be reliable and valid as indicated from previous studies by Li

et al. (2006), Bratić (2011), Arun and Kumar (2014),Chen *et al*. (2014) and Kumar and Nambirajan (2014). The preliminary data analysis indicated the general actual implementation of SCM practices in MBI was not in an organized matter and not in a very large extent, this was evidently seen in the range of mean whereby many variables had mean around 3 which meant 'moderate extent'. Therefore, hypothesis 2 to 5 were formulated to test the degree of SCM practices implementation in MBI whereby chi square goodness of fit test was used to compare the expected and observed frequency distribution. The result can be discussed as follows:

5.3.1 Strategic supplier partnership practice

The null hypothesis "Strategic supplier partnership practice is not weak in MBI" was rejected. This showed MBI had weakness in implementing strategic supplier partnership practices in terms of considering quality as our number one criterion in selection of suppliers; regularly solve problems jointly with their suppliers, continuous improvement programs that include their key suppliers, involving key suppliers in new product development, planning and goal setting activities and entering long-term contract agreement with their reliable suppliers.

Therefore, MBI had not properly understood and benefited from modern strategic supplier partnership practices that could have brought significant success for their performance.

5.3.2. Customer relationship practices

Close customer relationship allows an organization to differentiate its product from competitors, sustain customer loyalty, and dramatically extend the value it provides to its customers. (Bratić, 2011). Applying good customer relationship practices is also used to build long term relationships with customers so that they keep buying the product or service and recommending it to others.

In this regards, reference to the third null hypothesis test result mentioned in chapter 4 showed that MBI have serious problems in working frequently together with customers to set reliability, responsiveness, and other standards; frequent measure of customer satisfaction; strong in building and maintaining long term contract agreement with reliable customers and determination of its future expectations as well as facilitating customers' ability to seek assistance.

5.3.3. Degree and quality of information sharing practices

As was mentioned in the literature review, a key element of supply chain partnering is the sharing of various types of information between partners, including real-time communication, planning and operational data, and even financial information. Information sharing is one of the key success factors in the functioning of strategic alliances and enables supply chains to be flexible in responding to competitive challenges.

Integrating effective supply chain practices with effective information sharing is critical for improving supply chain performance. Information exchange is also very important for coordinating actions of supply chain members. Increased information flows can reduce uncertainty and bullwhip effect in the supply chain.

Like the previous null hypothesis, these one which states "Information sharing practice is not weak in MBI" is also rejected. This shows that MBI is not leveraging proper information sharing practices as a means of improving its organizational performance.

5.3.4 Lean practices

Lean practices are used to reduce unnecessary and unproductive tasks as well as activities in the work environment. Thus, elimination of wastes (cost, time, etc.) in a manufacturing system, characterized by reduced set-up times, small lot sizes, and pull-production would help the company and its personnel focus on the requirements and demands of the customer. Ultimately, lean practices not only reduce operational costs but also aim to boost, restore and significantly raise organizational performance.

It is evident from the fifth null hypothesis test result mentioned in chapter 4 that MBI had weaknesses in terms of reducing set-up time, having continuous quality improvement program, using a ''Pull'' production system, pushing suppliers for shorter lead times as well as using JIT system.

Therefore MBI had a weakness in implementing lean practices and they were completely did rely on inspecting their procured products which result to wastage of time and money.

5.3.5. Organizational performance

Based on the literature review, SCM practice can have a bottom-line influence on the organizational performance. The implementation of SCM practices may directly improve an

organization's financial and marketing performances in the long run. As compared to their competitors, organizational performance of MBI was assessed in terms of on-time delivery, product and service quality, operating costs, forecasting accuracy, reducing inventory level, flexibility as well as the extent to which the firm sales and market share were growing. From the result of this assessment it was observed that most of the respondents had rated their organizational performance from "moderate to great extent" as compared to their competitors. Based on the above four hypothesis test result and related discussions it could be considered that higher organizational performance was not attained due to the weak supply chain management practices experienced in MBI. This is also one of the reasons why MBI is still has a marketing and financial problems with regard to its manufacturing capacity. The secondary data analysis shows MBI' profit margin ratio is low and on the other hand its sales growth rate is good.

5.4 The relationship between SCM practices and organizational performance.

The correlation analysis showed supply chain management practices in term of level and quality of information sharing and lean practices were positive even though weak relationship with organizational performance in term of financial/ operational performance (deliver dependability, cost saving, product and service quality, forecasting, reduced inventory and level flexibility) and market performance (sales growth, market share growth, profit margin, return on investment and return on assets). Furthermore Kruskal-Wallis test showed such relationship to be significant. However, strategic supplier partnership and customer relationship practices did not correlate or influence organizational performance.

However, from study findings, it indicated MBI need to increase their level of implementing SCM practices so as to increase their organizational performance which was not achieved at a great extent or very great.

5.5 Conclusion

The general objective of this study was to assess SCM practices implementation in MBI and its effect to the overall organizational performance. Key dimensions of SCM practices as well as operational and market-oriented performance indicators were used for the purpose of investigating the real scenario. Whereas, valid and reliable instruments for assessing study variables were used with the help of scientific methods such as chi square test, Spearman's correlation and Kruskal Wallis test. Thus from such analysis, the study had empirically justified and provided a proof to support the conceptual and prescriptive statements made in the previous studies regarding the role of supply chain management practices in enhancing organizational performance.

The results of the survey show that the implementation of modern SCM practices is weak in MBI. Similarly, except degree and quality of information sharing and lean practices, even though in a weak level, no positive relationship was observed between the other SCM practices and organizational performance in this firm. It can, therefore be concluded that the firm is doing business as usual and no attention was given to modern SCM theories and practices in the firm yet. However, the existing literature advocates that the implementation of SCM practices can considerably improve organizational performance.

5.6 Recommendations

Based on the study findings, it was confirmed that there is strong need for the implementation of SCM practices in MBI to enhance their overall organizational performance. Hence the researcher provided some recommendations that can easily be applicable to MBI as follows:

- Implementation of internal lean practices in terms of reducing set-up time, small lot sizes, having a continuous quality improvement program, working together to identify and eliminate waste wherever it exists, using a pull-production system is also recommended not only to reduce operational costs but also to boost, restore and significantly raise the competitiveness of the firm. This could also enable the supply chain members to be more customer-focused, flexible and profitable.
- It is essential for senior and middle managers are trained first so that they are more likely to understand the usefulness of SCM practices implementation and become committed to it. Furthermore, training programs should also be provided to other

staff as the way to ensure they can put into consideration the SCM concept in greater detail so as to enable them to properly implement it since poor understand of the concept can hinder them from fully participating in the SCM practices implementation in their respective departments. Example of training programs include seminars, short courses or further studies like bachelor or masters of logistics and supply chain management

- Accordingly, MBI should involve key suppliers and customers in joint planning and problem solving activities as well as organizing continuous improvement programs on different issues to reduce some challenges of the firm like inferior product quality, extended delivery time and low competitive prices of the products. Establishing long term contract agreement with dependable suppliers/ customers could also reduce time and cost for supply chain members.
- Creating a department of supply chain management that specifically deals with SCM practices implementation it should consists of managers who are fully acknowledged in understanding and implementation of SCM practices from the highest level to the lowest possible level within the company and along the supply chain.
- Much more commitment is needed from senior management for the full potential of SCM practices to be realized. This should be a matter of priority and may be assisted by the development of learning materials aimed specifically at the higher echelons of management (example, by showing SCM practices implementation drawn from its own work spheres).
- Lastly but not least, MBI should conduct some evaluation within the company and along the supply chain from upstream (with company's suppliers) to downstream (with company's customers) for practices which were mentioned in this study as the way to measure their importance and effect in the daily company's operations for enhancing organizational performance. That is, strategic supplier partnership, customer relationship, degree and quality of information sharing and lean practices. In addition, they can include other useful dimensions of SCM practices which were not mention in this study but they were found to be very effectively and useful in the literature example; outsourcing, order fulfillment management, returns management, logistic integration, supply chain benchmarking, many suppliers, e-procurement, subcontracting, strategic planning, Third Party Logistics (3PL), inventory management, just to mention the few.

5.7 Suggestions for future research

The study portrayed the current trends of SCM practices of understanding and implementation in MBI and how it affects its overall organizational performance. However the findings were confined to company level only. Thus further studies are needed to widen the scope of respondents by encompassing in industry level. More studies are needed specifically to deal with SCM practices implementation and how it affects organizational performance in company level since there is shortage of such studies in the literature. The concept of supply chain management is very wide due to its multidisciplinary origin thus covering everything in one study is nearly impossible. Future research should consider other dimensions of SCM practices such as outsourcing, supply chain integration, strategic location, order fulfillment management, returns management, logistic integration, supply chain benchmarking, many suppliers, e-procurement, and inventory management.

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APPENDIX A - Research Questionnaire

Addis Ababa University

School of Commerce

Masters of Logistics and Supply Chain Management

Dear respondents, this questionnaire have been designed for gathering data on the impact of supply chain management practices on the organizational performance of Modern Building Industries PLC. The data collected shall purely be for academic purpose only and thus not affects you in any case. So, your genuine, frank and timely response is vital for successfulness of the study.

Your response will be kept absolutely confidential. To this end, name, phone number or e-mail address are not required on this questionnaire.

Therefore, kindly request you to respond to each items of the question very carefully.

General Instruction

- Where answers options are available, please tick (√) in the appropriate space.

Contact Address

If you have any query, please contact me by 093-371-3308.

Part I. Demographic Profile

1. Gender

   Male ☐ Female ☐

2. What is your highest educational level

   Elementary School _____, High School _____, College _____,

   First degree _____, Second degree and above _____

3. Job Title/Position

   Investor/Owner _____, General Manager _____, Plant Manager _____,

   Marketing Manager ____, Supply Chain Manager _____, Finance Manager _____,

   Other (Please indicate) _____

4. The years you have worked for this company

   Under 2 years _____, 3 to 5 years _____, 6 to 10 years _____, Over 10 years _____

Part II. Supply chain management and Organizational performance questionnaires

Where; 1 = not at all, 2 = to a small extent, 3 = to a moderate extent
4 = to a great extent, 5 = to a very great extent

1. Strategic Supplier Partnership		1	2	3	4	5
The long term relationship between the organization and its suppliers. It is designed to leverage the strategic and operational capabilities of individual participating organizations to help them to achieve significant ongoing benefits.						
1.1.	We consider quality as our number one criterion in selecting supplier					
1.2.	We regularly solve problems jointly with our suppliers					
1.3.	We entered into long term contract agreement with reliable suppliers					
1.4.	We have continuous improvement programs that include our key suppliers					
1.5.	We include our key suppliers in our planning and goal setting activities					

2. Customer relationship		1	2	3	4	5
The entire array of practices that are employed for the purpose of managing customer complaints, building long term relationship with customers, and improving customer satisfaction.						
2.1.	We frequently interact with customers to set reliability, responsiveness, and other standards for us					
2.2.	We frequently measure and evaluate customer satisfaction					
2.3.	We frequently determine future customer expectations					
2.4.	We facilitate customers' ability to seek assistant from us					
2.5.	We periodically evaluate the importance of our relationship with our customers					

3. Degree and Quality of Information Sharing		1	2	3	4	5
Information sharing is the extent to which critical and proprietary information is communicated to one's supply chain partner. It is also refers to the accuracy, timeliness, adequacy, and credibility of information exchanged.						
3.1.	We inform supply chain partners in advance for changing needs					
3.2.	Our supply chain partners share proprietary information with us					
3.3.	Information exchange between our supply chain partners and us is timely					
3.4.	Information exchange between our supply chain partners and us is reliable					
3.5.	We and our supply chain partners exchange information that help establishment of business planning					

4. Lean Practices		1	2	3	4	5
Lean practices are the practices of eliminating wastes (cost, time, etc.) in a manufacturing system, characterized by reduced set-up times, small lot sizes, and pull-production.						
4.1.	Our firm reduces process set-up time					
4.2.	Our firm has continuous quality improvement program					
4.3.	Our firm uses a pull production system					
4.4.	Our firm pushes suppliers for shorter lead-times					
4.5.	Our firm buys products in smaller batches only when they are needed at the place where they are needed and exactly in the quantity required (Just in Time) "pull" production system					

5. Organizational Performances		1	2	3	4	5
Organization performance refers to how well an organization achieves its operational goals as well as market-oriented goals.						
5.1.	Our on-time delivery performance is better than our competitors					
5.2.	Our product and service quality is better than our competitors					
5.3.	Our operating costs are lower than our competitors					
5.4.	Our firm's ability to adapt changes in the business environment quickly (Flexibility)					
5.5.	Forecasting accuracy					
5.6	Reduced inventory level					
5.7.	Our sales is growing					
5.8.	Our market share is growing					

Other Comments:

_____

_____

APPENDIX B - Interview Questions

1. Is quality built into your supply chain, or so inspection and correction occur after the fact?
2. Is supply chain management a strategic senior level position in your organization or is it a part of an operations activity?
3. Is the movement of information and money as critical in your supply chain as the movement of materials? In other words, does it take longer to create paperwork and process payment than it takes to deliver the goods?
4. In your view what kind of advantages your organization to achieve due to the application and adoption of SCM practices?
5. Do you get top management support in ensuring the conformity to the stated SCM practices in your organization?
6. To what extent the organization creates and maintains good relationship with their partners such as suppliers, distributors and customers?
7. Who are your suppliers and how do you choose them?
8. Can you describe the relationship with your suppliers?
9. How do you communicate with your suppliers?
10. How do you maintain the good relationship with your supplier?
11. How do you improve your quality of customer service?
12. How do you get feedback from customer about its effectiveness?
13. Do you have any web-based supply chain and inventory management system?
14. Do you have any documented procedure to deal with customer complaint?
15. How fast do you solve a customer compliant?
16. How do you organize information on your customer?
17. How much transparency do you maintain with your customer about product quality and availability?
18. Is there any specific forecasting model for short term and long term forecasting for your products?
19. How do you satisfy your customer demand?
20. What is the percentage of market share you hold in the overall market with respect to your competitors?
21. How do you differentiate product in order to get competitive advantage?
22. What is the average annual percentage of your company profit from your company sales?
23. What is the average annual percentage of your company profit from your company total asset?
24. How do you build customer's loyalty?
25. What is the average percentage of your company sales growth per year?

APPENDIX C - Research questionnaires statistical results

Statistics

		1.1 We consider quality as our number one criterion in selecting supplier	1.2 We regularly solve problems jointly with our suppliers	1.3 We entered into long term contract agreement with reliable suppliers	1.4 We have continuous improvement programs that include our key suppliers	1.5 We include our key suppliers in our planning and goal setting activities
N	Valid	104	104	104	104	104
	Missing	17	17	17	17	17
Mean		3.45	3.46	3.22	3.42	3.42
Std. Deviation		.923	.934	.812	.910	.972

1.1 We consider quality as our number one criterion in selecting supplier

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	14	11.6	13.5	13.5
	to a moderate extent	46	38.0	44.2	57.7
	to a great extent	27	22.3	26.0	83.7
	to a very great extent	17	14.0	16.3	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

1.2 We regularly solve problems jointly with our suppliers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	16	13.2	15.4	15.4
	to a moderate extent	40	33.1	38.5	53.8
	to a great extent	32	26.4	30.8	84.6
	to a very great extent	16	13.2	15.4	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

1.3 We entered into long term contract agreement with reliable suppliers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not at all	1	.8	1.0	1.0
	to a small extent	17	14.0	16.3	17.3
	to a moderate extent	49	40.5	47.1	64.4
	to a great extent	32	26.4	30.8	95.2
	to a very great extent	5	4.1	4.8	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

1.4 We have continuous improvement programs that include our key suppliers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	18	14.9	17.3	17.3
	to a moderate extent	36	29.8	34.6	51.9
	to a great extent	38	31.4	36.5	88.5
	to a very great extent	12	9.9	11.5	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

1.5 We include our key suppliers in our planning and goal setting activities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	20	16.5	19.2	19.2
	to a moderate extent	36	29.8	34.6	53.8
	to a great extent	32	26.4	30.8	84.6
	to a very great extent	16	13.2	15.4	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

Statistics

		2.1 We frequently interact with customers to set reliablity, respnsivness, and other standards for us	2.2 We frequently measure and evaluate customer satisfaction	2.3 We frequently determine future customer expectations	2.4 We facilitate customers' ability to seek assistant from us	2.5 We periodically evaluate the importance of our relationship with our customers
N	Valid	104	104	104	104	104
	Missing	17	17	17	17	17
Mean		3.52	3.63	3.47	3.41	3.38
Std. Deviation		.859	.848	.750	.820	.874

2.1 We frequently interact with customers to set reliablity, respnsivness, and other standards for us

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	12	9.9	11.5	11.5
	to a moderate extent	39	32.2	37.5	49.0
	to a great extent	40	33.1	38.5	87.5
	to a very great extent	13	10.7	12.5	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

2.2 We frequently measure and evaluate customer satisfaction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	11	9.1	10.6	10.6
	to a moderate extent	30	24.8	28.8	39.4
	to a great extent	49	40.5	47.1	86.5
	to a very great extent	14	11.6	13.5	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

2.3 We frequently determine future customer expectations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	7	5.8	6.7	6.7
	to a moderate extent	50	41.3	48.1	54.8
	to a great extent	38	31.4	36.5	91.3
	to a very great extent	9	7.4	8.7	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

2.4 We facilitate customers' ability to seek assistant from us

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	12	9.9	11.5	11.5
	to a moderate extent	47	38.8	45.2	56.7
	to a great extent	35	28.9	33.7	90.4
	to a very great extent	10	8.3	9.6	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

2.5 We periodically evaluate the importance of our relationship with our customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	17	14.0	16.3	16.3
	to a moderate extent	40	33.1	38.5	54.8
	to a great extent	37	30.6	35.6	90.4
	to a very great extent	10	8.3	9.6	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

Statistics

		3.1 We inform supply chain partners in advance for changing needs	3.2 Our supply chain partners share proprietary information with us	3.3 Information exchange between our supply chain partners and us is timely	3.4 Information exchange between our supply chain partners and us is reliable	3.5 We and our supply chain partners exchange information that help establishment of business planning
N	Valid	104	104	104	104	104
	Missing	17	17	17	17	17
Mean		3.35	3.50	3.53	3.71	3.73
Std. Deviation		.833	.800	.824	1.030	.978

3.1 We inform supply chain partners in advance for changing needs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	14	11.6	13.5	13.5
	to a moderate extent	50	41.3	48.1	61.5
	to a great extent	30	24.8	28.8	90.4
	to a very great extent	10	8.3	9.6	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

3.2 Our supply chain partners share proprietary information with us

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	9	7.4	8.7	8.7
	to a moderate extent	45	37.2	43.3	51.9
	to a great extent	39	32.2	37.5	89.4
	to a very great extent	11	9.1	10.6	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

3.3 Information exchange between our supply chain partners and us is timely

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	10	8.3	9.6	9.6
	to a moderate extent	41	33.9	39.4	49.0
	to a great extent	41	33.9	39.4	88.5
	to a very great extent	12	9.9	11.5	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

3.4 Information exchange between our supply chain partners and us is reliable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	16	13.2	15.4	15.4
	to a moderate extent	26	21.5	25.0	40.4
	to a great extent	34	28.1	32.7	73.1
	to a very great extent	28	23.1	26.9	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

3.5 We and our supply chain partners exchange information that help establishment of business planning

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	11	9.1	10.6	10.6
	to a moderate extent	34	28.1	32.7	43.3
	to a great extent	31	25.6	29.8	73.1
	to a very great extent	28	23.1	26.9	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

		4.1 Our firm reduces process set-up time	4.2 Our firm has continuous quality improvement program	4.3 Our firm uses a pull production system	4.4 Our firm pushes suppliers for shorter lead time	4.5 Our firm buys products in smaller batches only when they are needed at the place where they are needed and exactly in a quantity required (JIT) "Pull" production system
N	Valid	104	104	104	104	104
	Missing	17	17	17	17	17
Mean		3.28	3.52	3.35	3.40	2.81
Std. Deviation		.660	.776	.822	.770	.825

4.1 Our firm reduces process set-up time

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	11	9.1	10.6	10.6
	to a moderate extent	54	44.6	51.9	62.5
	to a great extent	38	31.4	36.5	99.0
	to a very great extent	1	.8	1.0	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

4.2 Our firm has continuous quality improvement program

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	7	5.8	6.7	6.7
	to a moderate extent	47	38.8	45.2	51.9
	to a great extent	39	32.2	37.5	89.4
	to a very great extent	11	9.1	10.6	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

4.3 Our firm uses a pull production system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not at all	2	1.7	1.9	1.9
	to a small extent	11	9.1	10.6	12.5
	to a moderate extent	46	38.0	44.2	56.7
	to a great extent	39	32.2	37.5	94.2
	to a very great extent	6	5.0	5.8	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

4.4 Our firm pushes suppliers for shorter lead time

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	14	11.6	13.5	13.5
	to a moderate extent	38	31.4	36.5	50.0
	to a great extent	48	39.7	46.2	96.2
	to a very great extent	4	3.3	3.8	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

4.5 Our firm buys products in smaller batches only when they are needed at the place where they are needed and exactly in a quantity required (JIT) "Pull" production system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not at all	1	.8	1.0	1.0
	to a small extent	42	34.7	40.4	41.3
	to a moderate extent	39	32.2	37.5	78.8
	to a great extent	20	16.5	19.2	98.1
	to a very great extent	2	1.7	1.9	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

Statistics

		5.1 Our on time delivery performance is better than our competitors	5.2 Our product and service quality is better than our competitors	5.3 Our operating costs are lower than our competitors	5.4 Our firm's ability to adapt changes in business environment quickly (Flexibility)	5.5 Forecasting accuracy	5.6 Reduced inventory level	5.7 Our sales is growing	5.8 Our market share is growing
N	Valid	104	104	104	104	104	104	104	104
	Missing	17	17	17	17	17	17	17	17
Mean		3.03	3.74	3.07	3.28	3.29	3.10	3.37	3.36
Std. Deviation		.806	.724	.741	.660	.692	.782	.683	.847

5.1 Our on time delivery performance is better than our competitors

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not at all	3	2.5	2.9	2.9
	to a small extent	20	16.5	19.2	22.1
	to a moderate extent	55	45.5	52.9	75.0
	to a great extent	23	19.0	22.1	97.1
	to a very great extent	3	2.5	2.9	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

5.2 Our product and service quality is better than our competitors

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	4	3.3	3.8	3.8
	to a moderate extent	32	26.4	30.8	34.6
	to a great extent	55	45.5	52.9	87.5
	to a very great extent	13	10.7	12.5	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

5.3 Our operating costs are lower than our competitors

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not at all	4	3.3	3.8	3.8
	to a small extent	13	10.7	12.5	16.3
	to a moderate extent	59	48.8	56.7	73.1
	to a great extent	28	23.1	26.9	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

5.4 Our firm's ability to adapt changes in business environment quickly (Flexibility)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not at all	1	.8	1.0	1.0
	to a small extent	8	6.6	7.7	8.7
	to a moderate extent	57	47.1	54.8	63.5
	to a great extent	37	30.6	35.6	99.0
	to a very great extent	1	.8	1.0	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

5.5 Forecasting accuracy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	11	9.1	10.6	10.6
	to a moderate extent	55	45.5	52.9	63.5
	to a great extent	35	28.9	33.7	97.1
	to a very great extent	3	2.5	2.9	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

5.6 Reduced inventory level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	25	20.7	24.0	24.0
	to a moderate extent	46	38.0	44.2	68.3
	to a great extent	31	25.6	29.8	98.1
	to a very great extent	2	1.7	1.9	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

5.7 Our sales is growing

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	6	5.0	5.8	5.8
	to a moderate extent	60	49.6	57.7	63.5
	to a great extent	32	26.4	30.8	94.2
	to a very great extent	6	5.0	5.8	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

5.8 Our market share is growing

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not at all	2	1.7	1.9	1.9
	to a small extent	12	9.9	11.5	13.5
	to a moderate extent	44	36.4	42.3	55.8
	to a great extent	39	32.2	37.5	93.3
	to a very great extent	7	5.8	6.7	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

Strategic Supplier Partnership

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	2	1.7	1.9	1.9
	to a moderate extent	58	47.9	55.8	57.7
	to a great extent	41	33.9	39.4	97.1
	to a very great extent	3	2.5	2.9	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

Customer Relationship

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	3	2.5	2.9	2.9
	to a moderate extent	56	46.3	53.8	56.7
	to a great extent	37	30.6	35.6	92.3
	to a very great extent	8	6.6	7.7	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

Degree and Quality of Information Sharing

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	3	2.5	2.9	2.9
	to a moderate extent	50	41.3	48.1	51.0
	to a great extent	44	36.4	42.3	93.3
	to a very great extent	7	5.8	6.7	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

Lean Practices

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	4	3.3	3.8	3.8
	to a moderate extent	70	57.9	67.3	71.2
	to a great extent	29	24.0	27.9	99.0
	to a very great extent	1	.8	1.0	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

Statistics

		Strategic Supplier Partnership	Customer Relationship	Degree and Quality of Information Sharing	Lean Practices
N	Valid	104	104	104	104
	Missing	17	17	17	17
Mean		3.43	3.48	3.53	3.26
Std. Deviation		.587	.682	.668	.540

Statistics

Organizational Performances

N	Valid	104
	Missing	17
Mean		3.30
Std. Deviation		.519

Organizational Performances

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to a small extent	3	2.5	2.9	2.9
	to a moderate extent	67	55.4	64.4	67.3
	to a great extent	34	28.1	32.7	100.0
	Total	104	86.0	100.0	
Missing	System	17	14.0		
Total		121	100.0		

APPENDIX D - Financial Statements