ipmi INTERNATIONAL JOURNAL OF BUSINESS STUDIES

e-ISSN: 2622-4585 | p-ISSN: 2580-0132
Vol. 6 | No. 2 (June 2022)

Effects of Supply Chain Management on Competitive Advantage: The Case of Manufacturing Companies in Ethiopia

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ABSTRACT

Today, companies are not only competing as autonomous entities, but are entering an era of competition between different supply chains, and as a result, companies are collaborating as a team in the form of a network of business relationships. As competition intensifies, companies need to be more involved in the way suppliers and customers do business. To succeed in today's difficult business environment, organizations need to be able to effectively integrate internal functions within the organization and effectively link them with the external operations of members of the supply chain. Organizations need to pay close attention to supply chain management practices, as they can have a significant impact on SCM capabilities and ultimately performance. Therefore, the purpose of this study is to investigate the practice and impact of supply chain management on a company's competitive advantage. Investigate the impact of inventory management on business performance. In addition, this study sought to identify key supply chain management challenges for selected manufacturing companies in Ethiopia. A quantitative approach was used to achieve the goal. In addition, a descriptive study was used, along with a causality study design. The primary data was obtained from the questionnaire. Large manufacturers; using targeted sampling techniques, two textiles and two sugars were selected as samples. In addition, four employees from each of the eight departments included in the survey: general manager, purchasing manager, technical manager, operations manager, quality manager, transportation manager, sales and IT manager were selected. Therefore, a total of 128 respondents from each of the three studies were selected to the best of our knowledge and beliefs. The data collected was analyzed with the SPSS20.0 version using descriptive statistics, correlation analysis,

ARTICLE INFO

Article History:
Received : 12-01-2021
Revised : 12-01-2022
Accepted : 09-05-2022
Published : 30-06-2022

Keywords:
Supply Chain Management
Competitive Advantage

JEL: M21, M11, J20

and multiple regression analysis. Therefore, based on the regression results, the dimensions of the supply chain included in the survey, namely customer relationship management, customer service management, information exchange level, demand management process, environmental issues, and supplier relationship management are positive and of the company. It greatly affects your competitive advantage. Finally, it is suggested that manufacturers need to build close relationships with their customers in order to differentiate their products from their competitors. In addition, manufacturers are encouraged to use information technologies such as electronic data interchange within and between organizations under their entire supply chain.

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INTRODUCTION

Background of The Study

In today's competitive business environment, the emphasis is on delivering value to customers. The focus of most companies is to provide more valuable products and services compared to their competitors. In parallel with the focus on customer value, the markets in which businesses operate today are generally perceived as complex and confusing (Goldman et al., 1995; Christopher, 2000). The goal of the supply chain is to improve profitability, customer responsiveness, customer value creation, and improve connectivity and interdependence between companies. Today, companies not only compete as autonomous beings, but also enter an era of competition between different supply chains, resulting in companies functioning as teams in the form of business-related networks.

According to Heizer & Render (2007), supply chain management can be defined as a system that covers all the work involved in manufacturing and delivering final products, from the supplier's supplier to the customer's customer. This includes supply and demand management, raw material and parts procurement, manufacturing and assembly, warehousing and inventory tracking, order entry and order management, sales across all channels, and delivery to customers.

Therefore, supply chain management focuses on managing supply chain activities and helps to harness customer value and achieve a sustainable competitive advantage. It represents the efforts of supply chain companies to develop and operate their supply chains as effectively and efficiently as possible. Supply chain activities focus on product development, procurement, production, logistics, and the information systems needed to coordinate these activities (Handfield, 2011).

In this project, the first issue related to supply chain management is to investigate the impact of supply chain management on the competitive advantage of Ethiopian manufacturers. To understand how supply chain management works, it is important to see how supply chain management impacts your competitive advantage. To maintain this, there are five aspects to supply chain management practices, based on previous studies by (Li, 2002; Quesada & Meneses, 2010; Belay, 2011). These five aspects of SCM practice are (Supplier Strategic Partnerships, Customer Relationships, Level of Information Sharing, Quality of Information Sharing, Environmental Issues, and Procrastination).

Here in this project the researchers conceptualized and developed five dimensions of

SCM practice (customer relationship management, demand management process, supplier management partnership, level of information sharing & environmental issues) and test the relationships between SCM practices, competitive advantage, in manufacturing firms in Ethiopia. The purpose of this research project therefore is to assess the practice and effectiveness of supply-chain management in selected manufacturing firms in Ethiopia by looking at its effect on firms' competitive advantage.

Statement of The Problem

As can be seen from the above facts, supply chain management can act as a complex network of entities involved in upstream and downstream flows of products and / or services, along with relevant financial and information. Therefore, without a proper and effective system of supply chain management, a business cannot function properly or achieve its goals.

As reviewed and summarized in the literature section, research on supply chain management practices has been conducted by different scholars in different countries. And they identified many issues related to this topic. For example, Fawcett et al. (2007) identified various challenges in supply chain management. Inadequate efforts, incompatible information systems, long cycle times, communication issues, customer service issues, excessive waste and environmental degradation, relatively high inventory and order cost customer service, to name a few. In addition to the above, Chandra & Grabis (2007) discusses supply chain issues, distribution network configuration, inventory management, supply contracts, distribution strategies, supply chain integration and strategic partnerships, outsourcing and sourcing strategies, information technology, and more. We have identified a related issue. Decision support system (DSS) and customer interests.

Studies on supply chain management practice are very scant in general and even the available literature on the subject matter is fragmented and case study driven. For example, a study by Belay (2011), in Ethiopian cement industry, identified four general dimensions of supply chain management (strategic supplier partnership, customer relationship, information communication and environmental issues). Here we can say that the practices of supply chain management in Ethiopia specifically in cement factories are almost poor (Belay, 2011).

In this project, the researchers tried to see five dimensions of supply chain management variables (customer relationship management, demand management process, supplier management partnership, level of information sharing & environmental issues) by incorporating one other variable (demand management process) in addition to the four variables already considered by Belay (2011).

Based on the above justifications, the following basic research question was forwarded:

1. What are the relationship between supply chain management practices and competitive position of manufacturing firms in Ethiopia?

Research Objective

The basic purpose of the project is to study the practice and impact of supply chain management on a company's competitive advantage and the impact of inventory management on a company's performance. In addition, the study sought to identify key challenges for effective supply chain management in Ethiopia's selected manufacturers, especially with regard to sugar and textile manufacturers.

Specifically, this research project assumes the following specific objectives:

- To examine the relationship between supply chain management practices and competitive advantage of manufacturing firms in Ethiopia.

Research Hypotheses

- There is a strong relationship between Supplier Relationship Management and Competitive advantage.

- There is a strong relationship between Customer Relationship Management and competitive advantage.
- There is a strong relationship between Level of information sharing and Competitive Advantage.
- There is a strong relationship between Demand Management Process and Competitive Advantage.
- There is a strong relationship between Environment Issues an d Competitive Advantage.

Significance of The Study

The study could serve as a stepping stone for further studies to be conducted in the field of Supply chain management. Therefore, while on one hand, the findings of the study could add value to the existing literature in the domain of supply chain management integration, on the other hand, the results assumed to be useful for the manufacturing firms in ensuring where and how much resources are to be deployed to raise the existing level of competitive position and companies performance in the manufacturing sectors.

Scope and Limitation of The Study

Every research work has its own scope that limits the application of conclusions derived from the analyses and makes the research manageable given the various constraints. In this study, the researchers used only some selected manufacturing firms (textile and sugar) rather than the whole manufacturing firms in the country. Therefore, the findings of the study may not be generalized to all manufacturing enterprises found in the country.

LITERATURE REVIEW

Definition of Supply Chain Management

Some authors define SCM in operational terms, including material and product flow, some consider SCM as a management philosophy, others see it as a management process (Tyndall et al., 1998), and integrated systems. Some authors look at it. The author conceptualizes SCM in different ways within the same article. On the one hand as a management philosophy, on the other hand as a form of integration system between vertical integration and individual identities (Cooper & Ellram, 1993).

According to Christopher (1994), a 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 hands of the ultimate customer. An example of a basic supply chain is shown in Figure 2.1.

As you can see from the figure above, the supply chain includes suppliers, manufacturers, distributors, retailers, and customers. Customers are at the heart of the chain (Chopra & Meindl, 2001) because the main purpose of the supply chain is to meet the needs of customers while generating profits themselves. SCM initially referred to inventory management within the supply chain. This concept was later extended to the management of all functions in the supply chain. According to Chopra & Meindl (2001), SCM deals with integrated flow management in the supply chain to minimize overall costs.

This definition implies that SCM involves management of flows of products, information and finance/fund upstream and downstream in the supply chain. In the course of time, the most considerable benefits to businesses with advanced SCM capabilities will be radically improved customer responsiveness, developed customer service and satisfaction, increased flexibility for changing market conditions,

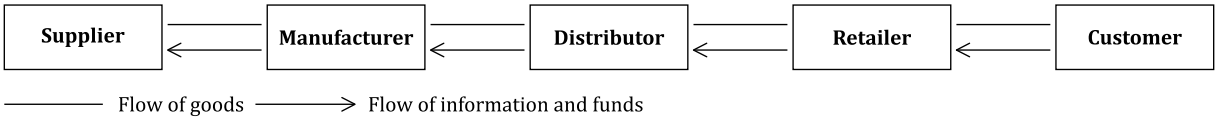

Figure 2.1. The basic supply chain (Chopra & Meindl, 200)

improved customer retention and more effective marketing (Horvath, 2001).

SCM brings great economic benefits to a variety of companies, including manufacturing, retail and service industries (Horvath, 2001). The scope of SCM has been further expanded to include recycling (Baatz, 1995). SCM handles the entire flow of materials from the supplier to the end user (Jones & Riley, 1985). This underscores the "full" integration of all parties involved in the supply chain. Most supply chains are too complex to fully integrate all supply chain units, so a realistic approach is to consider only strategic suppliers and customers (Tan et al., 1998).

Most of the recent SCM literature focuses on the purchasing function, which states that it is not a special support function, but a basic strategic business process (Wisner & Tan, 2000). This was a management philosophy that expanded traditional internal activities by adopting an inter-company framework and enabling trading partners with the common goal of optimization and efficiency (Harwick, 1997).

Supply Chain Management (SCM) as a philosophy and concept evolved because companies recognize that both customers and suppliers can have a significant impact on the delivery process. Companies need suppliers to reduce costs and improve customer service and efficiency. In addition, the concept of SCM involves the relationship between the company and its suppliers and customers, so customers need to work as a supplier to further reduce costs and improve customer service and efficiency. When customers are ready to share important planning information with their suppliers, future customer orders can be predicted much more effectively (Van Weele, 2010).

It is clear that supply chain management includes all those activities involved in the flow of materials through the supply chain; that it extends from the ultimate customer back to mother earth; and that there is some kind of relationship, collaboration or cooperation between supply chain members.

SCM Practices

SCM practices are defined as a set of activities within an organization to facilitate effective management of the supply chain. Donlon (1996) describes recent evolutions in SCM practices such as supplier partnerships, outsourcing, cycle time compression, continuous process flow, and information technology sharing. Tan et al. (1998) Use purchases, quality and customer relationships in their empirical research to portray SCM practices. Alvarado & Kotzab (2001)'s list of SCM practices includes focusing on core competencies, using cross-organizational systems such as EDI, and eliminating excess inventory by moving customizations to the end of the supply chain.

Tan et al. (2002), pick out six elements of SCM exercise via aspect analysis: deliver chain integration, records sharing, deliver chain characteristics, customer support control, geographical proximity and JIT capability. According to Muhammad (2004) this variable refers to numerous sports or practices associated with operational feature of firms. It is used to degree the SCM adoption and its degree practices. Related practices are divided into six dimensions specifically strategic provider partnership, client members of the family control, records sharing, records quality, lean machine and postponement. Chen & Paulraj (2004) additionally carried out the studies concerning deliver chain control practices; they investigated long-time period relationship, cross-useful teams, provider base reduction, and provider involvement. The identical with the above look at, Min & Mentzer (2004) additionally tested of their look at approximately long-time period relationship, records sharing, cooperation procedure integration and deliver chain management underlying the deliver chain control practices. Li et al. (2006); Thatte (2007) diagnosed deliver chain control practices in shape of strategic provider partnership, client relationship, and records sharing.

In reviewing and consolidating the literature six dimensions of supply chain management variables (customer relationship management, supplier relationship management, customer service management, level of information sharing, environment issues, demand management process are identified).

Customer Relationship Management

It comprises the entire array of practices that are employed for the purpose of managing customer complaints, building long-term relationships with customers, and improving customer satisfaction (Tan et al., 1998; Claycomb et al., 1999).

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 (Magretta, 1998). Firms that have a strong customer focus do have a close contact with their customers where it all brings them to deliver higher level of customer satisfaction.

Level of Information Sharing

There are two aspects to exchanging information: quantity and quality. Both aspects are important to the practice of SCM and have been treated as independent constructs in previous SCM studies (Monckza et al., 1998; Moberg et al., 2002). The level of information exchange (quantitative aspect) refers to the extent to which important and protected information is passed to supply chain partners (Mockza et al., 1998). According to Stein & Sweat (1998), supply chain partners who exchange information on a regular basis can function as a unit. Together, they can better understand the needs of their end customers and thus respond more quickly to changes in the market.

Supplier Relationship Management

Supplier relationship management is often referred to as strategic supplier partnerships. Gunase Caranet et al. (2002) Strategic partnerships emphasize long-term relationships between trading partners and argue that they "encourage mutual planning and problem-solving efforts." Strategic partnerships between organizations promote mutual benefit and on going collaboration in key strategic areas such as technology, products and markets (Yoshino & Rangan, 1995). Strategic partnerships with suppliers allow companies to work closely and effectively with a small number of suppliers rather than with many cost-selected suppliers (Ashish, 2007). Some of the benefits of engaging suppliers early in the product design process are: Supplier can provide cost-effective design alternatives, assist in the selection of better components and technologies, and assist in design evaluation (Tan et al., 2002).

Krause and Ellram (1997) interviewed 527 senior purchasing managers who are members of NAPM to determine if the success of the purchasing company has changed the efforts of the relationship with the supplier, and if so, success Or identified the factors that contributed to the perception of failure. Keeping in mind that the success of supplier development varies, we divide the respondents into two groups to represent those who have successfully implemented the supplier development program and those who have not.

Successful groups have significantly improved supplier performance through supplier development compared to unsuccessful groups. Specifically, the winning group has significantly improved the percentage of incoming defects and completed orders. However, the two groups appear to have increased on-time delivery and shorter order cycle times in much the same way (Sichinsambwe, 2011).

Krause, Handfield & Scannell (1998) conducted a survey to compare supplier relationship management practices between manufacturers and service companies. The author compares the two groups in terms of satisfaction gained from supplier relationship management efforts using performance goals such as improved financial strength, reduced supplier base, improved management capabilities, and improved technical

capabilities i.e Performance goals such as quality, cost, delivery performance, service/ responsiveness. Both groups placed moderate emphasis on strategic goals, but performance goals were much more highly valued than strategic goals.

Demand Management

Demand management is a collaborative process that involves accurately determining how much product needs to be produced (the demand) at each level of the supply chain through to the end customer. It is used to estimate, control, smooth, coordinate, balance and influence the demand and supply for a firm's products and services in an effort to reduce total cost for the firm and its supply chain members to allow modification of short-term schedules when necessary (Burt et al., 2010).

Demand management requires the utmost in coordination and communication between the responsible parties. Demand managers must develop contingency plans with supply chain. Failure to estimate demand accurately and share information among supply chain members can result in bloated inventory levels caused by the cumulative effect of poor information cascading up through a supply chain. Poor demand data force the supplying firm to carry additional inventory to account for uncertainty, and inventory levels in the supply chain are consequently increased (Burt et al., 2010; Swink et al., 2011).

Environmental Uncertainty and Issues

Environmental uncertainty refers to the environmental problems of the product chain (Ettlie & Reza (1992) described this as an unexpected change in customers, suppliers, competitors and technology; Yusuf (1995) of the government. Support plays a key role in business success Paulraj & Chen (2007a) states that environmental uncertainty is a key factor in implementing strategic supply management plans. Increased activity has increased awareness of the importance of strategic supply management and improved relationships between organizations. (2004) discussed, the ultimate success of a company is its traditional financial. It should not be measured by its records alone, as indicated by its revenue. But it shall also include economic, social and environmental issues as mentioned and cited by (Buchholtz & Caroll, 2009) and discussed as follows:

Economic refers to the financial assets and created norms

- Social refers to equity and quality of life.
- Environmental refers to the protection and conservation of the environment.

Deterioration of the environment like the diminishing of the raw material resources, overflowing of waste sites and increased levels of pollution has increased in the world these days. Following this, researchers and practitioners began to promote the concept of green supply chain management. According to Srivastava (2007) green supply chain management is defined as integrating environmental thinking into supply chain management, including product design, material sourcing and selection, manufacturing processes, delivery of the final product to the customers as well as end of life management of the product after its useful life. Thompson et al. (2007) listed 10 top environmental issues as: climate change, energy, water, biodiversity and land use, chemicals, toxics and heavy metals, air pollution, waste and management.

Competitive Advantage

Competitive advantage is the extent to which an organization can establish a defensive position against competitors Porter (1985) and McGinnis (1999). It includes features that allow an organization to differentiate itself from its competitors and is the result of an important management decision of Tracey (1999). Empirical literature fairly consistently identifies price/cost, quality, delivery, and flexibility as important competitiveness, Skinner (1984). In addition, recent studies have included time-based competition as a major competitive priority. Studies by Stalk (1988), Vesey (1991),

Handfield & Pannesi (1995), Kessler & Chakrabarti (1996), Zhang (2001) identify time as the closest source of competitive advantage. Koufteros et al. (1997) describes the research framework for competitiveness and defines five aspects: competitive pricing, premium pricing, customer quality value, reliable delivery, and production innovation. These dimensions are also described by Cleveland & Anderson (1989).

METHODOLOGY

This chapter is entirely devoted to discussing details of the research methodology employed in the course of undertaking the study.

Research Design

Both qualitative and quantitative research methods were used to obtain reliable information. As Johnson (1999) suggests, there is no strict rule to use one and reject the other. Instead, the general trend favors using both designs in a single study.

Most of the previous studies on supply chain management manufacturing industry adopted quantitative approach as a survey design. These include Saleh & Ryan (1991), Wakefield & Blodgett (1999), Kassim & Abdullah (2010) and Shahin & Dabestani (2010), just to quote a few. Miller (2004) stated that the major advantages of survey research are (a) the ability to collect a wide scope of information from a large population (b) dealing with a real situation in the sense that a researcher can collect data in the actual situation and (c) providing a first step in identifying more specific problems for research.

Furthermore, the authors described that each type of data collection instrument has its own weakness and strength, while describing the situation and finding justifications for a particular type of behavior to be expressed i.e. based on the appropriateness, purpose and situation under which the research is conducted.

More specifically, the researchers followed a descriptive inquiry along with causal research design to see the influence of one variable over other. Survey approach were applied to obtain primary data; however, secondary sources such as company documents, books, journals, internet etc. explored to gather background data and practices being adopted by the bank.

Sampling Technique and Sample Size

In this study, researchers used an evaluative sampling technique with a non-stochastic sampling method among manufacturing plants operating in Ethiopia. Researchers deliberately chose a major manufacturer from fiber (2) and sugar (2). After selecting these manufacturers, the respondents were categorized as follows: General Manager, Supply/Purchase Manager, Technical Manager, Production/Operation Manager, Quality Manager, Transport Manager, Sales Manager and IT administrator. The survey team enrolled four respondents from each of the eight divisions of each manufacturer included in the survey. Based on this, a total of 128 [4x8x4] factory respondents were self-selected and included in the survey. Next, non-judgmental, low-probability sampling techniques were used for managers affected by manufacturers in different locations. As supply chain management is a new conceptual framework and is applied at the senior management level, researchers strongly believe that these senior and functional managers can be informed about the problem.

Data Collection Instruments

As stated earlier, in order to obtain primary data, survey approach was used. For the purpose of gathering primary data, structured questionnaire were developed and administered with the selected sample respondents (for each of the three studies). In this survey, self-completion questionnaire with closed questions were developed. The questionnaires are composed of close-ended questions to identify (i) the effect of supply chain management practices and competitive advantage, (ii) the relationship between inventory management and financial performance, and (iii) major challenges of effective supply chain management of selected manufacturing enterprises in Ethiopia.

Each questionnaire is composed of two parts. The first part contains all constructs in the research model. The second part is about individual characteristics with seven questions by asking respondents' gender, age, educational level, job type, and salary and service year. Several items on each construct were developed and all of the items were measured by using a five-point Likert-type response scales, anchored at 5 strongly agree and 1 strongly disagree. In addition, secondary data were collected from different sources like publications of the manufacturing firms, Websites and other sources.

Data Analysis Techniques

The collected data were analyzed in line with the stated research objectives. More specifically, parametric statistical analyses were employed by the researchers. For the purpose of analysis, SPSS 20.0 version was used to carry out descriptive statistics and correlation analysis. Additionally, multiple regression analysis were carried out to examine the influence or contribution of independent variables/supply chain management practice *(Strategic supplier partnership, Customer relationship, Demand management process, level of information sharing and Managing Environmental Issues)* to predict dependent *(Competitive advantage)*; and the effect of inventory management on firm financial performance. For the purpose of presentation of findings, tables and graphs were used.

Research Model Specification

In order to sufficiently achieve the research objectives, the investigators developed models for the first two objectives. For specific objective 1 *(The Influence of Supply Chain Management Practice on Competitive Advantage on manufacturing firms)*, and for objective 2 *(The Effect of Inventory Management on Financial Performance of manufacturing firms)* and to test and explain the causal relationship, the following models were developed.

Generally, the model can show relationship among different variables and represented by the following function:

Model:

$$\mathbf{CA = \beta 1 + \beta 2\ SRM + \beta 3\ CRM + \beta 4\ LIS + \beta 5\ DMP + \beta 6\ EI}$$

Where,

SCM Practices

SRM = Supplier Relationship Mgt.

CRM = Customer Relationship Mgt.

LIS = Level of information sharing

DMP = Demand Management Process

EI = Environment Issues

CA = Competitive Advantage

The above beta values could represent the following: β1 represents constant beta value for the first model; β2 shows the beta value of Supplier Relationship Management, β3 indicates the beta value of Customer Relationship Management, β4 represents beta Level of information sharing, β5 shows beta shows Demand Management Process, and β6 represents beta value of environmental issues.

RESULTS AND DISCUSSION

In this chapter, the empirical data collected from the survey were analysed and presented for discussion purpose. Specifically, reliability analysis, demographic characteristics of respondents and data analysis of results were discussed.

Data Reliability Test

We ran a Cronbach's alpha reliability test on the collected data to determine the internal integrity of the data. In this study, there were 124 responses from 128 samples. No four answers were returned, but the remaining 124 questionnaires were completed. In other words, there was no missing data in the questionnaire. All items show strong consistency and their composition is Hair et al. Indicated by the Cronbach's alpha value greater than 0.70 reported by. I made a suggestion. (1998). This indicates that the item in question is properly measuring one configuration for each one tested. The reliability measurements for each configuration are shown in Table 4.2.1 below.

Table 4.2.1. Results of Reliability Test

Variables	No. of Items	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items
Customer relationship management	6	0.895	0.897
Level of information sharing	6	0.796	0.796
Demand management process	6	0.879	0.882
Strategic supplier partnership	7	0.886	0.889
Environmental issues	5	0.867	0.869
Competitive advantage	5	0.863	0.869

Source: SPSS Output from Survey Data, 2016

Demographic Characteristics of Respondents

As to the positions of respondents, as shown on table 4.1.2 above, the same 14.5 % of the respondents in sample manufacturing companies were marketing managers and operation division heads respectively. Whereas, sales managers and logistic division heads each constituted the same 12.1 % of the total sample respondents respectively. While 11.3%, 10.5 % & 7.3 % of the officials involved in the study were quality control managers, IT managers & customer service managers respectively. On the other hand 6.5%, 3.2%, and 1.6 % of the respondents were technical, production, finance & general managers respectively.

Based on the data presented on table 4.1.2 above, regarding the educational status of respondents, the great majority, 87.1% were first degree holders, whereas 9.7 % of them confirmed that they hold college diploma. However, only 4 or 3.2 % of the respondents claimed they have Master's Degree and above. Therefore, this implies that almost all respondents were qualified and they can give reliable information with respect to the practice of supply chain management and its effect on firms overall competitiveness.

With regard to related work of experience of respondents, 30.6 % of them claimed that they have relevant work experience of between 6-10 years. On the other hand, 21.8 %, 8.1 % and 18.5 % of sample respondents indicated that they have relevant work experience of between 11-15 years, 16-20 years, and more than 20 years, respectively as shown in table 5.3.3 above. Only 7.3% of them reported that they have less than 2 years of work experience in their present position.

When we see the type of products being produced as the above table 4.4.4 shows, 66 or 53.2% of them revealed that their firm produces sugar, whereas 58 (46.8%) said that their company engages in making textiles.

Results of Pearson Correlation Analysis

The Pearson correlation tells us the strength and direction of a relationship between two quantitative/numerical variables. It ranges from negative (-1) to positive (+1) coefficient values. A negative correlation indicates that high values on one variable are associated with low values on the next. A positive correlation indicates that high values on the one variable are associated with high values of the other variable. An asterisk next to the value shows if the correlation is significant or not, one asterisk indicates that the correlation is significant at a five percent significance level. Two asterisks on the other hand mean that the correlation is significant at a one percent significance level (Fredrik Nordin, 2013).

As table 4.1.3 shows, there is significant relationship between demand management process and competitive advantage ($r=0.779^{**}$, $p<0.01$), customer relationship management and competitive advantage ($r=0.624^{**}$, $p<0.01$), strategic supplier partnership and competitive advantage ($r=0.737^{**}$, $p<0.01$), and level of information sharing and competitive advantage ($r=0.648^{**}$, $p<0.01$), environmental issues and competitive advantage ($r=0.715^{**}$, $p<0.01$) are all positively correlated respectively with competitive advantage of manufacturing firms.

Table 4.2.1. Results of Reliability Test

		CA	CRM	LIS	DMP	SSP	EI
	Pearson Correlation	1	.624**	.648**	.779**	.737**	.715**
CA	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	124	124	124	124	124	124
	Pearson Correlation	.624**	1	.546**	.774**	.631**	.603**
CRM	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	124	124	124	124	124	124
	Pearson Correlation	.648**	.546**	1	.688**	.627**	.551**
LIS	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	124	124	124	124	124	124
	Pearson Correlation	.779**	.774**	.688**	1	.795**	.714**
DMP	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	124	124	124	124	124	124
	Pearson Correlation	.737**	.631**	.627**	.795**	1	.693**
SRM	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	124	124	124	124	124	124
	Pearson Correlation	.715**	.603**	.551**	.714**	.693**	1
EI	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	124	124	124	124	124	124

Source: SPSS Output from Survey Data, 2016

As clearly shown on table 4.5 above all independent variables have strong, significant and positively related with each other. Here let us see some of the strongly related variables. Based on this the relationship of customer relationship management and level of information sharing is strong and positive (r=0.546**, p<0.01), strategic supplier partnership and demand management process (r=0.795**, p<0.01), customer relationship management and demand management process (r=0.774**, p<0.01), environmental issues and demand management process (r=0.714**, p<0.01).

Results of Regression Analysis

Both simple and Multiple regression analysis are descriptive tools those are used in three situations: to predict values for a criterion variable from the values of several predictor variables; to control variables to better evaluate the contribution of other variables; and to test and explain casual relationships (Blumberg et al., 2005). Specifically, for this study, multiple regression analyses were used to test and explain the casual relationships between variables. Therefore, the researchers tried to use five (5) independent/predictor variables such as: customer relationship management, strategic supplier partnership, level of information sharing, demand management process, and environmental issues; and to see the effect on the dependent variable, in this case competitive advantage.

Table 4.1.4. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.882[a]	.778	.768	.29122

a. Predictors: (Constant), EI, CSM, CRM, LIS, SRM, DMP
Source: SPSS Output from Survey Data, 2016

Based on the model summary result, shown in table 4.6.1 above, the independent variables of supply chain management dimensions customer relationship management, customer service management, level of information sharing, demand management process, environmental issues, and supplier relationship management together explained 78% of the variations (R^2) in the dependent variable, i.e., competitive advantage. In other words, it can be said that 78% of a possible change/variation in the competitive advantage in Ethiopian manufacturing firms is caused by supply chain management

dimensions which include: customer relationship management, customer service management, level of information sharing, demand management process, environmental issues, and supplier relationship management. Hence, it is possible to say that 22% of the variations in the dependent variable (competitive advantage of Ethiopian Manufacturing firms) are explained by other factors which were not measured and included in the current study.

Table 4.1.5. ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	33.707	5	5.618	44,154	.000[b]
	Residual	14.886	117	.127		
	Total	48.594	123			

a. Dependent Variable: CA
b. Predictors: (Constant), EI, CRM, LIS, SRM, DMP
Source: SPSS Output from Survey Data, 2016

As can be seen on table 4.1.5 above, analysis of variance (ANOVA) was done to establish whether there was difference between the independent variables of supply chain management dimensions (customer relationship management, customer service management, level of information sharing, demand management process, environmental issues, and supplier relationship management) and that of the dependent variable competitive advantages of sample manufacturing firms. The significance value (p-value) 0.000 in this study is less than 0.05 thus, the model is statistically significant in predicting how the independent variables influence on competitive advantages of sample manufacturing firms. The F (5,117) = 44,154 from the ANOVA (table) shows that the overall model was significant.

The result of regression was as follow:
Estimated (Competitive advantage) =

-2.32 + 0.125CRM + 0.238 LIS + 0.278DMP + 0.175SRM + 0.236EI

Where:
Constant a = -2.32
CRM (Customer relationship management) =0.125
LIS (Level of information sharing) = 0.238
DMP (Demand management process) = 0.278
EI (Environmental issues) = 0.236
SRM (Supplier relationship management = 0.175

The beta coefficients indicated that how and to what extent supply chain dimensions viz., customer relationship management, customer service management, level of information sharing, demand management process, environmental issues, supplier relationship management influence competitive advantage of selected manufacturing firms.

Based on the regression result demand management process has the highest beta coefficient with that of competitive advantage (beta= 0.278, t=3.364, p<0.01) and they are positively related and significant. Similarly, level of information sharing and environmental issues have highest beta coefficient with that of competitive advantage (beta= 0.238, t= 3.593, p<0.01) and (beta= 0.236, t= 3.042, p<0.01) respectively and they are positively related and significant too. On the other hand, supplier

Table 4.1.6. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.323	.264		-9.010	.000
	CRM	.130	.082	.125	1.234	.023
	LIS	.239	.092	.238	3.593	.000
	DMP	.328	.139	.278	3.364	.000
	SMP	.201	.107	.175	1.871	.000
	EI	.234	.077	.236	3.042	.000

a. Dependent Variable: CA

relationship management and customer relationship management have lowest beta coefficients with the dependent variable, competitive advantage with (beta= 0.175, t= 1.871, p<0.01) and (beta= 0.125, t= 1.243, p<0.01) respectively and they are positively related and significant.

CONCLUSIONS

To conclude the researchers have conceptualized and developed five dimensions of supply chain management practice (customer relationship management, demand management process, supplier relationship management, level of information sharing & environmental issues) and tested the relationships between supply chain management practices and competitive advantage in manufacturing firms in Ethiopia.

Accordingly, based on the results and discussions made in the preceding sections, there is significant relationship between demand management process and competitive advantage (r= 0.779**, p<0.01), customer relationship management and competitive advantage (r= 0.624**, p<0.01), strategic supplier partnership and competitive advantage (r= 0.737**, p<0.01), level of information sharing and competitive advantage (r= 0.648**, p<0.01), and environmental issues and competitive advantage (r= 0.715**, p<0.01). In other words, all supply chain management variables included in the study exhibit positive correlation coefficients with competitive advantage (taken as dependent variable) of manufacturing firms.

The Supply chain management dimensions involved in the study viz., customer relationship management, customer service management, level of information sharing, demand management process, environmental issues, and supplier relationship management together explained about 78% of the variations (R^2) in the dependent variable, competitive advantage. In other words, it can be said that 78% of a possible change/variation in the competitive advantage in manufacturing firms is caused by supply chain management dimensions.

Based on the regression result demand management process has the highest beta coefficient with that of competitive advantage (with beta= 0.278, t=3.364, p<0.01) and they are positively related and significant. Similarly, level of information sharing and environmental issues have highest beta coefficients with that of competitive advantage (with beta= 0.238, t= 3.593, p<0.01) and (beta= 0.236, t= 3.042, p<0.01) respectively; and they are positively related and significant too. On the other hand, supplier relationship management and customer relationship management have lowest beta coefficients with that of competitive advantage (beta= 0.175, t= 1.871, p<0.01) and (beta= 0.125, t= 1.243, p<0.01) respectively, and they are positively related and significant.

Recommendations

- Manufacturing firms should create close customer relationship with customers to differentiate its product from competitors.
- There must be good level of information sharing among the supply chain umbrella to make good profit among actors of supply chain management.
- Manufacturing firms have to facilitate faster implementation of the best inventory management practices like just in time, materials requirements planning, accurate prediction of vendor delivery dates and follow-up or expediting of purchasing procedures.
- Manufacturing firms have to apply information technology like electronic data interchange within and among the supply chain umbrellas as a whole.
- It suggested that firms must consider environmental issues as a means competitive advantage mechanism.
- It is better for manufacturing firms to build a tool like the supplier relationship management strategy.
- There should be good demand management process and sound forecasting, coordination and communication among the responsible parties among the supply chain.

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