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The Effect of Supply Chain Management Practice on Operational Performance: In Case Commercial Bank of Ethiopia Bahir Dar Main Branch

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BAHIR DAR UNIVERSITY
COLLEGE OF BUSINESS AND ECONOMICS
DEPARTMENT OF LOGISTICS AND SUPPLY CHAIN
MANAGEMENT

THE EFFECT OF SUPPLY CHAIN MANAGEMENT PRACTICE ON
OPERATIONAL PERFORMANCE: IN CASE COMMERCIAL BANK
OF ETHIOPIA BAHIR DAR MAIN BRANCH

A THESIS SUBMITTED TO BAHIR DAR UNIVERSITY COLLEGE OF BUSINESS
AND ECONOMICS DEPARTMENT OF LOGISTICS AND SUPPLY CHAIN
MANAGEMENT IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
THE AWARD OF THE DEGREE OF MASTER OF ART IN LOGISTICS AND
SUPPLY CHAIN MANAGEMENT

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August, 2020

Bahir Dar, Ethiopia

Declaration

I, hereby declare that this research thesis work entitled “ The Effect of Supply Chain Management Practices on Operational performance in Case of Commercial Bank of Ethiopia Bahir Dar main branch” is my original work and has not been presented for a degree in any other university, and that all sources of materials used for the study have been fully acknowledged.

Declared by:

Name_____

Sign_____

Date_____

Certification

This is to certify that Yibeltal Yismaw has carried out his research work on the topic entitled “The Effect of Supply Chain Management Practice on Operational Performance In Case of Commercial Bank of Ethiopia Bahir Dar Branch Main branch” as a partial fulfillment of the requirement of Masters of Arts Degree in Logistics and Supply Chain Management. This study fulfills requirement to obtain academic degree from the university.

Advisor: Belaynew Asrie (Assistance Professor)

APPROVAL SHEET

BAHIR DAR UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF LOGISTICS AND SUPPLY CHAIN MANAGEMENT

This thesis work is to certify that prepared by Yibeltal Yismaw Ayenew, Entitled: the effect of supply chain management practice on operational performance of commercial bank of Ethiopia in case of Bahir Dar main office submitted for partial fulfillment of the requirements for the degree of Master of Arts in Logistics and Supply Chain Management with respect to the regulation of the University and meet an accepted standards with respect to originality and quality.

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Acronym and Abbreviation

CBE- Commercial Bank of Ethiopia

CRMP- Customer Relation Management Practice

ITP- Information Technology Practice

LP- Lean Practice

OOP- Organization Operational Performance

Op- Operational performance

QIS- Quality Information Sharing Practice

SCMP- Supply Chain Management Practice

SPP- Strategic Partnership Practice

SPSS- Statistical Package for Social Science

VAS –Value Added service

ABSTRACT

Supply chain management practice is a vital area of management within most firms, whether they are manufacturing or service firms. Supply chain management practice is important because it creates value for customers and suppliers of the firm, and value for the firm's stakeholders. The purpose of this study was to explain the effect of supply chain management practice on the operational performance of commercial bank of Ethiopia at Bahir Dar main branch. This research conceptualizes and develops five supply chain management practice (strategic partnership, customer relation management practice, quality information sharing, information technology, and lean practice).the study was support by system theory, agility theory, resource dependency theory and network theory. The paradigm of the research was positivist world view. Quantitative approach was used. The study employed both descriptive and inferential analysis. Explanatory cross sectional census design was employed and used primary source of data. The Data was collected through questioner from 93 respondents in Bahir Dar main branch. Data was analyzed by aid of STATA version 14 and Statistical Package for Social Sciences (SPSS) version 20. Cronbach alpha was used to check reliability test. Spearman's rho Chi square test statistics were applied for testing the association between dependent and independent variable. Ordinal logistic regression model was applied and parallel line test multi co linearity test, goodness of fit test were tested and finally Statistical analyses were performed with the data in order to test the five main research hypotheses. The main findings indicate that, lean practice has no significant effect on operational performance in Bahir Dar main branch. On the other hand, information technology, customer relation management practice, strategic partnership practice, and quality information sharing practices are positively determines operational performance of the branch. Especially information technology has the most statistical significant effect on operational performance of the branch.

Key Word -supply chain management, supply chain management practice, operational performance, STATA, commercial bank of Ethiopia Bahir Dar main branch.

CHAPTER ONE

1.1 INTRODUCTION

Supply chain management is become an important engines for the success and the performance of the service giver organizations like banks and the business organization. In this paper the researcher will try to show the effect of some selected supply chain management practice like strategic partnership practice, customer relation management practice, information technology, quality information and lean practice on the performance of commercial bank of Ethiopia in Bahir Dar main Branch.

1.2. Back Ground of the Study

The last four decades has seen as increasing need to shift from lean ,cost efficiency driven supply chain to agile, fast and service driven supply chains. Both in theory and practice, numerous scholars concur that firms leaders has gained knowledge on the fact to that t be productive, firms need to compete in isolation of their suppliers and other supply chain entity (Gimenez & Ventura, 2005). Due to the challenge to efficiently and effectively execute their daily business activity, the demand for more elaborate and compressive supply chain practice is arisen. This comes because the demand for goods and services delivery to the right dimension and time increased. Most business has since taken keen interest how to have efficient practice to execute their daily operation. It is now a prerequisite for any organization deemed competitive and enhancing profitability. To meet this demand organizations are increasingly the implementation of supply chain management practice in their day today operation (Yala, 2016).

Supply chain management practice recently has been a very common practice across different industry(Ralston, Richey, & Grawe, 2017). The major focus is to facilitate meeting of customer needs for the various products that it produce(Preuss, 2005). In recent years, supply chain management emerged has become one of the most critical features in any business in need to gain in every competitive and dynamic environment. The global market is become more complex and competition is becoming strong, therefore the demand for business restructuring and reestablishment in the operation department in order to produce and provide more competitive goods and services to the consumers through effective and efficient supply chain management practice(Rajput & Abu Bakar, 2011).

1.2.1 Supply Chain Management Practice

“Supply chain Management (SCM) entails managing a network of interconnected businesses involved within the last word provision of products and services or service packages required by the end-users”(Harland, 1996). And also “Supply Chain Management encompasses the planning and management of all activities involved in sourcing and procurement.” It includes coordination and collaboration with channel partners like suppliers, intermediaries, third-party service providers and customers as cited by (Mekonnen, 2019). Other definition of supply chain management is “all activities related to the flow of products and services from raw materials stage to the ultimate product usable by client and therefore the supply chain management emphasizes on the mixing of supply chain activities and knowledge flows related to them to realize a competitive advantage of continuity and reliability”.

Supply chain management practice has become very crucial and sensitive issue in different organization to get competitive advantage and achieve their goals. Supply chain management practice has taken many definitions -“ the set of activities undertaken by an organization to promote effective management of its supply chain; as the approaches applied in integration, managing and coordination of supply, demand and relationships so as to satisfy clients in an efficient way; as tangible activities/technologies that have relevant role within the collaboration of a focal firm with its suppliers and/or clients; and because the approach to involve suppliers in deciding , encouraging information sharing and searching for brand spanking new ways to integrate upstream activities”. As a result customer contact will be created by customer response or feedback to generate downstream supply chain activity and then the order of customer delivered directly to the customer (Monczka & Morgan, 2002). In today’s world business organization individual supply chain management practice is not the solution to bring the efficiency or the performance, as a result they are move from single supply chain management practice to the whole and more integrated supply chain management practice to achieve their efficiency (Kaufmann, 2002).

1.2.2 Operational Performance

The other important issue in the paper is organization performance- improve organization performance is the most and the first goal of most business organization in the today's world. And different researchers and scholars give different definition for organizational performance. Organizational Performance is 'ability of a corporation to satisfy its mission through sound management, strong governance and a persistent rededication to achieving results. Effective nonprofits are mission-driven, adaptable, customer-focused, entrepreneurial, outcomes oriented and sustainable''(Richard & Heinrich, 2009) . Organization performance parameter includes operational performance, financial performance, marketing performance, business performance. Among that parameter, operational performance was the main issue in the study.

Operational performance is a relative measure that explains how firms utilize its available resource such as asset both tangible and intangible in generating revenue. Performance measurement is the systematic process of quantifying idea and action in firms (Shepherd & Günter, 2010). Performance measurement is facilitating integration of among supply chain partners aids to achieve long and short term goals of firms example to facilitate productivity, reduce cost & wastes related to inventory, reduce waiting time and to increase market (Derrouiche, Neubert, & Bouras, 2008).

The extent to which supply chains activity meet end customers need what is termed as supply chain performance. Performance is a management problem that needs to be understood fully. Strategic and operational goals can only achieved, if management understands the performance targets. The measure evaluates the strength and the appropriateness' of the asset utilization in generating profit. It measures the efficiency and effectiveness of the management in resource allocation and growth(Chan & Lee, 2005). The specific performance measures in this study are related to timelines or time cycle, responsiveness, customer satisfaction, on time service delivery, market share.

1.2.3 Commercial Bank of Ethiopia

The Ethiopian Monetary and Banking law that came in to force in1963 separated the function of commercial and central banking creating National Bank of Ethiopia and give birth to Commercial Bank of Ethiopia (CBE). CBE started operation on January 1, 1964 with a capital of

Eth. Birr 20 million. CBE is structured on a system whereby a set of branches operate through a network. In recent year CBE implemented the core banking system which is characterized by increased application of computer for customer services such as withdrawal from any branch, self-service tellers ATMs for cash, electronic banking, and other real-time capabilities. However some operations are referred to the districts and main branches for final decisions. This arrangement creates a system of referral and facilities requisitions between the branches and main branch. While such system is designed to afford efficient remittances of facilities and prevents duplication of efforts; without a carefully designed workable supply chain management, the operational cost involved is likely to be sub-optimal and also a delay in decisions will deteriorate the customer service level such as delay customer service, increase lead time as cited by Daniel Abi (CBE 3rd Quarter report, 2016/17).

1.3. Statement of problem

In today's world supply chain management practice plays a vital role in big business organization. A substantial number of firms realized the strategic role played by supply chain management in the achievement of the organizations performance within the industry of operation. Organization both private and public organization are therefore compelled to upgrade their standard performance with a view of creating value for money in the production of goods and services(Fayezi, Zutshi, & O'Loughlin, 2015). Other researchers also highlighted the important of supply chain management but noted there is little research done on supply chain management practice (Squire, Burgess, Singh, & Koroglu, 2006). Any challenge experienced by any of supply chain members result on negative effect on performance of the whole chain due to the high cost incurred in the long run. Timely exchange information in supply chain management help to pace of the whole supply chain by lowering the rate of variation and shift in inventories and customer demand (Ambe, 2012).

Despite the fact that many private and government bank sectors have taken account the advantage of implementing supply chain management practice, since best practice, method, and technique were initially implemented in the industrial settings, implementation of this practice in the bank sector is still infant stage. Even firms with adequate internal process have failed to facilitate international supply chain management practice. This factor result to minimize partnering and collaboration among supply chain partners. Some players apply traditional

method of operation which is expensive, time consuming and rigid(Osoro, Muturi, & Ngugi, 2015).because of high number of customers and competitors in Bahir Dar City, the branch should be offer specialized service for customer by adopting adequate supply chain management practice.

As a result of the above mentioned issue of supply chain management practice issue, many researchers have done different studies both nationally and internationally. For instance B. Kenya & Mulinge (2014) studies about the effect of some selected supply chain management practice and performance on Kenyan commercial banks like out sourcing , green supply chain management ,information technology, lean logistics, reverse logistics, supply relationship practice, and he find that some of the practice has significantly effect on the performance of the bank. B. Kenya & Mulinge (2014) also done a research on one the supply chain management practice logistics outsourcing on the performance of commercial bank of Kenya., and his finding was out sourcing was not a core activity for that organization as a result the organization loss some competitive advantages. this researcher studies about supply chain management practice(ICT, Supply Relationship, Global of Supply Chain Management, Outsourcing) on the Kenyan Post Office and Saving Banks and his finding was specially outsourcing was not well practiced in the post office and saving bank of Kenya (Kimechwa, Njeru, & Makau, 2015). another researcher that studies the effect of supply chain management practice on the performance of large manufacturing firms in Kenya, his finding was the supply chain management practice has assist and increase their competitive advantage ,efficiency and performance of the large manufacturing firms(Mwale, 2014). the other is the supply chain management practice and construction organization in united kingdom(Manu, 2014).

Other Researchers find that the positive effect of supply chain management practice on the operational performance of fair price shop in India. The findings show that information quality has the highest effect on performance and customer relationship has the least effect on performance (Kumar & Kushwaha, 2018). Malaysian researchers that find the importance of some selected supply chain management practice on the performance of Malaysian public health service(Yap & Tan, 2012). others find that the higher application of supply chain management practice will results the higher competitive advantages and higher organizational performance on Iran pump company.(Al-Madi) the research done from Jordan industrial sector that find that

customer relation management has a significant effect on the Jordanian industrial sectors(Otchere, Annan, & Anin, 2013), (Karimi & Rafiee, 2014). which supply chain management practice should be adopt and influence the increased enterprise performance was other research related to this study (Spina, Di Serio, Brito, & Duarte, 2015).

All the above researches are done International level, next see in locally researches done on supply chain management practice are- The effect of supply chain management practice on organizational performance of pharmaceutical companies in Addis Ababa and the finding was companies should give great attention for quality information sharing and customer relation management to gain greater competitive advantage over their competitors(Aboneh, 2017). The researcher takes only one of the activities of supply chain management practice, logistics activity. The effect of logistics management on the performance of commercial bank of Ethiopia and he find that there was problems of technology, Information sharing and less integrated(Abi, 2017). The effect of logistics practice on the performance of Ethiopian Telecom and the finding was transportation management practices, warehouse management practices customer service, inventory management practices, information flow management practices and supply management practices have strong relationship with organizational performance of Ethiopian telecom and logistics management practices contributed to Ethiopian telecom performance to a moderate extent. Assessment purchasing practice of commercial bank of Ethiopia (Habitye, 2018) And (Banchamlak, 2014)., supply chain management practice and firms performance of awash tannery plc in Addis Ababa (Mohammed, 2014)., The effect of supply chain management practice on the performance of Ethiopia telecom in Addis Ababa(Kindie, 2017)., assessment on supply chain management performance of population service international Ethiopia(Fikru, 2014).

After the researcher understands all researches finding done before, about supply chain management practice on firm's performance the researcher want to add and focus from the following point. First all most the above international and local researches are focused on ,manufactures firm, retailers firm, construction firm, large industry, Ethiopia telecom, fair price shop, public health, pharmaceutical company, and enterprises as well as some of research were done locally like the effect of supply chain management practice on the performance of Ethiopia telecom, supply chain management practice on the performance of population service international Ethiopia, the effect of supply chain management practice on organizational

performance of pharmaceutical companies in Addis Ababa, The effect of logistics management on the performance of commercial bank of Ethiopia, Assessment purchasing practice of commercial bank of Ethiopia, supply chain management practice and firms performance of awash tannery plc in Addis Ababa, assessment on supply chain management performance of population service international Ethiopia.

So what want to add is what will be the effect of supply chain management practice on the performance of commercial bank of Ethiopia at Bahir Dar main branch, Second almost the research before is done qualitatively and quantitatively in linear regression model, but I want to do with quantitatively by ordinal logistic regression model to get more brief and more reliable results, Third variables are different from the above research in number and in content. Fourth the past researches were studied by taking a sample (sample survey), but my study is census take all the population as a sample to minimize sampling errors by taking single branch of commercial bank of Ethiopia in Bahir Dar Branch main branch.

Generally all the previous study indicates that knowledge gap exist based on the fact that no single research have done on supply chain practice and performance of commercial bank of Ethiopia in Bahir Dar, not only Bahir Dar but also Addis Ababa. So the researcher wants to study the effect of supply chain management practice on operational performance of commercial bank of Ethiopia at Bahir Dar main branch.

1.4. Research Hypothesis

The primary goal of this research is to show the effect of supply chain management practice on the performance of commercial bank of Ethiopia in Bahir Dar branch main branch Specifically the research had answer the following research hypothesis

1. **H₁** Customer Relation Management Practice has statistically significant Effects on the Operational Performance.
2. **H₂** Strategic partnership practice has statistically significant Effects on the Operational performance.
3. **H₃** Information Technology Practice has statistically significant Effects on the Operational Performance.

4. **H4** Quality Information Sharing Practice has statistically significant effects on the Operational Performance.

5. **H5** Lean Practice has statistically significant effects on the Operational Performance.

1.5. Objective of the Study

- The main objective of the study is to show the effect of supply chain management practice on the Operational performance of commercial bank of Ethiopia in Bahir Dar main branch.

1.5.1. Specific objective of the study

Under the main objective of the research the following specific objective are presented

1. To Analyze the Effect of Customer Relation Management Practice on the Operational Performance of Commercial Bank of Ethiopia at Bahir Dar main branch.
2. To Analyze the Effect of Strategic Partnership Practice on the Operational Performance of Commercial Bank of Ethiopia at Bahir Dar main branch
3. To Analyze the Effect of Information Technology Practice on the Operational Performance Commercial Bank of Ethiopia at Bahir Dar main branch.
4. To Analyze the Effect of Quality Information Sharing Practice on the Operational Performance Commercial Bank of Ethiopia at Bahir Dar main branch.
5. To Analyze the Effect of Lean Practice on the Operational Performance of Commercial Bank of Ethiopia at Bahir Dar main branch.

1.6. Scope of the Study

Geographically the study had focus on the effect of supply chain management practice on the performance of commercial bank of Ethiopia in Bahir Dar branch main branch. Methodologically, it is quantitative approach, explanatory, cross sectional, census design. The content or conceptually the research was delimited to customer relation management, strategic partnership, information technology, quality information sharing practice and lean practice effects on the performance of commercial bank of Ethiopia at Bahir Dar main Branch.

1.7. Limitation of the Study

The limitation of the study is that only focus on the five supply chain management practice, such as customer relation management, strategic partnership management, information technology, quality information sharing and lean practice as well as geographically only focus on Bahir Dar branch main branch. The other difficulty was data collection. COVID-19 was the main obstacle to collect data within a given time as well as COVID-19 was a greater challenge to get the advisor and different statistician physically.

1.8. Significant of the Study

The study would help for commercial bank of Ethiopia, Bahir Dar branch to improve its performance by focus and invest on supply chain management practice as well as the finding also important for other commercial bank of Ethiopia. It will be used as an input for policy makers in the banking industry towards to supply chain management issue. And also the finding of the researcher would be used as a literature and it would use as a reference point and give direction for different future researchers. Lastly the study would use the researcher to graduate and get promotion.

1.9. Organization of the Study

The paper was organize by five chapters- chapter one contains introduction, back ground, statement of problem, research question, general objective, specific objective, delimitation or scope ,significance and organization of the paper. Chapter two is review of related literature from different sources; the third chapters deals the methodology applied for the research. The fourth chapter involves data analysis and interpretation. The fifth chapter is contains summery, conclusion recommendation and suggestion for feature researchers and at the end reference and appendix had included.

1.10. Operational Definition of Terms

- **Supply chain management practice**– is various actions taken by management of any firm to better the workability of the integrated supply chain.

- **Customer relation management** – It is the collection of all practice which is implemented in order to manage all customer needs, complaints and ensure creation of long term relationship with an aim of customer satisfaction.
- **Strategic partnership**– is a collaborative coalition between two or more business for purpose of information interchange, research, product development, marketing, distributions and sales.
- **Lean practice** – the elimination of any non-value adding activities in the supply chain product and services.
- **Quality information sharing**– the extent to which crucial information is communicated to one's supply chain partner.
- **Information technology**- facilitates communication between supply chain partners, both within and outside of the firm in fast and cost efficient manner.
- **Organizational performance** - Is the ability of an organization to achieve its goals by using resources efficiently and effectively.
- **Operational performance**– Refers to aspects of an organizations process which can be quantified, It includes variables such production reliability and defect rates, cycle time, on time delivery, cost of quality and scrap reduction, productivity, and inventory management, market share.

CHAPTER TWO

Review of Literature

2.1. Introduction

At this chapter the key variables (supply chain management practice) such as customer relation management, strategic partnership, quality information sharing, information technology, and lean practice and organization performance are more clarified by different related literature. In this chapter the literature is include the main content like theories, past studies, research gaps summery and conceptual frame work.

2.2. Theoretical Review of the Research

In this paper the researcher has used different supply chain management theory to give more emphasize the work. Theoretical frame work of research is the pillar and the base for the research. It guides how to build the study. Theoretical frame work is contains some selected theory that developed thinking regard to the selected topics, concepts and definition(Bahrami& Evans, 2005).

Resource Dependence Theory- is the first theory for this research. The theory is determine how firms dependent one to others and how to manage their relationship in every aspects of resource (Denktas-Sakar & Karatas-Cetin, 2012). When supply chain members and practices are work and integrated together, they become more dependent one to other. This theory explains the behavior of firms is affected by external resource of organizations. The sourcing of external resources is an important aspect for not only strategic management but also tactical management of any firms (Sanderson, Lonsdale, Mannion, & Matharu, 2015).

The theory is important to explain the course of action implemented by firms, such as strategic partnership practice in all attempt to overcome dependency improve an organization performance. Most organization are not self-sufficient hence the need to come with proper supply chain management practice in order to facilitate performance such as strategic partnership, out sourcing and information sharing to meet the market demand to enhance customer satisfaction(Fayezi& Zomorodi, 2016).

Network Theory- is the second theory supports the research work that determines the linkage of each entity in supply chain organization(Thorelli, 1986).When firms strongly tie one other, they perform more. Network theory describes, explains, and predicts relations among linked entities (Thorelli, 1986). Supply chains are, in essence, a form of network, thus, network theory has the potential to reveal interesting truths about chains. Feature network theory. Strong and weak ties are key concepts within network theory. As the names suggest, strong ties involve firms that are tightly coupled and loose ties involve firms with more tenuous links(Friedkin, 1980). A blend of strong and weak ties that matches supply chain needs (such as reliability and flexibility of operation) is created in order to maximize supply chain performance. The theory supports that, when firms tie each other, they will perform more and shows that the important of strategic partnership practice of supply chain management.

System Theory

This theory argues that an occasion is seen as an entire and not a function of its sub systems (Martinelli, 2001). A system comprises of sub systems whose interrelationship and inter Dependence move towards equilibrium of a larger system (Steele, 2003). The focus is on the relationship among subsystems in order to better understand an entity's organization, functioning and results. It also views the organization as hooked in to the environment it operates during which involves various parties which include agents, shareholders and other factors beyond the organization control (Amagoh, 2008). Systems theory incorporates various supply chain variables which then form a larger system of supply chain networks (Hilditch et al., 1994). It also helps to reveal the extent of dependence between constitutes of the system and a better understanding of the dynamics of the Supply chain hence improve planning, execution and coordination of activities of manufacturing and service organization. This theory is explaining more strategic partnership of organizations in different aspects for more development and good functioning.

Agility theory-Agility is to respond customers quickly (X. Li, Goldsby, & Holsapple, 2009). And supply chains should be customer-oriented rather than forecast-driven (Ghosh, Das, & Deshpande, 2014). In addition, supply chain agility is also about mastering changes and uncertainties. The supply chain should be rapid enough to reconfigure all resources (Breu,

Hemingway, Strathern, & Bridger, 2002). In a wider context, agility postulates flexibility and responsiveness in manufacturing and service operations, organizations and supply chains as a key tenet of a firm's competitiveness (Gunasekaran, Reichhart, & Holweg, 2007). Agility responsiveness is the ability to respond time-effectively based on the ability to understand market and customers (Williams, Roh, Tokar, & Swink, 2013). Investigate cross functional SCM application integration for supply chain integration and discover a significant correlation between cross-functional application integration and firm performance.

IS integration in the context of supply chain agility, firstly, customer sensitivity supports the customers' processes in a way that is perceived by customers to be satisfied, and emphasizes fast response to customer requirements (Osterwalder, Pigneur, & Tucci, 2005). IS integration within and among organizations enables them to capture data on demand, leading to customer-focused supply chains and achieving greater responsiveness (Christopher & Towill, 2000). Secondly, one dimension of agile supply chains is to thrive on change and uncertainty, which is stressed by process integration (Agarwal, Lvov, & Varahramyan, 2006). IS integration provides real time information to reflect changes, including customer orders or market changes so that the product and volume flexibility can be improved. Thirdly, cooperation is necessary within an organization as a means of synchronizing often numerous people and organizational subunits that play a role in bringing about the actions required to continually meet ever-changing customer needs (Gunasekaran, Williams, & McGaughey, 2005). This theory supports lean practice, information sharing, customer relation management, strategic partnership, information technology and operational performance.

2.3. Empirical Literature Review

2.3.1. Supply Chain Management Practice

The concept of supply chain management was introduced in 1980s from the traditional logistics management definition. Christopher (2005) Defines SCM is strategic way of goods and services and its distribution system that realized the value to the individual from the initial up to the end in the whole supply chain. Supply chain is essentially a gaggle of independent organization connected together through products and services that they separately or jointly add value on so as to deliver them to the end customer (Lu, 2011).

Supply chain management practice is defined “as set of activity undertaken by a corporation to market effective management of its supply chain” (S. Li, Ragu, Ragu, & Rao, 2006). In the context of my research supply chain management practice includes customer relation management practice, strategic partnership, information technology, quality information sharing and lean practices. Next to this different related researches discussed about the topic of the research.

Empirically different research has done on related to the effect of supply chain management practice on the performance of banks. Example Supply Chain Management Practices and Performance of Commercial Banks in Kenya(Kenyatta, 2015).The researchers take supply relation management practice, lean supplier practice, green supply chain management practice, information technology practice, reverse logistics and out sourcing on the performance of Kenya commercial bank. The researcher was used sample survey design and the data was collected from 43 commercial bank of Kenya. The researchers find that supplier relationship has strong effects on the performance of the bank compare to the other supply chain management practice followed by out sourcing, information technology, lean practice and green supply chain management practice.

The other research was the Effect of supply chain management practices on the performance of banks in Kenya: a case of post bank by (Kimechwa et al., 2015).The researcher was done on Outsourcing, Information and Communication technology, Partnership and globalization. Descriptive statistics design, sample survey; primary data was used by the researcher. The data was collected from 101 samples of the bank and the researcher was analyze the data by using statistics package for social science software as well as the finding of the researcher was those all variables are effect the performance of the bank.

Supply Chain Management Practices and Operational performance of fair price shops in India: (Kumar & Kushwaha, 2018). The variable were information technology, quality information sharing and customer relationship management on the operational performance of the fair price shops. The researcher takes about 200 shops as a sample and the finding was information quality construct has the highest effect on performance while customer relationship (CR) construct has the least effect on performance.

The other research was Assessing Analyzing the Effect of Supply Chain Management Practices on organizational Performance through Competitive Priorities (Case Study: Iran Pumps Company) (Zhao & Lee, 2009)the researcher take customer relation management, level and quality information sharing and strategic partnership variables. The researchers find that organizations with high level of SCM practices have high levels of organizational performance.

Effect of Supply Chain Management Practices on Organizational Performance in Pharmaceutical Companies in Addis Ababa(Aboneh, 2017). Customer relation management, supply relation management, level of information sharing, and quality of information sharing were the independent supply chain management practice variables. The researcher was employed descriptive research design, sample survey, primary and secondary data, questioner and was take 78 sample. The finding was quality of information sharing and customer relationship management must be in the best attention of business organizations to take a proactive role in the management of their supply chain in establishing a strong position over its competitor's and achieving their goals compared to the other variables.

Supply chain practices and firm performance: Evidence from some selected commercial banks in Ghana (Amoako-Gyampah, Boakye, Adaku, & Famiyeh, 2019)the combination of better supply chain management practice will results best marketing, operational and financial performance of the bank. The researchers also directed that the poor implementation of supply chain management leads to low operational, financial and marketing performance of the bank this leads the widespread of customer satisfaction.

Supply chain management practice and performance of private hospital in Indonesia (Dametew, Beshah, & Ebinger, 2019). The researcher takes customer relation management practice, strategic partnership, lean practice, information technology and quality information sharing as independent variables and organizational performance as a dependent variables and the researcher was used descriptive analysis using by SPSS, census method, the population taken was 53 and the data were collected through stricter and unstructured questioner. The finding was that supply chain management practice has moderate effect on the performance of the private hospital of Kenya.

2.3.2 .Customer Relation Management practice

“Customer relationship is the intangible connection of customers and the company”. Customer relation management is the strategy that enables a bank to analyze their profitability, customers need and profile as well as their profit potential area to enhance the customer satisfaction, competitive advantage, profit and images of the organization(Stone & Woodcock, 2014).

Different researchers have done researches at different time about the effect of customer relationship management practice on the performance of bank sector. Example Kafko (2017), he was study about the effect of customer relation management on the performance of commercial bank of Kenya. In his research he find that customer orientation strategy, customer retention strategy, service quality management and customer relation management has strong effects on the market performance of commercial bank of Kenya. And he recommend that each commercial bank of Kenya should have the above all strategies to enhance its performance.

Agbo was studied about the effect of customer relation management on the performance of deposit money banks in umuahia at Nigeria, the researcher was found that ,customer relation management practice has relationships with the performance and this practice is influence the profitability, market share and customer satisfaction of money deposit banks in umuahia state. Kebede & Tegegne (2018) the effect of customer relation management on the performance of commercial bank of Ethiopia in Amhara region, their study was based on the key customer focus variables like organization based, knowledge based and technology based. According to their research all variables knowledge management, technology and organization based CRM were possible to predict the performance of the bank. Among the three independent variable knowledge management has strong effect on the performance of commercial bank of Ethiopia in Amhara regional state. Assessment of customer relation management practice on the performance of awash international bank in Addis Ababa (BELISTIE, 2017), the researcher view was from four customer relation management dimension, customer focus, CRM organization, Knowledge management, and technology-based and he find that, the effect of customer relation management practice was average on the performance of awash international bank. But customer focus dimension had taken the lion share of the contribution. Assessment of customer relation management practice on the organizational performance of medium enterprise in Indonesia

(Nasution& Rafiki, 2018). The finding was all customer orientation, top management support and employee training has a strong effect on the performance of Indonesia medium enterprise. Those researches are done on customer relation management alone, but there are also other past studies with strategic partnership practice, information technology, quality information sharing and lean practice.

2.3.3. Strategic Partnership

In the current global economy, the business environment is always changing. Some changes are so dramatic that everybody notices them but others may slowly creep up over the years before they can no longer be ignored. Fortunately, strategic partnerships are one such tactic that an organization may employ to address how it will respond to these ever-evolving business challenges. Strategic partnerships can also ensure an organization focuses on what matters most (versus reactively responding to “fres” or “crises”) its customers or core stakeholders in an effort to respond to external market forces and focus an organization’s efforts(Gole & Morris, 2007).

Strategic partnership has been defined as “an arrangement between two companies or organizations to help each other work together to make it easier for each of them to achieve the things they want to achieve”(Abercrombie, 2019). Strategic partnership may be in the form of business to business, private business to public business and it may be government to community development. strategic partnership is the collaboration of two or more firms together in the market for the purpose of some core value added activity that may include sale and distribution, research& development, marketing and operation(Archer, Maheshwari, Kumar, & Kumar, 2006).The other definition of strategic partnership is a “formal alliance between two or more higher education institutions developed through an intentional process whereby the partners share resources and leverage complementary strengths to achieve defined (common) objectives” and ‘multidimensional engagement between the involved institutions and implies the joint undertaking of a diverse range of activities with the aim of the parties’ mutual benefit”(Kuder & Lemmens, 2013).

2.3.4. Information Technology-

Information technology is becomes the sensitive issue in financial sectors and the application of electronic payment and transaction is become a common way in the world. According to Steve (1996) electronic payment may be a system that's automated through the utilization of data technology where bank transactions are done within and without banking halls and not necessarily the customer branch. Information technology is the major drive of that helps the enhancement of electronic system to enhance customer service delivery. Technology are often mentioned because the application of data for the execution of a given task. It entails skills and process necessary for the caring out activities in a given context. It come into use in the late 1980 replacing earlier term like electronic data processing, management information system although the latter term use still(Frenzel, 1996).

ICT has transcended the role of support services or only electronic data processing; its fields of applications are somewhat global and unlimited. Its devices especially the Internet through the World Wide Web and modern computer email facilities have further strengthen early innovation like. In the topic of information technology different research has done. Example technological development particularly in the area of information and communication technology is revolutionizing the way business is done. This has resulted to changes in trade, interconnection and business transaction within the national and international market places and set in motion a revolution within the banking sector. Banks are now required to take a position in ICT for the supply of a transaction and payment systems that's compatible with the stress of the electronically interconnected global market place (Olanrewaju, 2016). organizations conceptualizes information technology as a way that create effects on its performance and organization make a decision to conceptualize information technology due to industrial pressure in offering quality product, enhancement of effectiveness of firms and improve competitive in the market. Firms conceptualize of it leads the performance of the organization as a result of increasing the poetical communication media are developed, increase firms staff capability and reduction of cost. As well as organization of culture or value affect the decisions of the firm to invest on information technology. In addition to that the study finds, the implementation of information technology is makes the firm to save its resource and reduce cost of transaction, cost of operation, makes the customer to satisfy, makes the firm flexible and increase its market share

.finally the investment of information technology support the firms to specialized the production of product, differentiation of product production, new product development and division of labors (Mwania& Muganda, 2009). The performance of bank is influenced by information technology investment and information communication cost efficiency (Binuyo & Aregbeshola, 2014). Because of the problem of efficient utilization budget for the information technology, the performance of bank is not improving(Chen & Zhu, 2004).

2.3.5. Quality Information Sharing

In today's world information has play a vital role for the actualization of their objectives for the organization. Information asymmetry is playing an important role for the achievement of greatest performance of the firm. Information sharing is the driver of economic development and growth (Barth, Lin, Lin, & Song, 2009). Today's greatest organization, new emerged business, known firms, new product development, innovations are the result of information asymmetry (information sharing).Information plays a vital role in the capital formation of a country and people consider it as the life blood of a growing economy (Chantal, Namusonge, & Shukla, 2018).Asymmetric information is confronted with problem of alternative decision making especially knowing that resources are relatively scarce and limited, it is therefore pertinent that good information be made available for proper and accurate decision making, maximization of profitability and optimal utilization of scarce resource (Chantal et al., 2018). A situation in which one party in a transaction has more or superior information compared to another, this often happens in transactions where the seller knows more than the buyer, although the reverse can happen as well (Chantal et al., 2018).The related researches are- the effect of information sharing on the performance of commercial bank of Nigeria(Epie & Ituma, 2014). The findings of the researchers are information sharing has strong effect on the performance of commercial bank of Nigeria. Altering information sharing has effects on the value of the firm.

2.3.6. Lean practice

The term lean was first coined in large scale research program called IMVP (international motor vehicle program initiated by MIT (masochist institute technology). The primary concerns of the program were unanticipated yet strong competitive advantage of Japan automotive industry over that of American and European. The key finding of the program have been published in many

books and articles(Cimorelli, 2013). There are many definitions available to define “Lean”. For example, The National Institute of Science and Technology Czarnecki & Loyd (2001) defines Lean as defines Lean as “A systematic approach to identifying and eliminating waste (non-value added activities) through continuous improvement by following the merchandise at the pull of the customer in pursuit of perfection”(Buzby, Gerstenfeld, Voss, & Zeng, 2002). Simply, lean means to make more value for patrons with fewer resources, in other words, the elemental ideas is to maximize customer value while minimizing waste. Actually, the word “Lean” was first utilized within the long run Car Investigation by MIT professors to interpret Japan’s new production system that do away with mass production(Wee & Wu, 2009) since it produces much waste. “Waste” is defined as anything that interferes with the graceful flow of production (MacDuffie& Helper, 1997). The eight wastes highlighted in TPS are overproduction, waiting, conveyance, over processing, excess inventory, movement, defects and unused employee creativity, and thus the foremost important one being overproduction (Dahlgard Park & Pettersen, 2009).

Wee & Wu (2009) concluded that the term “lean” means a series of activities or solutions to eliminate waste, reduce non-value added (NVA) operations, and improve the price added (VA). This VA and NVA concept were derived mainly from TPS. A lean organization understands customer value and focuses its key processes to continuously increase it. The ultimate goal is to supply perfect value to the customer through an ideal value creation process that has zero waste. To make Lean success, level of thinking need to be change so on focus of management from optimizing separate technologies, assets, and vertical departments to optimizing the flow of products and services through entire value streams that flow horizontally across technologies, assets, and departments to customers (Narusawa& Shook, 2009). Eliminating waste along entire value streams, instead of at isolated points, creates processes that need less human effort, less space, less capital, and fewer time to make products and services at far less costs and with much fewer defects, compared with traditional business systems. Companies are ready to answer changing customer desires with high variety, top quality, low cost, and within no time throughput times.

2.3.7. Organization Performance

The word performance has different definition by different scholar, institute and organization Example Noyé (2002) "achieving the goals that were given to you in convergence of enterprise orientations".

LEBAS (1995) defines performance as future-oriented, designed to reflect particularities of each organization individual and is based on a causal model linking components and products and defines "successful business as one that will achieve the goals set by the management coalition, not necessarily one that achieved them." According to Rolstadås (1998) organizational performance system is the complex relationship among the seven performance criteria effectiveness, efficiency, quality, productivity, quality of work, innovation and profitability So he defines performance is the matter of achieving effectiveness, efficiency, quality, productivity, quality of work, innovation and profitability. "performance should be defined because the sum of the consequences of labor , because they supply the strongest relationship with the organization's strategic objectives, the customer's satisfaction and therefore the economic contributions" (Bernadin, Kane, Ross, Spina, & Johnson, 1995). "the existence of a relationship between objectives means and results so that performance is the result of simultaneous exercise of efficiency, effectiveness and adequate budgetary process" (Profiroiu, 2001) . There are different organization performance measures, such as financial, marketing, business and operational performance. But the researcher is selected operational performance measurement in this study as organizational performance measurement.

2.3.7.1 Operational Performance

Operational performance determines organizational performance. The operations in a service organization should be efficient and effective in order to achieve organizational goals. Effectiveness is the expanse to which customers' needs are fulfilled whereas efficiency is a measure of economical the organizations resources are utilized. In order to enable the accurate assessment and evaluation operational performance, the correct measurement approaches must be designed, implemented and well maintained by the users of the particular process. They may identify necessity of measuring the processes' effectiveness, its efficiency, its quality impact and overall productivity (Alfonso, LaRocca, Oakland, & Spanakos, 2000). A systematic performance

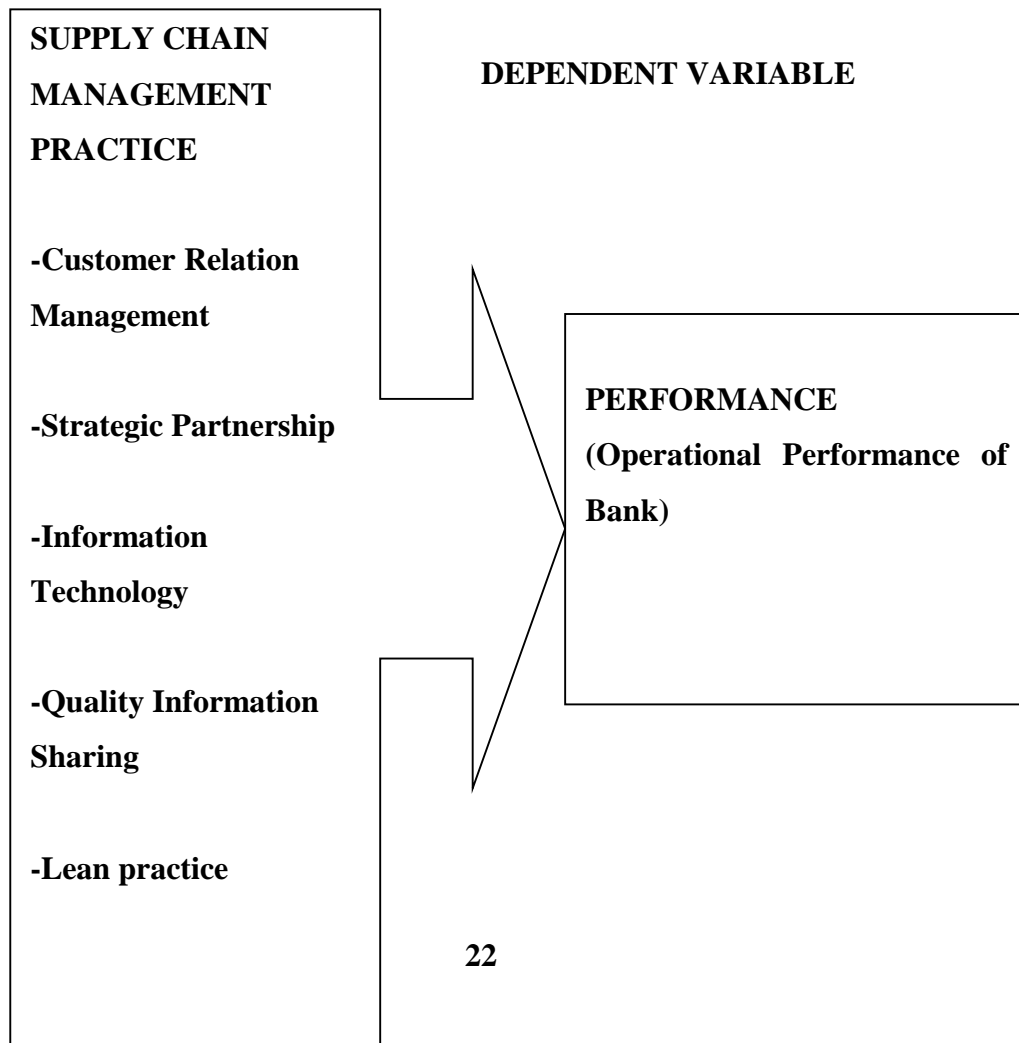
measurement system should be in place in order to achieve operational excellence in the service industry. Generally Operational Performance refers to the ability of a company in reducing management costs, order-time, lead-time, adopting customer responsiveness, fast delivery service, increase customer satisfaction, reliability, flexible service and increase market share improving the effectiveness of using quality service distribution capacity (Cook, Heiser, & Sengupta, 2011).

2.4. Conceptual Frame Work

Conceptual framework is the simplest way of expressing the theories by figure in the form of that everybody can understand. In the study customer relation management practice, strategic partnership practice, information technology, quality information sharing and lean practice taken as independent variable and performance of bank is as dependent variable.

Figure 2. 1 conceptual framework

INDEPENDENT VARIABLE



2.5. Research Gap and Summery

Table 2. 1: Research summaries and gap

SCHOLARS& YEAROF DONE	STUDY/TITLE	OBJECTIVE OF THE STUDY	FINDING OF THE STUDY	RESEARCH GAPES
➤ (CYRUS NG'ARU GITHEU ,2014)	➤ Supply Chain Management Practice and Performance of Commercial Bank of Kenya.	➤ To investigate supply chain management practices and performance of commercial banks in Kenya.	➤ Supplier Relationships, Reverse logistics, and Outsourcing have strong effect on performance.	<ul style="list-style-type: none"> ➤ The analysis is done only descriptive statistics. But I will do in both inferential &descriptive ➤ Used sample survey but I will do in census survey. ➤ The area done before was Kenya but what will be in Ethiopia. ➤ Used linear regression to show the effect but I will use logistic regression.
➤ (OKELLO AKINYI JUDITH,2017)	➤ Supply chain management practice and performance of private hospital at Addis Ababa.	➤ To ascertain the effect of supply chain management practice on the performance of private hospital.	➤ All SCMP (CRM, QIS, IT, SP &LP) have moderate effect on the performance.	<ul style="list-style-type: none"> ➤ The research was limited to the hospital but what about the effect on the bank. ➤ Use linear regression to show the effect but I used logistic regression. ➤ The analysis is done only descriptive statistics. <p>But I done it in both inferential &descriptive</p>

<p>➤ (VINCENT KIPROP,2015)</p>	<p>➤ Effect of Supply Chain Management Practices on the Performance of Banks in Kenya: a Case of Post Bank.</p>	<p>➤ To examine the effects of supply chain management practices on the performance of banks in Kenya</p>	<p>➤ The finding outsourcing, ICT, strategic partnership and globalization affected performance of the banks in the banking sector.</p>	<p>➤ The variable taken is not the same to this research. ➤ Used only descriptive design but I use both descriptive and inferential. ➤ Uses sample survey but I employ the census survey. ➤ The sample taken was very small. That will reduce the reliability of the research.</p>
<p>➤ (IndaSukati 2017).</p>	<p>➤ Supply Chain Management Practices: an Empirical Investigation on Consumer Goods Industry in Malaysia.</p>	<p>➤ To assess the practice of supply chain management practice on the performance of consumers goods industry</p>	<p>➤ Findings of this research assure the practitioners that SCM is an effective way of competing, and the implementation of SCM practices does have a strong effect on supply chain responsiveness and</p>	<p>➤ Uses sample survey but I employ census survey. ➤ It was focus on consumer goods industry but what about on banking. Industry. ➤ Add some variables.</p>

			competitive advantage of the firm.	
➤ (HILDA MWALE 2012)	➤ Supply Chain Management Practices and Organizational Performance of Large Manufacturing Firms in Nairobi, Kenya.	➤ To establish supply chain management practices adopted by large manufacturing firms in Kenya. ➤ To determine the effect of Supply Chain Management practices on the performance of large manufacturing firms in Kenya.	➤ The finding show strong relationship between supply chain management practices and organizational performance. ➤ Strategic supply chain management practices are very significant in enhancing the performance of organization.	➤ The research was focus on large manufacturing organization, but what will be in the area of bank sector. ➤ The researcher was adopting descriptive, sample survey, linear regression, but in case of my research I had use both descriptive and inferential, census survey & logistic regression.
➤ (Anil Kumar G.S.Kushwaha ,2018)	➤ Supply Chain Management Practices and Operational Performance of Fair Price Shops in India: an Empirical	➤ to determine the relationship between different supply chain management practices and	➤ Suggests that supply chain management practices positively & significantly associated with the	➤ Used descriptive, sample survey, and three SCM practice. But I want to do by census survey, both descriptive & interracial and take 5 variables.

	Study.	operational performance of the fair price shops in India	performance of fair price shops.	➤ The area was on small shop but now in case of bank.
➤ (Habtamu Aboneh,2017)	➤ Effect of Supply Chain Management Practices on Organizational Performance in Pharmaceutical Companies in Addis Ababa.	➤ to know how supply chain management activities affect organizational performance	➤ QIS and CRM must be in the best attention of business organization.	➤ The area was pharmacy, but what will be the effect on the bank. ➤ the descriptive approach was used but, I used both ➤ It was sample survey, but now census survey.
➤ (Faisal Al-Mad ,2017)	➤ The Effect of Supply Chain Management Practices on Supply Chain Performance in the Jordanian Industrial Sector.	➤ To investigate the effect of supply chain management practices on supply chain performance in the Jordanian Industrial Sector.	➤ There is an effect of supply chain management practices on supply chain performance in the Jordanian Industrial Sector.	➤ The focus area of the research was industry sector, but what about on the bank sector. ➤ The survey was sample survey, but I applied the census survey.
➤ (OKWACH EZEKIEL OWITI,2014)	➤ Supply Chain Management Practices of Small and	➤ To establish the Supply chain management	➤ The finding was customer supplier a	➤ The researchers were used descriptive, sample survey. But both

	Medium-Sized Office Supplies Firms in Nairobi, Kenya.	practices adopted by the office supplies firms in Nairobi.	relationship was being practiced by all most of the SMEs.	descriptive and inferential as well as census survey. ➤ The area was on SMEs but what will be in the bank.
➤ (Alemu M. &Zewdu L. 2018)	➤ The effect of customer relationship management on bank performance: In context of commercial banks in Amhara Region, Ethiopia.	➤ To determine the effect of Key Customer Focus CRM, Technology Based CRM, &Knowledge Management on the performance of commercial banks.	➤ The researcher finds CRM were predictors of bank performance. Among the predictors, knowledge management has a great effect on bank performance.	➤ Only single variable (CRM) was taken, but what about with the other variables. ➤ Was employed sample survey, but I employed census survey.

Source researcher s survey, 2020

CHAPTER THREE

Research Methodology

3.1. Introduction

Chapter three has includes research design, population, data collection, data analysis. Methodology describes the theory of how inquiry should proceed that involves analysis of the principles and procedures in a particular field of inquiry. It involves the researchers' assumptions about the nature of reality and the nature of knowing and knowledge. In other words, methodology represents a theory and analysis of how research does or should proceed. Methodology encompasses our entire approach to research.

3.2. Research Paradigm

In research there are different world views towards to the research approach. It is "a basic set of beliefs that guide action (Bailey, 1997). "A general orientation about the world and therefore the nature of research that a researcher holds" (Levine, 2011). According to Clark & Creswell (2008) there are four different world views towards research. Those are post positivism, constructivism, advocacy/participatory, and pragmatism.

Post positivist Worldview - According to this view the assumption holds true more on the quantitative approach than the qualitative approach. It also called the scientific method or doing science research. Post positivists hold a deterministic philosophy during which causes probably determine effects or outcomes. Thus, the issues studied by post positivists reflect the necessity to spot and assess the causes that influence outcomes, like found in experiments. It is also reductionist therein the intent is to scale back the ideas into a little, discrete set of ideas to check, like the variables that comprise hypotheses and research questions. The knowledge that develops through a post positivist lens is predicated on careful observation and measurement of the target reality that exists "out there" within the world & finally there are laws or theories that govern the world, and these need to be tested or verified and refined so that we can understand the world (Shavelson, Phillips, Towne, & Feuer, 2003).

Social Constructivism View - Holds assumptions that individuals seek understanding of the world in which they live and work. Individuals develop subjective meanings of their experiences meanings directed toward certain objects or things. These meanings are varied and multiple, leading the researcher to seem for the complexity of views instead of narrowing meanings into a couple of categories or ideas. The goal of the research is to rely the maximum amount as possible on the participants' views of things being studied. The questions become broad and general so as that the participants can construct the meaning of a situation, typically forged in discussions or interactions with other persons. The more open-ended the questioning, the higher, because the researcher listens carefully to what people says or neutralize their life settings. Often these subjective meanings are negotiated socially and historically. Constructivist researchers often address the processes of interaction among individuals. They also specialize in the precise contexts during which people live and work, so as to know the historical and cultural settings of the participants. Researchers recognize that their own backgrounds shape their interpretation, which they position themselves within the research to acknowledge how their interpretation flows from their personal, cultural, and historical experiences (Neuman, 2000).

The Advocacy and Participatory Worldview - This position arose during the 1980s and 1990s from individuals who felt that the post positivist assumptions imposed structural laws and theories that did not fit marginalized individuals in our society or problems with social justice that needed to be addressed. Most of the time this world view is seen as the qualitative research but it also the foundation of quantitative research as well. According to this world view research inquiry needs to be intertwined with politics and a political agenda. Thus, the research contains an action agenda for reform which may change the lives of the participants, the institutions during which individuals work or live, and thus the researcher's life. Moreover, specific issues need to be addressed that talk to big social problems with the day, issues like empowerment, inequality, oppression, domination, suppression, and alienation. The researcher often begins with one among these issues because the focus of the study. This research also assumes that the inquirer will proceed collaboratively so on not further marginalize the participants as a result of the inquiry (Neuman, 2000).

The Pragmatic Worldview – It is the fourth world view of the research approach arises out of actions, situations, and consequences rather than antecedent conditions (as in post positivism).

There is a priority with applications what works and solutions to problems rather than that specialize in methods, researchers emphasize the research problem and use all approaches available to know the problem (Clark & Creswell, 2008).

For the purpose of this research the positivist world view is appropriate because it is more focused on the quantitative approach. Cause and effect relationship is one of the tenets of the positivist paradigm (Dammak, 2015). Experimental designs seem to provide an umbrella to explain this causal relationship (Creswell, 2009). Questions and hypotheses are tested and verified by experiments. The researcher should seek a cause-effect relationship between the independent variable, which is the intervention and cause of any improvement, and the dependent variable, the outcome of the intervention.

3.3. Research Approach

There are three types of research approach: qualitative, quantitative, and mixed methods.

Unquestionably, the three approaches aren't as discrete as they first appear. Qualitative and quantitative approaches shouldn't be viewed as polar opposites or dichotomies; instead, they represent different ends on a continuum (Newman, Benz, & Ridenour, 1998). A study tends to be more qualitative than quantitative or the other way around.

Qualitative research is a research approach aimed at the development of theories and understanding. Qualitative research is as a situated activity which locates the observer in the world. It involves an interpretive, naturalistic approach to the world, i.e. qualitative researchers study phenomena in their natural settings, attempting to make sense of, or interpreting phenomena in terms of the meanings people bring to them. Qualitative research implies an emphasis on the qualities of entities and on processes and meanings that are not experimentally examined or measured (Boru, 2018).

Quantitative research is a research approach aimed at testing theories, determining facts, demonstrating relationships between variables, and predicting outcomes. The techniques utilized in quantitative research include random selection of research participants from the study population in an unbiased manner, the standardized questionnaire or intervention they receive, and statistical methods used to test predetermined hypotheses regarding the relationship between specific variables. The researcher in quantitative research, unlike within the qualitative paradigm

where he/she is considered an excellent research instrument thanks to his/her active participation within the research process, is considered as being external to the actual research, and results are expected to be replicable, no matter who conducts the research (Boru, 2018).

Mixed methods research resides within the middle of this continuum because it incorporates elements of both qualitative and quantitative approaches. Mixed methods design is a method that includes both qualitative and quantitative data collection and analysis in parallel form (concurrent mixed method design in which two types of data are as collected and analyzed in sequential form). It also defined as this method of mixed data (numerical and text) and alternative tools (statistics and analysis), but apply the same method. It is a type of research in which a researcher uses the qualitative research paradigm for one phase of a study and a quantitative research paradigm for another phase of the study (Boru, 2018).

Among those research approaches the researcher use quantitative approach because testing objective theories by examining the relationship among variables. These variables, in turn, can be measured, typically on instruments, so that numbered data can be analyzed using statistical procedures(Clark & Creswell, 2008).

3.4. Research Design

Design of the study is a comprehensive plan for data collection in an empirical research project. It is a blueprint for inquiry aimed toward answering specific research questions or testing specific hypotheses, and must specify a minimum of three processes: (1) the info collection process, (2) the instrument development process, and (3) the sampling process. Research Design is a blueprint for fulfilling the research objectives and answering the research questions. This phase includes selecting a research method, operational zing constructs of interest, and devising an appropriate sampling strategy. In most research the exploratory and explanatory designs are well known.

Exploratory research is conducted when there is no enough knowledge about the phenomena and the problems that have not clearly defined. It doesn't aim to supply the ultimate and conclusive answers to the research questions, but merely explores the research topic with varying levels of depth. Therefore, its theme is to tackle new problems on which little or no previous research has

been done. Even in the extreme case, exploratory research forms the basis for more conclusive research and determines the initial research design, sampling methodology and data collection method (Boru, 2018).

On the other hand, an explanatory design sets out to explain and account for the descriptive information. So, while descriptive studies may ask ‘what’ kinds of questions, explanatory studies seek to ask ‘why’ and ‘how’ questions. It starts on exploratory and descriptive research and goes on to spot actual reasons a phenomenon occurs. Explanatory research looks for causes and reasons and provides evidence to support or refute an explanation or prediction. It is conducted to discover and report some relationships among different aspects of the phenomenon under study (Boru, 2018).

In case of the current research the researcher has used explanatory cross sectional census survey design because It is conducted to discover and report some relationships among different aspects of the phenomenon under study and it is quick to conducted at a given point in time, conducted with different samples, provide information about the current status, participants are needed only once for the study purpose, multiple variables can be studied at a single point in time, take relatively shorter time than longitudinal studies as well as current co relational effect of variables(De Vaus, 2001)

3.5. Population

Population is “‘a theoretical distribution of all elements that could be part of the study”’.

It is a well-defined group of individuals, objects, observations, of any size, having a unique quality or characteristics. Population is sometimes referred to as the ‘universe ‘of observations from which individuals will be selected and to whom results will be generalized.

But According to this research the whole employees of this branch are the population of the study because of the researcher is employed census survey design. When the number of population is not massive, just take the whole population as a part of the studding area. Taking the whole population as a sample has increase the reliability of the research. The researcher has taken the whole employee as a sample from commercial bank of Ethiopia at Bahr Dar main branch.

Table 3. 1: sample table

Commercial bank of Ethiopia	Location	Population	Sample
Bahir Dar main branch	Bahir Dar	93	93

Source researcher survey.2020

3.6. Source of Data

It is obvious that the necessity of source of data to doing the researches. All most the researchers have used these primary and secondary sources of data. In this research the researcher has used primary source of data because of unavailability of secondary sources. Primary sources of data are those in which the researcher needs to conduct a new survey for gathering information at different levels with regard to the inquiry. the primary source of data are include historical and legal documents, eyewitness accounts, results of experiments, statistical data, pieces of creative writing, audio and video recordings, speeches, and art objects.

3.7. Data Collection tools

The data collection tools are decided based on the type of research approach we use (qualitative or quantitative). Data for a study may be collected by one or combination of the following tools. Questionnaires, interviews, observations, focus group discussions and document analysis. For this research questioner is used as an instrument to collect data from 93 populations in Commercial bank of Ethiopia at Bahir Dar main branch.

3.7.1. Question format

The main discussion at this topic is the common techniques of structuring the response categories of close ended questions. The general format is to present all possible responses.

Likert scales: - this is the most common format for measuring attitude. It is used whenever respondents are asked to make a judgment in terms of sets of ordered categories such as 5. Strongly agrees 4. Agree 3. No opinion 2. Disagree 1. Strongly disagree the categories indicate the intensity of the particular judgment.

Check lists:-The main feature of a checklist is that the respondent is simply required to give yes 'or no 'response. It is a questionnaire which offers only two alternatives to check the presence or

absence of certain characteristics. Among those research question format the researcher used the first format likert scale because my questioners are measure the attitude of the respondent (5.Strongly agrees 4. Agree 3. Neutral 2. Disagree 1. Strongly disagree).

3.8. Instrument Development

The design of the survey questionnaires is critical to effective research. The three most important aspects of survey design are wording of questions, variables coding and categorization, and overall appearance. All of these aspects were taken into account for the development of survey questionnaire. The survey questionnaire for pilot was used as a baseline for the research survey used in the main study. The content and context feedback from pilot was incorporated to improve the participants understanding of the survey questions, how they need to respond and how they should interpret their answers (output). Survey statements should be specifically developed based on phrasing and conclusions from pilot. Additionally, feedback from an external panel was taken into account for additional inputs, validation, and quality checks. The categorization of variables by careful planning of analysis around the research questions, prior to development of instrument. Finally, the final survey appearance was assessed by the use of an expert (Sekaran, 2003).

The instrument in this study also basically, was developed based on the objectives of the study and research questions. The principles of questionnaires such as, use simple and clear languages, wording of question, variable coding and categorization, overall appearance, statements was not be too long and use of appropriate punctuations is also considered when developing the instrument. And when developing the instrument there was great correction and comment from advisor and different experts.

3.9. Data Analysis & Presentation

The analysis plan had described in detail each hypothesis. Thus, the hypothesis had been address one at a time followed by a description of the type of statistical tests that would be performed to answer that hypothesis as well as State what variables had been included in the analyses and identify the dependent and independent variables if such a relationship exists & Decision making criteria (*e.g.*, the critical alpha level) had also be stated, as well as the computer software that

would be used (if there is a need to use one). Provide a well thought-out rationale for decision to use the design, methods and analyses. In this research the researcher used both descriptive and inferential statistics based on the nature of data. Those both descriptive and inferential statistics had described as follow with distinct topic.

3.9.1. Descriptive Analysis

Descriptive analysis the transformation of data into a form which will make them easy to know and interpret; rearranging, ordering, and manipulating data to get descriptive information (Carlsson & Martinsson, 2003). Descriptive analysis does not provide conclusive results. It only helps to explain the properties of a selected sample under study. In this research demographic variables such as sex of employee, age of employee and education level of employees and the main variable analyzed by descriptive analysis by using frequency distribution table in the aid of STATA software.

3.9.2. Inferential Analysis

Inferential statistics is the mathematics and logic of how this generalization from sample to population can be made and making statements about the population. Inferential statistical techniques are used to test the hypotheses and on that basis it is decided whether the hypotheses are accepted or rejected. This process of analysis that follows description of data to provide conclusive results is called inferential analysis (Goel, Khandelwal, Pandya, & Kotwal, 2015). The researcher used inferential analysis to show the relationship between the variables by using cross tab chi-square and generalizes by using ordinal logistic regression model as well as to test hypothesis in the aid of both STATA version 14 and SPSS. The researcher has used STATA version 14 for analysis of the main model and descriptive analysis and has used SPSS for model fitting information and for parallel line test as well as other common activity. The reasons of using both SPSS STATA software's are to increase the opportunity to select the best software output of the data as well as some software is more valuable and accurate for some specific task and the other are relevant for the other purpose. Different researchers use different software to increase the credibility of the research output.

3.9.2.1. Chi-Square

Chi-square test is important to show the relationship between the variables in logistic regression like that of correlation used to show the relationship between dependent and independent variables in linear regression. It shows whether it has significant association between the variables. Related to this research the researcher used chi-square to show the relationship between the dependent variable (operational performance of bank) and the independent variables supply chain management practice (customer relation management, strategic partnership, quality information sharing, information technology and lean practice).

3.9.2.2. Ordinal Logistic Regression Model (Proportional Odds Model)

Logistic regression may be useful when we are trying to model a categorical dependent variable as a function of one or more independent variables being the dependent variable has more than two outcomes. Ordinal logistic regression (OLR) may be a sort of logistic multivariate analysis when the response variable has quite two categorizes with having universe or rank. In order to meet the objective set up on this study Ordinal logistic regression model and tests related are employed as a general methodology. It is natural to consider methods for more categorical responses having more than two possible values. Logistic regression model can be classified as multinomial, ordinal and binary. In this investigation Ordinal logistic regression model was used. The ordinal logistic regression procedure empowers one to pick the predictive model for ordered dependent variables (Reddy & Alemayehu, 2015).

Ordinal logistic regression or (ordinal regression) is employed to predict an ordinal variable given one or more independent variables. This model is relevant when the dependent variable is nominal and its categories are put in the form of order as well as its categories are greater than or equal to three. Logistic regression may be useful when we are trying to model a categorical dependent variable as a function of one or more independent variables being the dependent variable has two outcomes. In statistics, the ordered logit model (also ordered logistic regression or proportional odds model), may be a regression model for ordinal variable. It is natural to consider methods for more categorical responses having more than two possible values. The most well-known of these ordinal logistic regression methods is called the proportional odds

model (Reddy & Alemayehu, 2015). In case of this research the researcher select this model to determine the categorical variables or categorical response variables in the form of likert scale.

3.9.2.3. Assumption of ordinal logistic regression (Proportional Odds Model)

- The dependent variable should be measured at the ordinal level.
- Ordinal independent variables must be either continuous or categorical. .
- Each independent variable has an identical effect at each cumulative split of the ordinal dependent variable.
- No multi co linearity
- The relationship between each pair of outcome groups is the same.
- The effects of any explanatory variables are consistent or proportional across the different thresholds (Reddy & Alemayehu, 2015).

The model of ordinal logistic regression is presented the following formula

$$\ln(\theta_j) = \beta_0 + (\beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \dots \dots \dots (\beta_n X_n) \text{ or}$$

$$\ln \frac{\text{prob}(\text{event})}{1-\text{prob}(\text{events})} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \dots \dots \beta_n X_n$$

According to this research the symbols is denote as follows

($\ln \theta_j$) or $\ln \frac{\text{prob}(\text{event})}{1-\text{prob}(\text{event})}$ is called logit. It's the log of the odds that an event occurs.

The odds that an event occurs are the ratio of the number of categories which happened over not occurs categories.

β_0 = is threshold values, often isn't of much interest. Its values do not depend on the values of the independent variable for a particular case and constant value or equal to $\ln(\theta_j)$ when $\beta_n = 0$

X_1 = independent variable one -customer relationship management practice & β_1 is its coefficient

X_2 = independent variable two - strategic partnership management practice & β_2 is its coefficient

X_3 = independent variable three -information technology practice & β_3 is its coefficient

X_4 = independent variable four - quality information sharing practice & β_4 is its coefficient

X_5 = independent variable five – lean supply management practice & β_5 is its coefficient

3.9.2.4 Model Fitting Information

Model fitting information is all about the idea of having significant difference between baseline model and final model. Baseline model means the model without any independent variable and

only intercept. Final model is a model has all possible independent variables. If the significant value of the output greater than 0.05, the null hypothesis is accept other ways if the significant value of the output is less than 0.05 accepting the alternative hypothesis that means there is significant difference between baseline model and the final model(Jaeger, 2008).

3.9.2.5 Parallel Line Test

Test of parallel line test means the mix of two ideas, that are the location parameter (slope coefficient) are the same across the response variable. This means in case of this study the distribution of category level of agreement in supply chain management practice over the response variable (organizational performance). And the other idea is the distribution of location parameter is not the same across the response variable. According to the rule of statistics if the significant value is less than 0.05 it is mandatory to accept the second idea (the distribution of parameter location is not uniform) and if the significant value is greater than 0.05, the location parameter (slope coefficient) are the same across the response variable. Test of parallel lines helps to determine whether it is reasonable to assume that the values of the location parameters are constant across categories of the response. The test of parallelism contains: $-2\log$ likelihood for the constrained model, the model that assumes the planes or surfaces are parallel and $2\log$ -likelihood for the General model, the model that assumes planes or surfaces are separated.

The chi-square statistic is the log-likelihood difference between the two models. If the lines or planes are parallel, the observed significance level for the change should be large, since the general model doesn't improve the fit very much and the parallel model is adequate. If there is evidence to reject the null hypothesis, it is possible that the link function selected is incorrect or that the relationships between the independent variables and logits are not the same for all logits(Agresti & Min, 2002).

3.9.2.6 Odds Ratio

The odds ratio is a value which measures the strength of effect of each independent variable in the model on the log odds of the dependent variable. The odds of some event happening is defined as the ratio of the number of occurrences to the number of non-occurrences. In ordinal logistic regression model interpreting the result by beta value is difficult. Instead of beta value, odds ratio is appropriate because the relation between dependent variable and independent

variable relation is not linear. Or the odds ratio is a value which measures the strength of effect of each independent variable in the model on the log odds of the dependent variable. The odds of some event happening is defined as the ratio of the number of occurrences to the number of non-occurrences (Agresti & Min, 2002). Example in case of this study the probability of happening category in the variable is given as follows.

$$\text{The probability of happening strongly disagree (1)} = \frac{\text{strodis(1)}}{\text{disa(2)+neutrral(3)+agree(4)+stroagree(5)}}$$

$$\text{The probability of happening disagree (2)} = \frac{\text{strodis(1)+ddis(2)}}{\text{neutral(3)+agree(4)+strongly agree(5)}}$$

$$\text{The probability of happening neutral (3)} = \frac{\text{strodis(1)+dis(2)+neutral(3)}}{\text{agree(4)+strongly agree(5)}}$$

$$\text{The probabilities of happening agree (4)} = \frac{\text{strodis(1)+disagree(2)+neutal(3)+agree(4)}}{\text{probabilityofstron.agree(5)}}$$

3.10. Validity of the Study

Validity is the one of the most important and fundamental features in the evaluation of any measurement instrument or tool for a good research. Validity concerns what an instrument measures, and the way well it does so. Validity indicates the extent to which it is without bias (error free), and hence insures consistent measurement cross time and across the various items in the instruments (the observed scores). Validity is usually defined because the extent to which an instrument measures what it asserts to live (Blumberg et al., 2005). Validity of a research instrument assesses the extent to which the instrument measures what it is designed to measure (Kikkert et al., 2011). It is the degree to which the results are truthful. Validity is that the extent to which an instrument measures what it's alleged to measure and performs because it is meant to perform (Kothari, 2004). Content validity seeks to test precisely the eligibility or otherwise of the constructs in the questionnaire.

In this study the content validity was based on the literature review and on comments & opinions of expert judgment and advisor who has examined the item. Based on their comments and correction was taken before the survey there for the item holds content validity As well as the researcher has used different software for more valid result, such as Endnote x7.8 for the purpose of bibliography and citation , STATA for data analysis and SPSS for further data analysis.

3.11. Reliability of the Study

Reliability concerns the faith that one can have within the info obtained from the use of an instrument, that is, the degree to which any measuring tool controls for random error. Reliability is referred to the stability of findings. Reliability addresses whether repeated measurements or assessments provide a uniform result given an equivalent initial circumstances. Reliability is concerned with the strength of data gathering instruments whether or not it will produce consistent findings at different times and under different conditions. Reliability means among other things, consistency because it relates to measurement, experiment, or observation.

In this research the reliability and the validity of the study is check by different instrument such as data collection instrument questioner, internal validity (reliability) of my research is tested by chi-square as well as the fitness of the model is tested by Spearman’s rho correlation test. Testing of parallel line (coefficients are the same for all categories), because of parallelism is one assumption of ordinal logistic regression. If the parallelism is not fit the model will be change to binary logistic regression, multinomial logistic regression and partial proportional model. Test of parallel lines will helps to determine whether it is reasonable to assume that the values of the location parameters are constant across categories of the response. The reliability of the research is tested by cronbachs alpha value with the aid of STATA software application. The reliability of the questionnaires for each variable is summarized as follow

Table 3. 2: Reliability Test

Variables	Number of items in the scale	8
Strategic Partnership	Scale reliability coefficient	0.8482
Customer Relation	Number of items in the scale	8
Management	Scale reliability coefficient	0.8697
Quality Information	Number of items in the scale	6
Sharing	Scale reliability coefficient	0.8342
Information	Number of items in the scale	8
Technology	Scale reliability coefficient	0.8615
Lean	Number of items in the scale	7
Practice	Scale reliability coefficient	0.8587
Organizational	Number of items in the scale	7
Performance	Scale reliability coefficient	0.8213

Source researchers survey STATA output

Based on the above table all of the five independent and one dependent variable are reliable. In social science test of reliability or alpha value should be greater or equal to 0.7. The output of the researchers' survey (STATA 14SE) reliability or alpha value of customer relation management is (0.8697), lean practice (0.8587), information technology (0.8615), strategic partnership (0.8482), quality information sharing (0.8342), and operational performance (0.8213).

3.12. Ethical Issues of Research

The researcher was keep the ethical principle of the research such as confidentiality, social responsibility, objectivity, honesty etc. to show the legality, the researcher has submit and show the exited letter for respondents and organization written from the department head. The researcher was first assured that the purpose of the data collection is for only study as well as explained the significance and objective of the study for respondents. And also this description was disclosed as introductory from the distributed questioner. The researcher also asks the permission and the interest of the respondents before the distribution of the questioner.

CHAPTER FOUR

Result Interpretations and Discussion

4.1 Introduction

To make the analysis ease first, presenting the descriptive analysis followed by the inferential analysis. The purpose of this study is to show the effect of supply chain management practice on the organizational performance of commercial bank of Ethiopia in case of Bahir Dar branch in Bahir Dar city. The data was collected from employees from commercial bank of Ethiopia at Bahir Dar branch. Based on the data collected from the respondents, both descriptive and econometric analysis is done. The study employed ordinal logistic regression software application in STATA statistical package for analyzing the effect of Supply Chain Management Practice on the performance of organization performance of commercial bank of Ethiopia at Bahir Dar main branch.

Table 4.1: Questionnaires Distribution and Response Rate

Branch Name	Sex	Questionnaires Given	Questionnaires filled	Response Rate	Total R Rate
BahirDar (main branch)	Male	66	64	97%	96.7%
	Female	27	26	96%	

Source own survey, 2020

93 questionnaires were distributed across all employees of commercial bank of Ethiopia at Bahir Dar main Branch in Bahir Dar city; out of those questionnaires 90 were successfully retrieved. The response rate was 97% and 96% male and female respectively.

4.2. Descriptive Analysis

In the descriptive analysis the demographic variables presented in frequency distribution table and pie-chart and the main variable presented on the frequency tables by aid of STATA software application.

4.2.1. Sex of Employees

Table 4. 2: Sex of respondent

Sex of respondent	Freq	percent	Cum
Male	64	71.11	71.11
Female	26	28.89	100
Total	90	100	

Source own survey STATA output, 2020

The above table is the direct output of STATA software application of employee's sex. According to the above STATA output among the total 90 respondents 71 percent of (64) are male and the remaining 28.89 % (26) are female. So it is possible to take consideration there is the domination of male in the organization.

4.2.2. Age of Employees

Table 4.3: ages of respondents

Age of Respondent	Freq.	Percent	Cum.
18-28	23	25.56	25.56
29-39	44	48.89	74.44
40 and above	23	25.56	100
Total	90	100	

Source own survey STATA output, 2020

Table 4.3 STATA output show that 44 (48%), 23 (25.56%), 23(25.56% of employees found in the range of 29-39, 18-28, and above 40 respectively. Almost the number of employee at age of above 40 and remain ages are equal.

4.2.3. Education Level of Employees

Table 4.4: Education Level of Employees

Education level	Freq.	Percent	Cum.
Diploma	4	4.44	4.44
BA degree	74	82.22	86.67
MA and above	12	13.33	100
Total	90	100	

Source own survey STATA output, 2020

The above table 4.4 STATA output shows that the education level of the employees in the organization. According to the survey of STAT output, 74, 12.and 4 employee's education level is bachelor degree, masters and diploma respectively. Based on this evidence it is possible to say majority of the employees education level is bachelor degree.

Table 4.5: Sex and education level

sex of respondent	education level			Total
	diploma	BA degree	MA degree	
Male	4	51	9	64
Female	0	23	3	26
Total	7	74	12	90

Source own survey STATA output, 2020

Table 4.5 show that among the 64 male employees ,4,9,51 are diploma, masters and bachelor degree respectively, and from 26 female employee in the organization ,0,3 ,23 are diploma, masters and bachelor degree respectively. So from both sex the majority of the employee's education level is bachelor degree.

4.2.4 Supply Chain Management Practice and Organizational Performance and Its Frequency Distribution Table.

This topic is presented the level of agreement of the respondents towards the questionnaire of supply chain management practice and organization performance. The frequency table is the output of STATA 14 software application.

Before show the frequency distribution tables of supply chain management practice let as describe and show how different question come together and transformed in to one variable.

The sums of questions divide by the number of question are transformed in to one single variable. The transformation operation is takes place in the aid of SPSS software. Transform-compute variable- sum the number of question and divided its number. This result is all most all are put in the form of point. But software is put the result in form of normal approximation by default. Which means after 0.5 and itself 0.5 is approximate to the next higher digit and less than 0.5 approximate to the lower digits. The transformation process is created six new variables such as strategic partnership practice, customer relation management practice, quality information sharing, information technology practice, lean practice and operational performance.

Table 4.6: strategic partnership practice frequency distribution table.

Strategic partnership			
Level agreement	Freq	Percent	Cum.
strongly disagree	7	7.78	7.78
Neutral	9	10	17.78
Agree	49	54.44	72.22
strongly agree	25	27.78	100
Total	90	100	

Source own survey STATA output, 2020

The above table indicates that frequency distribution table of strategic partnership practice of the organization. Based on the STATA result of the survey 54.44 % (49) of employees agree the practice of strategic partnership practice in the organization, 27%(25) of employees are strongly agree towards the practice of strategic partnership of the organization and the remain 10%& 7.78 % of employees are neutral and strongly agree about the practice of strategic partnership practice of the organization. So based on the above output is possible to concluded there is strategic partnership practice in the organization.

Table 4.7: customer relation management practice Frequency distribution table.

Customer Relation Management			
Level of agreement	freq	percent	Cum.
strongly disagree	8	8.89	8.89
Disagree	1	1.11	10
Neutral	20	22.22	32.22
Agree	45	50	82.22
strongly agree	16	17.78	100
Total	90	100	

Source own survey STATA output, 2020

Table 4.7 shows the frequency distribution table of customer relationship management practice of the organization. Based on the above STAT output among 90 respondent 45(50%) of respondent are agree about customer relation management practice and 20,16,8 and1 respondents are neutral, strongly agree strongly disagree towards customer relation management practice of the organization respectively. Generally we can understand that 61(67.78%) of employee reflect their positive agreement about the practice of customer relationship management practice.

Table 4. 8 : quality information sharing practice Frequency distribution table.

Quality Information sharing			
Level of agreement	Freq	Percent	Cum
strongly disagree	7	7.78	7.78
disagree	28	31.11	38.89
neutral	10	11.11	50
agree	34	37.78	87.78
strongly agree	11	12.22	100
Total	90	100	

Source own survey STATA output, 2020

Table 4.8 states that employee's level of agreement towards in the practice quality information sharing in their organization. According to the output of STATA, 34, 28, 11, 10, and 7 respondents are agree, disagree, strongly agree, neutral and strongly disagree about the organization quality information sharing practice. So above half of respondents are show their agreement about the quality information sharing practice in their organization.

Table 4.9: information technology practice Frequency distribution table.

Information Technology			
Levelof agreement	Fre.	Percent	cum.
strongly disagree	5	5.56	5.56
Disagree	16	17.78	23.33
Neutral	25	27.78	51.11
Agree	39	43.33	94.44
strongly agree	5	5.56	100.00
Total	90	100.00	

Source own survey STATA output, 2020

Table 4.9 shows that respondent agreement of frequency distribution table about information technology practice in their organization. As shown above 39, 25, 16, 5, and 5 respondents are answer agree, neutral, disagree, strongly agree and strongly disagree about the practice of information technology in Bahir Dar branch. 44 respondents believe that there is information technology practice in the bank.

Table 4.10: lean practice frequency distribution tables.

Lean Practice			
Level of agreement	Freq.	percent	Cum.
strongly disagree	4	4.44	4.44
disagree	3	3.33	7.78
neutral	10	11.11	18.89
agree	44	48.89	67.78
strongly agree	29	32.22	100
Total	90	100	

Source own survey STATA output, 2020

Table 4.10 shows that frequency distribution table of lean practice of the organization and employee level of agreement. Based on the STATA output of survey 44, 29, 10, 4 and 3 employees are agree, strongly agree, neutral, strongly disagree and disagree towards the practice of lean in the organization. Based on the result above 80 % of employees have positive agreement what the organization has practice it.

Table 4.11: operational performance frequency distribution table.

Operational Performance			
level of agreement	Frq	Perc.	Cum
Strongly disagree	5	5.56	5.56
disagree	6	6.67	12.22
neutral	10	11.11	23.33
agree	47	52.22	75.56
strongly agree	22	24.44	100
Total	90	100	

Source own survey STATA output, 2020

The last frequency distribution table of descriptive analysis is organizational performance of the organization and respondent level of agreement about their organizational performance. As shown the above table 47, 22, 10, 6, and 5 employees are agree, strongly agree, neutral, disagree and strongly disagree about the performance of the organization. Based on this result almost about 76% of the employees has positive level of agreement to the organization performance in their branch.

4.3. Econometric /inferential analysis of data/

This topic is all about the association of the independent and dependent variable are tested by using spearman's rho chi-square test, goodness of fit test, model fitting information, multi co linearity test in variance inflation factor (VIF) ordinal logistics model coefficient, ordinal logistics odds ratio as well as model summery of ordinal logistic regression and testing hypothesis.

4.3.1 Spearman's Rho Chi-Square Test of Dependent and Independent Variable

The following table shows the association between the dependent and independent variables as well as the magnitudes or the direction. Magnitudes are numbers that shows the relationship is positive, negative or no relation. The magnitude is between 1 and -1. If the magnitude is negative they have negative relationship, if the magnitude is greater than zero they will have positive relationship and if the magnitude is zero they will not have relation between the variables.

Table 4.12: Spearman’s rho Chie-square test of association

Association	Spearman’s rho Chi-Square	(P-value)
Strategic Partnership & Operational Performance.	0.5688	0.000
Customerrelation management & Operational Performance.	0.6926	0.000
Quality Information Sharing & Operational Performance.	0.2363	0.0250
Information Technology & Operational Performance.	0.2635	0.0121
Lean practice & Operational Performance.	0.2664	0.0112

Source researchers survey result, 2020

4.3.1.1. Spearman’s rho Chie-Square Test of Strategic Partnership with Operational Performance.

Table 4.12 shows the association between strategic partnership and the dependent variable operational performance of commercial bank of Ethiopia in Bahir Dar main branch. It is known and obvious that measures the correlation between independent and dependent variable in linear regression before doing the analysis. Seems like to that in ordinal logistic regression the association between the variable should be test by cross tabulation chi-square. As observed the above STATA output the spearman’s rho chi-square value of the variable is 0.5688 and the P value of the association is 0.000. According to rule of thumb in statistics if the p value of the association is less than 0.05, the association between the dependent and independent variable is significant. So the association between strategic partnership and operational performance is positive, because 0.5688 is greater than zero. If the p value is greater than 0.05 there is no significant association between the variable. Generally strategic partnership and operational performance have significant and positive association between each other.

4.3.1.2. Spearman’s rho Chie-Square Test of Customer Relation Management with Operational Performance.

The second association table shows the relationship between the customer relation management practice and operational performance. As shown the result from the table 4.12 above the spearman’s rho chi-square value is 0.6926 and the p value is 0.000 less than 0.05 so those two

variables have significant and positive association between each other. Because the significant value is less than 0.05 and the magnitude is greater than zero and it approaches to positive one.

4.3.1.3. Spearman’s rho Chie-Square Test of Quality Information Sharing with Operational Performance.

The third association what expected to measure is the association between quality information sharing and operational performance of the organization. Table 4.12 shows the STATA output of their relation. The spearman’s rho chi square value is 0.2363 and its significant value is 0.0250. However the significant value is greater than zero, it is much less than 0.05 and the magnitude are positive or greater than zero. So those two variables have significant and positive association between each other.

4.3.1.4 Spearman’s rho Chie-Square Test of Information Technology with Operational Performance.

The fourth measurement is between information technology and performance of the organization. The output is the same to above variables. The chi-square and p value of the variables are 0.2635 and 0.0121 respectively. So those Quality information sharing and operational performance have significant and positive association.

4.3.1.5 Spearman’s rho Chie-Square Test of Lean practice with Operational Performance.

The last measure of association is lean practice and operational performance. The spearman’s rho chi square value is 0.2664 and its significant value is 0.0112. The variables have positive and significant association; however this variable is not significant in the final model of ordinal logistic regression model. Generally all of the five independent variables have positive association with the dependent variable. Because all magnitude of independent variables are positive or greater than zero and the significant value of the variables are less than 0.05.

4.4: Goodness of Fit

Table 4.13: goodness of Fit test

LR chi2(19)	127.25
Prob> chi2	0.0000

Source researcher survey STATA output, 2020

This all about either the observed data is fitted the model or not. The null hypothesis is the observed data is having goodness of fit with the fitted model and to accept the null hypothesis the overall LR chi square p- value should be 0.000. And the overall LR chi square test with value of 127.25 (p- value 0.000) shows that the model fits the data well as compared to the null.

4.5: Model Fitting Information

Model fitting information is all about the idea of significant difference between baseline model and final model. Baseline model means the model without any independent variable and only intercept. Final model is a model has all possible independent variables. If the significant value of the output greater than 0.05, the null hypothesis is accept other ways if the significant value of the output is less than 0.05 accepting the alternative hypothesis that means there is significant difference between baseline model and the final model. Based on this information the interpretation and the conclusion of this research model fitting information are presented as follows.

Table 4.14: model fitting information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	224.004			
Final	96.753	127.252	19	.000

Source researchers survey SPSS output, 2020

As showed above table 4.14 the significant value of the output is 0.000. According to rule of statistics, the expected significant value of the model should be less than 0.05 to pass the requirement.

4.6: Test of Parallel Line

Test of parallel line test means the mix of two ideas, that are the location parameter (slope coefficient) are the same across the response variable. This means in case of this study the distribution of category level of agreement in supply chain management practice over the response variable (organizational performance). And the other idea is the distribution of location parameter is not the same across the response variable. The output of the test for this study is

presented and interpreted as follows. According to the rule of statistics if the significant value is less than 0.05 it is mandatory to accept the second idea (the distribution of parameter location is not uniform) and if the significant value is greater than 0.05, the location parameter (slope coefficient) are the same across the response variable.

Table 4.15: parallel line test

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	96.753			
General	26.396 ^b	70.357 ^c	57	.110

Source researchers survey SPSS output, 2020

The output of the table shows that the significant level is greater than 0.05. So when the value is greater than this number, fail to reject the null hypothesis. in case of this study the significance value is 0.11 is much greater than 0.05 .so the categories of supply chain management practice level agreement is uniformly distributed over organization performance, that means strongly agree, agree, neutral, disagree and strongly disagree are normally distributed over organization performance.

4.7: Test of Multi-co Linearity

The other assumption of ordinal logistic regression in the study was Multi-co linearity. This assumption is about that independent variable must have not linear relationship between each other and the assumption is tested by variance inflation factor (VIF). If the variance inflation factor value of each independent variables are greater than 10 the assumption of Multi-co linearity will fail. This means the independent variables have linear relationship between each other. When the value of variance inflation factor is greater than 10 the variable should be transformed to one variable because those variables are the same (Gujarti, 2003).

Table 4.16 : Variance inflation factor

Variables	VIF	1/VIF
Customer relation management	1.85	0.54
Strategic partnership	1.51	0.66
Lean practice	1.34	0.75
Information technology	1.33	0.75
Quality information sharing	1.05	0.96
Mean VIF	1.43	

Source researcher survey STATA output, 2020

In the above table, variance inflation factor values of each independent variable are less than 10. These mean that, the assumption of Multi-co linearity is passed. All the five independent variables have no linear relationship between them. And the other point in the above table is 1/VIF. It is the inverse of VIF and called the tolerance value of VIF of each independent variable. The average VIF is 1.43. This indicates that there was no perfect or high relationship between explanatory variables.

4.8: Ordinal Logistics Regression model

Logistic regression model can be classified as multinomial, ordinal and binary. In this investigation Ordinal logistic regression model was used. The ordinal logistic regression procedure empowers one to select the predictive model for ordered dependent variables. It describes the relationship an ordered response variable and a set of independent variable. The independent variables may be continuous or discrete (or any type).

Ordinal response models have major importance in social sciences as well as demography and social phenomena. The responses are discrete or qualitative rather than continuous or quantitative in nature. Many such analyses involve an outcome or dependent variable that is ordinal and in these studies the ordinal logistic regression model has become the statistical model of choice. The most popular model in ordinal logistic is the proportional odds model.

Table 4.17: Ordinal Logistic regression output

Operational performance	Coefficient	stad.err.	z	p>z	[95% con.	Interval]
Lean practice						
disagree	.7661136	2.148292	0.36	0.721	-3.444461	4.976688
neutral	-.7254416	2.158311	-0.34	0.737	-4.955653	3.50477
agree	-.0148457	1.799689	-0.01	0.993	-3.542171	3.51248
strongly agree	-.6944703	1.988067	-0.35	0.727	-4.59101	3.202069
Information technology						
disagree	4.228064	1.919157	2.2	0.028	0.4665861	7.989543
neutral	4.392915	1.849827	2.37	0.018	0.76732	8.018509
agree	4.393903	1.886048	2.33	0.02	0.6973168	8.090489
strongly agree	4.169766	2.304891	1.81	0.07	-	0.3477381
Quality information sharing						
disagree	1.961109	1.145184	1.71	0.087	-	0.2834113
neutral	.3565238	1.461785	0.24	0.807	-2.508522	3.22157
agree	1.963917	1.121601	1.75	0.08	-	0.2343797
strongly agree	4.941223	1.46937	3.36	0.001	2.061311	7.821135
Customer relation management						
disagree	1.502404	2.438898	0.62	0.538	-3.277749	6.282557
neutral	1.63343	1.475685	1.11	0.268	-1.258859	4.525718
agree	5.143537	1.602983	3.21	0.001	2.001748	8.285326
strongly agree	7.886585	1.967595	4.01	0.000	4.03017	11.743
Strategic partnership						
neutral	1.322945	1.527423	0.87	0.386	-1.670749	4.316639
agree	1.116225	1.338049	0.83	0.404	-1.506304	3.738753

strongly agree	5.287704	1.449631	3.65	0.000	2.446479	8.128929
/cut1	4.214598	2.088018			0.1221582	8.307038
/cut2	7.05294	2.404701			2.339813	11.76607
/cut3	9.503423	2.57073			4.464886	14.54196
/cut4	15.34005	2.83367			9.786157	20.89394
Other related output with model						
Number of obs.	90					
LR Chi ² (19)	127.25					
Prob > Chi ²	0.000					
Pseudo R ²	0.5571					
Log Likelihood	-50.573603					
Iteration 0	log likelihood	-114.1994				
Iteration 1	log likelihood	-70.91147				
Iteration 2	log likelihood	-62.12437				
Iteration 3	log likelihood	-54.75146				
Iteration 4	log likelihood	-54.32097				
Iteration 5	log likelihood	-54.31996				
Iteration 6	log likelihood	-54.31997				

Source researchers survey STATA output, 2020

Table 4.17 shows the overall model STATA output. This output has contained the coefficient or beta value (β), standard error, p value or significant value, confidence interval and pseudo R².

But the most important element of this final model is significant value and coefficient or β value and other elements in the table.

Z and $P > |z|$ - These are the test statistics and p-value, respectively, for the null hypothesis that a private predictor's parametric statistic is zero as long as the remainders of the predictors are within the model. The test statistic z is the ratio of the Coefficient to the Standard Error of the respective predictor. The z value follows a standard normal distribution which is used to test against a two-sided alternative hypothesis that the Coefficient is not equal to zero. The probability that a particular z test statistic is as extreme as, or more so, than what has been observed under the null hypothesis is defined by $P > |z|$. P value or significant level is very important and crucial to decide the significant of variable for this study. According to the rule of statistics at least one of the categories of each variables p value should be less than 0.05 unless that variable is not significant to the study. In case of this study among the five independent variable, one variable is not significant because all its five categories p value is greater than 0.05. According table 4.17 of researchers survey STATA output lean practice categories (Disagree, neutral, agree and strongly agree) values are (0.721, 0.737, 0.993, and 0.27) respectively. So the researcher is excluded lean practice in this study because all are greater than 0.05. the exclusion of lean practice is the same result to the study of (Kimechwa, 2016). Strategic partnership practice, customer relation management practice, quality information sharing and information technology variables are relevant for this study.

Coef - These are the ordered log-odds (logit) regression coefficients. Standard interpretation of the ordered logit coefficient is that for a 1 unit increase within the predictor, the response variable level is predicted to vary by its respective regression coefficient within the ordered log-odds scale while the opposite variables within the model are held constant. The coefficient shows the increments and the declined rate of dependent and independent variable. However beta is important for interpretation in continues variable, it is difficult to interpret in ordinal logistic regression because the relationship between the dependent and independent variable is not linear. The best way to interpret the ordinal logistic regression is odd ratio instead of beta value. In addition to that the value of beta also describes the relationship direction of dependent and independent variables. This means, it shows the negative or positive relationship of those variables. In case of this survey all variables except lean practice all four variable coefficient is

positive. This shows there is positive relationship between strategic partnership, customer relationship management, quality information sharing and information technology supply chain management practice have positive relationship with organization performance and the researcher was interpreting the output by using odds ratio for this study.

Pseudo R² - This is McFadden's pseudo R-squared. Logistic regression does not have an equivalent to the R-squared that is found in OLS regression; however, many people have tried to come up with one. There are a wide variety of pseudo R-squared statistics which can give contradictory conclusions. Because this statistic does not mean what R-squared means in OLS regression (the proportion of variance for the response variable explained by the predictors). The other important element of the final model is pseudo R². Pseudo R² indicates the proportion of the variance explained by the independent variables in the dependent variables on the regression model. Or it is the power of independent variable to explain the dependent variable. In statistics the value of pseudo R² value should be greater than 0.7 for continues data (for linear and multiple regression). But in ordinal logistic regression the value of R² is not much important. Ordinal logistic regression model uses more likelihood ratio and goodness of fit instead R². This studies pseudo R² is 55.75 %. This means the power of independent variable to explain the dependent variable is 55.75%, however it not much significant for this model.

Iteration - This is a listing of the log likelihoods in the iteration. Remember that ordered logistic regression, like binary and multinomial logistic regression, uses maximum likelihood estimation, which is an iterative procedure. The first iteration (called iteration 0) is that the log likelihood of the "null" or "empty" model; that's, a model with no predictors. At the next iteration, the predictor(s) are included in the model. In the iteration, the log likelihood increases because the goal is to maximize the log likelihood. When the difference between successive iterations is very small, the model is said to have "converged", the iterating stops, and the results are displayed.

Log Likelihood - This is the log likelihood of the fitted model. It is utilized in the Likelihood Ratio Chi-Square test of whether all predictors' regression coefficients within the model are simultaneously zero and in tests of nested models.

Number of observation - This is the amount of observations utilized in the ordered logistic regression. It may be but the amount of cases within the dataset if there are missing values for a

few variables within the equation. By default, STATA does a list wise deletion of incomplete cases.

LR chi2 (19) - This is the Likelihood Ratio (LR) Chi-Square test that at least one of the predictors' regression coefficients is not equal to zero in the model. The number within the parenthesis indicates the degrees of freedom of the Chi-Square distribution won't to test the LR Chi-Square statistic and is defined by the amount of predictors in the model.

Prob > chi2 - This is the probability of getting a LR test statistic as extreme as, or more so, than the observed under the null hypothesis; the null hypothesis is that each one of the regression coefficients within the model are adequate to zero. In other words, this is the probability of obtaining this chi-square statistic (127.25) if there is in fact no effect of the predictor variables. This p-value is compared to a specified alpha level, our willingness to simply accept a kind I error, which is usually set at 0.05 or 0.01.

Cut1 - This is the estimated cut point on the latent variable used to differentiate strongly disagree operational performance from disagree, neutral, agree and strongly agree operational performance, when values of the predictor variables are evaluated at zero. Subjects that had a value of 4.214598 or less on the underlying latent variable that gave rise to our operational performance variable would be classified as strongly disagree operational performance given they were other variables the variables strategic partnership, customer relation management practice, quality information sharing, information technology and lean practice had evaluated zero.

Cut2 - This is the estimated cut point on the latent variable used to differentiate strongly disagree and agree operational performance from neutral, agree and strongly agree operational performance when values of the predictor variables are evaluated at zero. Subjects that had a value of 7.05294 or greater on the underlying latent variable that gave rise to our operational performance variable would be classified as neutral, agree and strongly agree operational performance given they were latent variables and the predictor variables had evaluated zero. Subjects that had a value between 4.214598 and 7.05294 on the underlying latent variable would be classified as disagree operational performance.

Cut3 - This is the estimated cut point on the latent variable used to differentiate strongly disagree, disagree and neutral operational performance when values of the predictor variables are evaluated at zero. Subjects that had a value of 9.503423 or greater on the underlying latent variable that gave rise to our operational performance variable would be classified as agree and strongly agree operational performance given they were latent variables and the predictor variables had evaluated zero. Subjects that had a value between 7.05294 and 9.503423 on the underlying latent variable would be classified as neutral operational performance.

Cut4 - This is the estimated cut point on the latent variable used to differentiate strongly disagree, disagree neutral and agree operational performance from strongly agree when values of the predictor variables are evaluated at zero. Subjects that had a value of 15.34005 or greater on the underlying latent variable that gave rise to our operational performance variable would be classified strongly agree operational performance given they were latent variables and the predictor variables had evaluated zero. Subjects that had a value between 9.503423 and 15.34005 on the underlying latent variable would be classified as agree operational performance.

Std. Err. - These are the quality errors of the individual regression coefficients. They are utilized in both the calculation of the z test statistic, superscript j, and therefore the confidence interval of the parametric statistic.

[95% Conf. Interval] - This is the Confidence Interval (CI) for individual regression coefficients given the other predictors are in the model. For a given predictor with A level of 95% confidence, we'd say that we are 95% confident that the "true" population parametric statistic lies in between the lower and upper limit of the interval. It is calculated as the Coef. \pm $(z_{\alpha/2}) * (\text{Std.Err.})$, where $z_{\alpha/2}$ is a critical value on the standard normal distribution. The CI is like the z test statistic: if the CI includes zero, we'd fail to reject the null hypothesis that a specific parametric statistic is zero given the other predictors are in the model. An advantage of a CI is that it's illustrative; it provides a variety where the "true" parameter may lie.

The formula of ordinal logistic regression in this study is presented as follow. In ordinal logistic regression the β_0 is the cut point of in the regression output in table 4.17. In the regression output there are five categories and if the categories is five the cut point will be 4. So the output shows 4

cut points. Those cut point used as β_0 . cut poin1 is 4.214598, cut point2 is 7.05294, cut point3 is 9.503423, and cut point4 is 15.34005.

$$\ln(\theta_j) = \beta_0 + (\beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \dots \dots \dots (\beta_n X_n))$$

$$\ln(\theta_1) = 4.214598 + 5.287704SA (SPP) + 5.143537A (CRMP) + 7.886585SA (CRMP) + 4.941223SA (QISP) + 4.228064 DA (ITP) + 4.392915 N (ITP) + 4.393903A (ITP) \dots \text{Cut1}$$

$$\ln(\theta_2) = 7.05294 + 5.287704SA (SPP) + 5.143537A (CRM) + 7.886585SA (CRMP) + 4.941223SA (QISP) + 4.228064 DA (ITP) + 4.392915 N (ITP) + 4.393903A (ITP) \dots \dots \text{Cut2}$$

$$\ln(\theta_3) = 9.503423 + 5.287704SA (SPP) + 5.143537A (CRMP) + 7.886585SA (CRMP) + 4.941223SA (QISP) + 4.228064 DA (ITP) + 4.392915 N (ITP) + 4.393903A (ITP) \dots \dots \text{Cut3}$$

$$\ln(\theta_4) = 15.34005 + 5.287704SA (SPP) + 5.143537A (CRMP) + 7.886585SA (CRMP) + 4.941223SA (QISP) + 4.228064 DA (ITP) + 4.392915 N (ITP) + 4.393903A (ITP) \text{cut} \dots \dots \text{Cut4}$$

In the formula above SPP is strategic partnership practice, CRMP is customer relation management practice, ITP is information technology practice, and QISP is quality information technology practice as well as D is disagree, SD is strongly disagree, A is agree, SA is strongly agree, and N is neutral.

Table 4.18: odds ratio model output of ordinal logistic regression

OP	Odds Ratio	Std. Err.	Z	P>z	[95% Conf.	Interval]
SPP						
neutral	3.754463	5.734653	0.87	0.386	0.1881062	74.93637
Agree	3.053305	4.085473	0.83	0.404	0.2217281	42.04553
strongly agree	197.8885	286.8654	3.65	0.000	11.54761	3391.166
CRMP						
disagree	4.492476	10.95669	0.62	0.538	0.037713	535.1554
neutral	5.121409	7.557585	1.11	0.268	0.2839778	92.36226
Agree	171.3206	274.624	3.21	0.001	7.401984	3965.255
strongly agree	2661.34	5236.438	4.01	0.000	56.27047	125869.4
QISP						
disagree	7.107202	8.139056	1.71	0.087	0.7532099	67.06274
neutral	1.428356	2.087949	0.24	0.807	0.0813884	25.06745
Agree	7.127189	7.993859	1.75	0.08	0.7910614	64.2135
strongly agree	139.9413	205.6256	3.36	0.001	7.856263	2492.734
ITP						
disagree	68.58436	131.6241	2.2	0.028	1.594541	2949.948
neutral	80.8758	149.6062	2.37	0.018	2.153986	3036.647
Agree	80.95575	152.6864	2.33	0.02	2.008357	3263.282
strongly agree	64.70032	149.1272	1.81	0.07	0.7062838	5926.983
LP						
disagree	2.151389	4.621811	0.36	0.721	0.031922	144.9934
neutral	0.4841108	1.044861	-0.34	0.737	0.0070435	33.27379
Agree	0.9852639	1.773169	-0.01	0.993	0.0289504	33.53132
strongly agree	0.4993389	0.9927191	-0.35	0.727	0.0101426	24.58334
/cut1	4.214598	2.088018			0.1221582	8.307038
/cut2	7.05294	2.404701			2.339813	11.76607
/cut3	9.503423	2.57073			4.464886	14.54196
/cut4	15.34005	2.83367			9.786157	20.89394
.						

Source researchers survey STATA output, 2020

4.9: Interpretation of Odds Ratio and Test of Hypothesis

Before doing the hypothesis there is chronological orders to reach a decision. At the first reliability of each variable should be examined, next the association between dependent and independent variable should be tested, then test the significant of each independent variable for the study. After identify the significant variables, hypothesis is done. In case of this study, the researcher has done all those tests. And other thing is the value of odds ratio. In statistics if the value of odds ratio greater than 1, the dependent and independent variable has positive relationship, if the value is less than 1, the relation will be negative and if the odds ratio value is equal to 1 the variables have no relationship between each other.

Among the five independent variables (customer relation management practice, strategic partnership practice, information technology, quality information sharing practice and lean practice) lean practice is not significant independent variable for this study. To perform the hypothesis task P value from table 4.17 in the final model output of each categories significant value (p) and the last thing is the odds ratio of each category from the final odd ratio output table 4.18. The result is the same to (Akinyi, 2017).

4.9.1 Customer Relation Management Practice and Operational Performance.

Based on the above information the researcher is give conclusion for the hypothesis.

H_{a1} Customer Relation Management Practice has statistically significant Effects on the Operational Performance.

H_{o1} Customer relation management practice has not statistically significant effect on organization performance.

Customer relation management practice has positive coefficient with organization performance and also its significant variables in the final ordinal logistic regression final model table 4.17 above. The positive coefficients shows those variables have positive relationship and the p value of the variable at strongly agree and agree categories are 0.000 & 0.001 respectively in the table. Now it is possible to accept or reject the alternative hypothesis. If the p value is less than 0.05 reject H_{o1}, and if p value is greater than 0.05 accept the H_{o1}. The p value in the model is 0.000 & 0.001 < 0.05. So reject the null hypothesis and accepting the alternative hypothesis. Customer relation management practice has statistically significant effect on organization performance.

The interpretation odds ratio of customer relation management practice with organization performance is positive. 2661.34 (p value 0.000) indicates that very strong customer relation management practice of the organization enhance the performance of the organization strongly more likely to moderate customer relation management practice, other variables in the model held constant. Or strong customer relation management practice 2661.34 (p value 0.000) times more than the moderate (agree) customer relation management practice to increase a very strong organizational performance, other variables held constant in the model. Or strong organizational performance is improved by strong customer relation management practice more likely to moderate customer relation management practice. or employees who strongly agree about customer relation management practice is 2661.34 times more likely to employees who are agree about customer relation management practice in the organization to improve strong organizational performance. The result was the same to (Kebede & Tegegne, 2018). Their finding was customer relation management practice has statistically significant effect on organization performance in commercial bank. The other finding is customer relations management practice has significant effect on the performance of bank in Ghana (Desbordes, 2011). the result was the same to this study, that customer relation management practice has significant effect on the performance of commercial bank of Kenya (Kafko, 2017).

4.9.2 Strategic Partnership Practice and Operational Performance

H_{a2} Strategic partnership practice has statistically significant Effects on the Operational performance.

H_{o2} Strategic partnership practice has not statistically significant Effects on the Operational performance

Strategic partnership practice is significant variable for this study because the significant value of one category is less than 0.05 (strongly agree, 0.000). So reject the null hypothesis if the p value in the model is < 0.05 unless accept it. $0.000 < 0.05$. the conclusion is accepting the alternative hypothesis. The implication is strategic partnership practice has statistically significant effect on operational performance.

The interpretation odds ratio of strategic partnership practice on organization performance is presented as follow. The ordinal regression analysis result depicted that the odds ratio having

very high operational performance were increased by a factor of 197 ($P=0.000$); for every positive incremental on the strategic partnership the same as on operational performance. Or very strong strategic partnership practice is led for best operational performance compared with low strategic partnership practice. Or 197.8885($p, 0.000$) implies that strong strategic partnership practice is 197.8885 times more likely to low and moderate strategic partnership practice to bring strong organization performance. Or strong organization performance is the result of strong strategic partnership practice of the organization. Or for every positive incremental of strategic partnership, the performance of the organization also positively increased by 197.8885 more likely to very low strategic partnership practice.

4.9.3 Information Technology Practice and Operational Performance

H_{a3} Information Technology Practice has statistically significant Effects on the Operational Performance.

H₀₃ Information Technology Practice has not statistically significant Effects on the Operational Performance.

The most significant independent variable in this study is information technology because three categories are significant (disagree, neutral, and agree) p value are 0.028, 0.018 and 0.02 respectively. Accept the null hypothesis if p value is greater than 0.05, unless reject it. Zero is less than 0.05 completely. The result is rejecting the null hypothesis. The conclusion is information technology has statistically significant effect on the operational performance. The other finding was also almost the same to this study. His finding was information technology has statistically significant effect on commercial banks in Nigeria (Ekong & Udonwa, 2015). and this finding was not the same to (Ibrahim & Muhammad, 2013). His finding was information technology has not statistically significant effect on the performance of commercial bank in Nigeria. Information technology has statistically significant effect on the performance on commercial bank of South Africa (Binuyo & Aregbeshola, 2014).

To interpret the odds ratio of information technology practice and organization performance let's take the first significant categories as reference. So the reference category is disagreeing. The other two categories (neutral and agree) are stated based on the reference category. 80.8758($p, 0.018$ (neutral) and 80.95575($p, 0.02$) (agree) are interpreted neither the presence nor absence of

information technology practice in the organization is 80.8758 times more than no information technology practice in the organization to enhance organization performance. And the flow of normal information technology practice in the organization is 80.95575 times more than no information technology practice in the organization to improve normal organization performance. Or to adopt the normal organization performance in the organization the role of normal information technology practice is more likely than no information technology practice.

4.9.4. Quality Information Sharing and Operational Performance

H_{a4} Quality Information Sharing Practice has statistically significant effects on the Operational Performance.

H_{o4} Quality Information Sharing Practice has not statistically significant effects on the Operational Performance.

First for quality information sharing practice is significant independent variable to the study because among the five categories one is significant (strongly agree, p value 0.001). This value is much less than the value of 0.05. The hypothesis is rejecting the null hypothesis if p values in the final ordinal logistic regression less than 0.05, unless accepting it. 0.001 is less than 0.05. This indicates that the rejection of null hypothesis and conclude that quality information sharing has statistically significant effect on operational performance.

The odds ratio value of strongly agree in quality information sharing practice is (139.9413) and its significant value is (p 0.001). The ordinal regression analysis result depicted that the odds ratio having very high operational performance were increased by a factor of 139.9413 (P = 0.001); for every positive incremental on the quality information sharing the same as on operational performance. Or very strong quality information sharing practice is led for best operational performance compared with low quality information sharing practice. Or very strong organizational performance is increased by the factor of 139.9413 for every strong quality information practice in the organization but all other variables in the model are constant. Or the role of strong quality information sharing practice in the organization is 139.9413 times more than low practice to increase the organization performance, other variables constant in the model. Or an organization which has strong quality information sharing supply chain practice had very strong organization performance. The result was the same to (Chantal et al., 2018). His finding

was quality information asymmetry has significant effect on performance of commercial bank of Rwanda. The other researcher also find the same result quality information sharing practice has significant effect on performance on the organization(Nimeh, Abdallah, & Sweis, 2018).

4.9.5. Lean Practice and Operational Performance

H_{a5} Lean Practice has statistically significant effects on the Operational Performance.

H_{o5} Lean Practice has not statistically significant effects on the Operational Performance.

The last hypothesis was lean practice has statistically significant effect on operational performance. But as expressed in the above topic this variable is not significant variable because it is not significant in the final ordinal logistic regression model. this result was the same to (Kimechwa, 2016).

CHAPTER FIVE

Summary, Conclusion and Recommendation

5.1 Summary

As discussed chapter for in the model fitting information part the ordinal regression model is fitted for the data for this study. The study takes demographic variables like sex, age and education level, supply chain management practice such as strategic partnership practice, customer relation management practice, and quality information sharing practice, information technology practice, lean practice as explanatory variable and organization performance as dependent variable. In the discussion part, demographic variable and the main or supply chain management practices are discussed separately.

Employee sex is not the explanatory variable in this study. Almost employees (71) % are male in the organization and the others 29 percent are female. Male employees are two times more than female in the organization.

Age of respondent also not the independent variable for the study. 48.89% of employee's age is found under the category of 29-39 and the left 51.11percentage is cover above 40 and under 18-28 in the organization in equal proportion.

Employee's education level also not the principal variable for the study. Most of employees' education level (82.22) % is bachelor degree and the left 4.44, 13.33 percentages are cover diploma, masters respectively.

Next summary is descriptive frequency distribution table of supply chain management practice (independent variable) and organization performance (dependent variable).

In the frequency distribution table 82.22 percent of employees are agree and strongly agree about the presence of strategic partnership practice in the organization. 10 percent of employee are neither disagree nor agree in practice of strategic partnership practice in the organization and 7.78 percent of employees are strongly disagree about the practice in their organization.

Majority of the employee in the organization are agree the fully practice of customer relation management in their organization. 49 percent of employee are agree and strongly about the practice and the advantage of information technology in the organization and 27 percent of employee are neither agree nor disagree about the practice as well as 23 percent of employee are not agree about the practice of information technology in their organization.

Above 50 percent of the respondent agree and strongly agree about quality information sharing practice and 11.11, 31.11, 7.78 percent of employee are neutral, disagree and strongly disagree respectively.

Information technology practice is all most proportion to all categories, 48.89, 23.34 percent are agree and disagree about the practice of information technology practice in the organization and the other 27.78 percent are neither disagree nor agree about the practice of information technology in their organization.

76 .66 percent or majority employees are agree and strongly agree about the highly improvement of organization performance and the other 11.11, 6.67 and 5.56 percent of employee are disagree, neutral and strongly disagree respectively. Generally almost all respondents are agree, strongly agree on the practice of strategic partnership practice, customer relationship management practice, quality information sharing, information technology and improved performance in the organization.

The econometric result is summarized that information technology, customer relation management practice, strategic partnership practice and quality information sharing supply chain management practice have positive statistical effect on operational performance in the organization respectively and their significant categories are (three categories, two categories, and one categories) respectively and the fifth variable (lean practice) is insignificant variable in the study because all categories are insignificant (p value) greater than 0.05.

5.2. Conclusion

Based on the discussion the conclusions are- All most employees in the organization are male and their age is under 40. Education level of almost employee is bachelor degree. The five supply chain management practice in the study has been adopted and practiced by the organization because almost employees level of agreement is agree and strongly agree in the response based on the descriptive analysis. In econometric/inferential analysis Information technology, customer relation management practice, strategic partnership practice and quality information sharing has statistically significant effect on operational performance. Especially Information technology is the most significant variable because the significant value of this variable is much greater than the other significant variables such as strategic partnership, customer relation management practice, and quality information sharing practice. The significant value of the variables from high to low is information technology practice, customer relation management practice, strategic partnership practice, and quality information sharing practice respectively. Lean practice is not significant variable for the study because there are no significant categories in the output of the final ordinal logistic regression model. Generally The finding shows that, information technology practice, customer relation management practice, strategic partnership and quality information sharing practices are the most important and crucial supply chain management practice in the organization and they have a vital role to enhance the operational performance. So supply chain management practice has statistically significant effect on operational performance except lean practice.

5.3. Recommendation

Based on the result of this study the following recommendation is suggested.

- ❖ The study has revealed that supply chain management practices explain 55.71% of the variance on performance of this branch. This being a high percentage, the study recommends that commercial banks be encouraged to enhance adoption of these practices since they have the potential of improving their operational performance.
- ❖ Information technology practice is the most significant supply chain management practice in this branch. So organization should be give more attention, adopt and invest more resources to this practice. Such as Invests resources heavily on the infrastructure of an information technology, Trains employees on information system for operation support, Training for employees to utilize information system effectively, Training of staff on new technologies, moves parallel with the current technological trends, adopt and invest effective automated ordering system.
- ❖ The other important supply chain management practice to enhance the operational performance of the organization is customer relation management practice. The finding show that this supply chain management practices is the second significant practice in the organization. So the branch should be utilizes a proper cross-functional input, frequently interacts with customers to set reliability, responsiveness, and other standards, frequently measure and evaluate customers' satisfaction, periodically evaluates the importance of relationship with customers, Determine future customer expectation to provide better customer service, designing the system to make it easy for customers, Accept customer feedback seriously and reply to it.
- ❖ The third vital supply chain management practice is strategic partnership, according to the finding strategic partnership practice has statistically significant effect on operational performance of the bank. So the organization should be give great attention to this supply chain management practice by Creating and maintaining good relationship with partners such as suppliers, distributors and customers, providing precise information for partners, joins the overall business operations, sharing resources properly with partners for business success, cooperates with its partners in implementing business activities, building strong cross functional team and by solving problems jointly with partners.

- ❖ The last but not the least important supply chain management practice is quality information sharing. Seems like to the above supply chain management practice, the organization should be seeks to invest heavily to improve its operational performance by providing and exchanging accurate, adequate, timely, and reliable Information with trading partners and company itself.
- ❖ Generally if those very small in number supply chain management practice are influence the performance, it is easy to understand how much it will affect if all supply chain management practice are included in the research. Generally the branch should be giving a greater attention for supply chain management practice in their organization.

5.4. Suggestion for Further Research

Commercial bank of Ethiopia is a very wide financial sector and different researcher is will involve at the feature. So the researcher is suggesting to the following points.

- ❖ Geographically –this research was covering only Bahir Dar branch main branch. Feature researchers should be included other branch and makes broad it.
- ❖ Conceptually – the researcher takes only the five supply chain management practice and operational performance, feature researcher should include other supply chain management practice and include other performance parameter like financial, marketing other performance.
- ❖ Methodologically – the researcher use quantitative approach and analyzed by Ordinal Logistic Regression Model, feature researcher should try other methods and models.

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APPENDIX
APPENDEIX 1: QUESTIONNAIRE



**BAHIR DAR UNIVERSITY COLLEGE OF BUSINESS & ECONOMICS,
LOGISTICS AND SUPPLY CHAIN MANAGEMENT DEPARTMENT.**

Dear,sir/madam

I am a postgraduate student undertaking a MSC; Logistics and Supply Chain Management at Bahir Dar University Business and Economics College. I am currently carrying out a research on the Effect of the Supply Chain Management (SCM) Practices on the operational Performance of Commercial bank of Ethiopia at Bahir Dar branch main branch. This study will seek to collect data from organizations that have or are in the process of implementing the supply chain management practices in the banking industry operations in Bahir Dar branch. The findings of this study will provide these organizations with information on the framework on the effect of the SCM practices on the performance of its operations.

I kindly request you to provide the requested by filling out the attached questionnaire. The information I seek is strictly for academic research purposes and in no way shall your name or that of your firm will be implicated in the research findings. Your assistance will be highly appreciated. This questionnaire shall take only some minutes of your time. If you have any queries or would like further information about the issue please contact me on 0930975291 or yibeltalyismaw1@gmail.com.

Yours sincerely,

Yibeltalyismaw

Part A. Demographic information of employees

Please put (X) from the appropriate place

Sex		Age			Education level				
Male	female	18-28	29-39	>=40	diploma	BA/BSc degree	MSc/MA degree	PHD	other

Part B; Supply Chain Management Practice Information.

With regard to your organization strategic partnership practice, customer relation management practice, quality information sharing, information technology and lean practice, please choose the appropriate number and put (x) to indicate the level of your agreement for each statement. 1=strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=strongly agree.

1.1 Strategic partnership (SP)

It is an arrangement between two companies or organizations to help each other work together to make it easier for each of them to achieve the things they want to achieve. With regard to your company strategic partnership process, please choose the appropriate number and put (x) to indicate the extent of your agreement. 1=strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=strongly agree.

no	Statements	1	2	3	4	5
1	There is a high important of partnership to the organization.					
2	The Organization creates and maintains good relationship with its partners such as suppliers, distributors and customers.					
3	The Organization is provides precise information for its partners.					
4	Organization joins the overall business operations e.g. joint marketing, procurement and human resource management.					
5	Organization shares their resources properly with its partners for business success e.g. human resource, customer base and competitors.					
6	Organization is highly cooperates with its partners in implementing business activities.					
7	Strategic partnership process requirements are determined by cross functional team.					
8	The organization often solves problems jointly with partners.					

1.2. Customer Relation Management

The CRM process provides the structure for how the relationships with customers will be developed and maintained. Product and service agreement (PSA): Formal or informal contract or agreement between two organizations with the purpose of specifying the level of performance that will be provided to meet the needs of both parties. With regard to your company customer relations management process, please choose the appropriate number and put (x) to indicate the extent of your agreement. 1=strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=strongly agree.

No	Statements	1	2	3	4	5
1	The organization develops strong customer Relationship management (CRM) process team.					
2	The organization utilizes a proper cross-functional input within the CRM process.					
3	The organization frequently interacts with customers to set reliability, responsiveness, and other standards.					
4	The organization frequently measure and evaluate customers' satisfaction.					
5	Organization periodically evaluates the importance of relationship with your customers.					
6	The organization frequently Determine future customer expectation to provide better customer service.					
7	The organization systems are designed to make it easy for customer to do business with it.					
8	Employees take customer feedback seriously and reply to it.					

1.3.Quality of Information Sharing

Quality of information sharing: includes such aspects as the accuracy, timeliness, adequacy, and credibility of information exchanged. With regard to level of quality of information sharing in your company, please choose the appropriate number and put (x) to indicate the extent of your agreement for each statement. 1=strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=strongly agree.

No	Statements	1	2	3	4	5
1	Information exchange between our trading partners and your company is timely.					
2	Information exchange between your trading partners and company is accurate.					
3	Information exchange between our trading partners and our company is adequate.					
4	Information exchange between our trading partners and our company is complete.					
5	Information exchange between our trading partners and our company is reliable.					
6	Exchange information between our partners help to business development.					

1.4. Information Technology

It is the wide range of computerized technologies that enables communication and the electronic capturing, processing, and transmission of information in the organization. With regard to level of quality of information sharing in your company, please choose the appropriate number and put (x) to indicate the extent of your agreement for each statement. 1=strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=strongly agree.

No	Statements	1	2	3	4	5
1	Organization invests resources heavily on the infrastructure of an information technology.					
2	Organization trains employees on information system for operation support.					
3	Organization provides training for employees to utilize information system effectively.					
4	There is always training of staff on new technologies.					
5	The organization moves parallel with the current technological trends.					
6	There is effective automated ordering system in the organization.					
7	An information technology system is adequate in the organization.					
8	Organization uses information technology to aid business decision making.					

3.5. Lean practice

The series of activity or solution to eliminate waste, reduced non-value added operations and improve the value added activity of the organization. With regard to lean practice in your organization, please choose the appropriate number and put (x) to indicate the extent of your agreement for each statement. 1=strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=strongly agree.

No	Statements	1	2	3	4	5
1	There is a short lead time of service delivery in the organization.					
2	High Quality services are delivered by the organization.					
3	The organization fully understands what the customer needs.					
4	The organization continually improves its own performance with implementation of Kaizen principle.					
5	The organization delivers equal service for different customers.					
6	The organization provides flexible customer service.					
7	The organization improves customer responsiveness.					

2.6. Performance (Operational Performance).

Operational performance is the extent to which a firm achieves its quantitative goals in term of reducing cycle time, on time service delivery, flexibility service, increase market share, customer responsiveness and customer satisfaction With regard to operational performance of your company, please choose the appropriate number and put (x) to indicate the extent to which you agree or disagree for each statement. 1=strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=strongly agree.

NO	Statements	1	2	3	4	5
1	The organization Growth of sales is significantly increasing.					
2	Organization market share is significantly increasing.					
3	Organization customers' satisfaction is significantly increasing.					
4	Organization employees' satisfaction is significantly increasing.					
5	The organization has Better resource management and utilization.					
6	There is Optimization of business processes in the organization.					
7	The organization has delivered value addition service for the customer.					

APPENDIX 2: Reliability Test Table

. alpha OP LP ITP QISP CRMP SPP

Test scale = mean(unstandardized items)

Average interitem covariance: .3300541
 Number of items in the scale: 6
 Scale reliability coefficient: 0.7114

APPENDIX 3: Test of spearman's rho Chi² Table

Key
<i>rho</i>
<i>Sig. level</i>

	OP	LP	ITP	QISP	CRMP	SPP
OP	1.0000					
LP	0.2664 0.0112	1.0000				
ITP	0.2635 0.0121	-0.0440 0.6805	1.0000			
QISP	0.2363 0.0250	-0.1377 0.1956	0.0774 0.4682	1.0000		
CRMP	0.6926 0.0000	0.3124 0.0027	0.3598 0.0005	0.0880 0.4094	1.0000	
SPP	0.5688 0.0000	0.3001 0.0040	0.2166 0.0403	-0.1278 0.2302	0.3741 0.0003	1.0000

APPENDIX4: Goodness of fit Table

LR chi2(19)	127.25
Prob> chi2	0.0000

APPENDIX 5: Test of Model fitting information Table

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	224.004			
Final	96.753	127.252	19	.000

APPENDIX 6: Table of Pseudo R²

LR chi2(19)	127.25
Pseudo R2	0.5571

APPENDIX 7: Test of Parallel line Table

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	96.753			
General	26.396 ^b	70.357 ^c	57	.110

APPENDIX 8: Multicollinearity Test Table

. vif

Variable	VIF	1/VIF
CRMP	1.85	0.541279
SPP	1.51	0.664307
LP	1.34	0.748330
ITP	1.33	0.750045
QISP	1.05	0.952585
Mean VIF	1.41	

APPENDIX 9: Final ordinal Logistic Regression Model Table

```
. ologit OP i.LP i.ITP i.QISP i.CRMP i.SPP
```

```
Iteration 0: log likelihood = -114.1994
Iteration 1: log likelihood = -68.274424
Iteration 2: log likelihood = -62.633678 (backed up)
Iteration 3: log likelihood = -52.611586
Iteration 4: log likelihood = -50.619875
Iteration 5: log likelihood = -50.573739
Iteration 6: log likelihood = -50.573603
Iteration 7: log likelihood = -50.573603
```

```
Ordered logistic regression          Number of obs   =          90
                                      LR chi2(19)      =       127.25
                                      Prob > chi2      =         0.0000
Log likelihood = -50.573603         Pseudo R2       =         0.5571
```

	OP	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
	LP						
	disagree	.7661136	2.148292	0.36	0.721	-3.444461	4.976688
	neutral	-.7254416	2.158311	-0.34	0.737	-4.955653	3.50477
	agree	-.0148457	1.799689	-0.01	0.993	-3.542171	3.51248
	strongly agree	-.6944703	1.988067	-0.35	0.727	-4.59101	3.202069
	ITP						
	disagree	4.228064	1.919157	2.20	0.028	.4665861	7.989543
	neutral	4.392915	1.849827	2.37	0.018	.76732	8.018509
	agree	4.393903	1.886048	2.33	0.020	.6973168	8.090489
	strongly agree	4.169766	2.304891	1.81	0.070	-.3477381	8.687271
	QISP						
	disagree	1.961109	1.145184	1.71	0.087	-.2834113	4.205629
	neutral	.3565238	1.461785	0.24	0.807	-2.508522	3.22157
	agree	1.963917	1.121601	1.75	0.080	-.2343797	4.162213
	strongly agree	4.941223	1.46937	3.36	0.001	2.061311	7.821135
	CRMP						
	disagree	1.502404	2.438898	0.62	0.538	-3.277749	6.282557
	neutral	1.63343	1.475685	1.11	0.268	-1.258859	4.525718
	agree	5.143537	1.602983	3.21	0.001	2.001748	8.285326
	strongly agree	7.886585	1.967595	4.01	0.000	4.03017	11.743
	SPP						
	neutral	1.322945	1.527423	0.87	0.386	-1.670749	4.316639
	agree	1.116225	1.338049	0.83	0.404	-1.506304	3.738753
	strongly agree	5.287704	1.449631	3.65	0.000	2.446479	8.128929
	/cut1	4.214598	2.088018			.1221582	8.307038
	/cut2	7.05294	2.404701			2.339813	11.76607
	/cut3	9.503423	2.57073			4.464886	14.54196
	/cut4	15.34005	2.83367			9.786157	20.89394

APPENDIX 10: Odds Ratio Model Table

```
. ologit OP i.LP i. ITP i.QISP i.CRMP i.SPP, or
```

```
Iteration 0: log likelihood = -114.1994
Iteration 1: log likelihood = -68.274424
Iteration 2: log likelihood = -62.633678 (backed up)
Iteration 3: log likelihood = -52.611586
Iteration 4: log likelihood = -50.619875
Iteration 5: log likelihood = -50.573739
Iteration 6: log likelihood = -50.573603
Iteration 7: log likelihood = -50.573603
```

Ordered logistic regression	Number of obs	=	90
	LR chi2(19)	=	127.25
	Prob > chi2	=	0.0000
Log likelihood = -50.573603	Pseudo R2	=	0.5571

	OP	Odds Ratio	Std. Err.	z	P> z	[95% Conf. Interval]
LP						
	disagree	2.151389	4.621811	0.36	0.721	.031922 144.9934
	neutral	.4841108	1.044861	-0.34	0.737	.0070435 33.27379
	agree	.9852639	1.773169	-0.01	0.993	.0289504 33.53132
	strongly agree	.4993389	.9927191	-0.35	0.727	.0101426 24.58334
ITP						
	disagree	68.58436	131.6241	2.20	0.028	1.594541 2949.948
	neutral	80.8758	149.6062	2.37	0.018	2.153986 3036.647
	agree	80.95575	152.6864	2.33	0.020	2.008357 3263.282
	strongly agree	64.70032	149.1272	1.81	0.070	.7062838 5926.983
QISP						
	disagree	7.107202	8.139056	1.71	0.087	.7532099 67.06274
	neutral	1.428356	2.087949	0.24	0.807	.0813884 25.06745
	agree	7.127189	7.993859	1.75	0.080	.7910614 64.2135
	strongly agree	139.9413	205.6256	3.36	0.001	7.856263 2492.734
CRMP						
	disagree	4.492476	10.95669	0.62	0.538	.037713 535.1554
	neutral	5.121409	7.557585	1.11	0.268	.2839778 92.36226
	agree	171.3206	274.624	3.21	0.001	7.401984 3965.255
	strongly agree	2661.34	5236.438	4.01	0.000	56.27047 125869.4
SPP						
	neutral	3.754463	5.734653	0.87	0.386	.1881062 74.93637
	agree	3.053305	4.085473	0.83	0.404	.2217281 42.04553
	strongly agree	197.8885	286.8654	3.65	0.000	11.54761 3391.166
	/cut1	4.214598	2.088018			.1221582 8.307038
	/cut2	7.05294	2.404701			2.339813 11.76607
	/cut3	9.503423	2.57073			4.464886 14.54196
	/cut4	15.34005	2.83367			9.786157 20.89394