

**GREEN SUPPLY CHAIN MANAGEMENT PRACTICES
AND COMPETITIVENESS OF COMMERCIAL BANKS IN
KENYA**

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**A Research Project Proposal Submitted in Partial Fulfilment of the Requirement
for the Award of the Degree of Master of Business Administration (MBA) to the
University of Nairobi**

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DECLARATION

This research project is my original work and has not been presented for a degree award in any other University.

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This research project has been submitted for examination with my approval as the University Supervisor.

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God bless you all.

DEDICATION

This research project is dedicated to my family for their inspiration, encouragement, understanding and prayers towards the successful completion of this course. I pay glowing tribute and gratitude to the Almighty God who has given me the wisdom to undertake this course.

ABSTRACT

The study sought to establish the role of green supply chain management practices on an organizational competitiveness among commercial banks in Kenya. Towards the achievement of the objectives, the study adopted a descriptive research design in which involved distribution of questionnaire to the banks. A good response rate of 81% was realized. The study also established a regression and correlation analysis between the dependent variable and the independent variables.

The findings of the study was that different banks adopt different green supply chain practices depending on the activities that they are engaged in and also which green supply chain practice will yield better competitiveness to the bank. It also established that most of the banks' green supply chain practices involved environmental collaboration, monitoring, purchasing and the greening of the production phase. It was also found out that the competitiveness to the banks resulting from the green supply chain practices includes improved operational efficiency, increased customer base, offering superior services, reduction in waste level and all these leads to improved financial performance.

The study concluded that incorporation of green practices in the operations of organizations should form part of long term strategy of the organizations to gain competitive advantage over its competitors. It has therefore been recommended that organizations should consider adopting green supply chain fully as the potential benefits to be realized are enormous compared to the initial and operation cost of implementing the practice.

TABLE OF CONTENTS

Declaration.....	i
Acknowledgements.....	ii
Dedication.....	iii
Abstract.....	iv
Table of Contents.....	v
List Tables.....	viii
List of Figures.....	ix
Abbreviations.....	x
Chapter 1 Introduction.....	1
1.1 Background of the Study.....	1
1.2 Statement of the problem.....	6
1.3 Research Objectives.....	9
1.4 Value of the Study.....	9
Chapter 2 Literature Review.....	11
2.1 Green Supply Chain Management Practices.....	11
2.2 Benefits of Adopting Green Supply Chain Management Practices.....	18
2.3 Challenges in Implementing Green Supply Chain Management Practices....	20
2.4 Chapter Summary.....	23
2.5 Conceptual Model to Link Green Supply Chain Management Practices and Competitiveness.....	24
Chapter 3 Research Methodology.....	25
3.1 Research Design.....	25
3.2 Population.....	25

3.3	Data Collection.....	26
3.4	Data Analysis and Presentation.....	26
Chapter 4 Data Analysis and Interpretation.....		28
4.1	Introduction.....	28
4.2	Demographic and Respondents profile.....	28
4.3	Green Supply Chain Practices.....	29
4.4	Benefits of Green Supply Chain to a Bank.....	34
4.5	Green Supply Chain Management and Competitiveness.....	35
Chapter 5 Summary, Conclusion and Recommendations.....		38
5.1	Summary.....	38
5.2	Conclusion.....	39
5.3	Recommendation.....	41
5.4	Recommendation for further Research.....	41
	References.....	43
	Appendices.....	49
	Appendix 1: Cover Letter.....	49
	Appendix 2: Research Questionnaire.....	50
	Appendix 3: Notable Commercial Banks in Kenya.....	56

LIST OF TABLES

Table 4.1: External Green Supply Chain Concept.....	31
Table 4.2: Internal Green Supply Chain Concept.....	30
Table 4.3: Benefits accruing from Green Supply Chain Practices.....	35
Table 4.4: Results of General Least Square.....	34
Table 4.7: Model Summary for the Regression.....	37

LIST OF FIGURES

Figure 2.1: Conceptual Model to link GSCM Practices and Competitiveness.....	24
Figure 4.1: Respondents Gender.....	29
Figure 4.2 Age of the Bank.....	31

ABBREVIATIONS

CBK	-	Central Bank of Kenya
CMA	-	Capital Market Authority
GSCM	-	Green Supply Chain Management
ICT	-	Information and Communication Technology
KRA	-	Kenya Revenue Authority

CHAPTER ONE: INTRODUCTION

1.1 Background

In the recent times, there has been considerable internal and external pressure on firms to adopt and maintain environmentally friendly processes and to produce environmentally friendly products and services. As a result, both manufacturing and service organizations must consider the impact of environmental approach on business performance and the economic viability of the firm, as well as on the environmental performance of the firm (Elliot, 2011). This “green” approach requires that manufacturers, suppliers, and customers within supply chains work together to develop environmental solutions and monitor the implementation of those solutions (Gnoni et al., 2011). Further, the green supply chain management (GSCM) practices have been developed by various organizations as a practical means to implement an environmentally focused strategy.

As customers begin to demand that products and services be provided without damaging the environment, managers will make decisions that support the integration and coordination of environmental practices throughout the supply chain (Vachon and Klassen, 2007). They further point out that organizational competitive advantage can be gained through adoption of an environmental strategy and implementation of environmental collaboration and monitoring practices. According to Elliot (2011), while organizations incur higher costs in abating environmental pollution and thus increasing the total costs of some goods and services, the benefits associated with a cleaner environment far outweigh the costs. There has been concern that firms may lose competitive advantage due to the increased costs from implementation of environmental sustainability guidelines. However, on the same issue of loss in competitiveness, Jaffe et

al. (2005) conclude that there is little evidence to support the proposition that environmental regulations damage competitiveness.

1.1.1 Competitiveness

According to Buckley et al. (1988), an organization is competitive if it can produce products and services of superior quality and lower cost than its domestic and international competitors. Competitiveness is synonymous with a firm's long-run profit performance and its ability to compensate its employees and provide superior returns to its owners. Hence, a firm's competitiveness can be measured by its price relative to competitors, market share and degree of profitability over a relevant period of time.

1.1.2 Green Supply Chain Management Practices

The green supply chain management concept (and its many elements) has had many variations over the years and has included sustainable supply network management; supply and demand sustainability or corporate social responsibility networks; supply chain environmental management; green purchasing and procurement, environmental purchasing, green logistics and environmental logistics (Linton et al., 2007). Using a similar premise, Vachon and Klassen (2006) put forward the concept of green supply chain practices which comprise two sets of related yet independent environmental activities, namely: environmental collaboration and environmental monitoring. On the basis of the same construct as stated by Vachon and Klassen (2006), an organization's green supply chain practices imply internalizing by integrating its environmental management activities with other organizations in the supply chain or externalizing environmental management in the supply chain by employing market-based mechanisms.

The former is termed environmental collaboration while the latter is environmental monitoring.

To effectively manage the environmental aspects of supply chains, Hall (2001) points out that policy makers, organizations, and managers need to understand various reaches of supply chains and their environmental implications over all boundaries. He further observes that manufacturing organizations have begun to implement GSCM practices in response to customer demand for products and services that are environmentally sustainable and that are created through environmentally sustainable practices and in response to governmental environmental regulations. These practices require that manufacturers work in concert with suppliers and customers to enhance environmental sustainability. The implementation of GSCM practices is expected to result in improved environmental performance as measured by reductions in air emissions, effluent waste, solid waste, and the consumption of toxic materials. However, there is concern as to whether such environmental sustainability efforts will ultimately translate into improved market share and profitability. Ultimately, manufacturing managers are responsible for the performance of the organizations for which they work (Green et al., 2008). He notes that the questions that will need to be asked will include how best can they improve organizational performance within the context of their supply chains? Success at the supply chain level leads to success at the organizational level (Chopra and Meindl, 2004) and since customers and governmental entities have begun to demand that processes, products, and services be environmentally friendly, it is important that managers identify and implement environmental sustainability practices that extend throughout the supply chain.

According to Zelbst et al., (2010), business processes that must be integrated and coordinated include in pursuit of green supply chain practices will include purchasing, manufacturing, marketing, logistics, and information systems. Further, strategic imperatives that must be aligned include customer focus, efficiency, quality, and responsiveness and most recently environmental sustainability. With competition at the supply chain level and a focus on the changing demands of final customers, it is necessary to identify and adopt practices that yield competitive advantage at the supply chain level which, in turn, yield improved performance for the individual supply chain partners (Green et al., 2008).

1.1.3 Banking Industry in Kenya

The Banking industry in Kenya is governed by the Companies Act, the Banking Act, the Central Bank of Kenya Act and the various prudential guidelines issued by the Central Bank of Kenya (CBK). The banking sector was liberalized in 1995 and exchange controls lifted. The CBK, which falls under the Minister for Finance docket, is responsible for formulating and implementing monetary policy and fostering the liquidity, solvency and proper functioning of the financial system. As at December 2011 there were 46 banking and non bank institutions, 15 micro finance institutions and 109 foreign exchange bureaus. According to the Central bank of Kenya 2011 annual report, there are a total of 45 licensed commercial banks in the country and one mortgage finance company. Out of the 45 institutions, 32 are locally owned and 13 are foreign owned. The locally owned financial institution comprise 3 banks with significant shareholding by government and state corporations, 28 commercial banks and 1 mortgage finance institution. However out of all the banks only 10 of them are listed in the Nairobi stock exchange having met the

conditions of listing and applied for the same. The Central bank of Kenya annual supervision report (2009) categorizes the financial institutions into three tiers; Large, Medium and Small in terms of net assets. Out of the 45 institutions, 13 were in the large peer group with aggregate net assets of over Ksh. 15 billion. The medium peer group comprise of 17 institutions with net assets ranging between Ksh. 5 billion and 15 billion, whereas the small peer group had 15 institutions with net assets of less than Ksh. 5 billion.

Over the last few years, the banking sector in Kenya has continued to grow in assets, deposits, profitability and products offering. The growth has been mainly underpinned by an industry wide branch network expansion strategy both in Kenya and in East Africa community region as well as automation of a large number of services and a move towards emphasis on the complex customer needs rather than traditional ‘off-the-shelf’ products. The CBK annual supervision report of 2011 emphasizes that the banking institutions will need to cope continuously with changing business environment and a continuous flood of new requirement via a robust ICT platform, while staying sufficiently agile. Consumers will continue to demand individualized services, and to demand them faster than ever. Hence banks will continue aggressively design new products that leverage on ICT to remain competitive. Down streaming into the retail market segment will also be expected to continue particularly with the anticipated licensing of deposit taking Microfinance Institutions.

Efforts on green banking have generally focused on energy efficiency, conservation of natural resources, new environmentally friendly building materials and also revolutionary changes in concepts of design, procurement and management processes to bring about

greater reduction in overall environmental impact of buildings (Chau et al., 2010). In the recent past several commercial banks in the country have adopted green supply chain practices which has included putting up buildings that are environmentally friendly from the construction material used to the adoptions of solar power as a source of energy. Notable banks that have gone this path include Standard chartered and Kenya commercial bank. The benefits of green buildings that have been pointed out include increased productivity and health, focusing on end-users' behaviors towards green building development, as well as increased occupants' comfort and satisfaction. Nevertheless, while the two most dominant economic factors adopting green practices are reduced energy costs and increased productivity, some banking industry stakeholders still demonstrate resistance to the adoption of sustainable practices.

1.2 Statement of the Problem

Balancing economic and environmental performance has become increasingly important for organizations facing competitive, regulatory, and community pressures (Shultz & Holbrook, 2009). The present day competitive environment characterizing business environment coupled with increased pressures for environmental sustainability, has required that enterprises need to implement strategies to reduce the environmental impacts of their products and services and thus to establish their environmental image which requires that enterprises have to re-examine the purpose of their business. Indeed as Hasmann and Claudia (2001) point out, success of a firm in addressing environmental items may provide new opportunities for competition, and new ways to add value to core business programs. This has led to business organizations implementing cleaner production, environmental management systems and eco-efficiency practices. Further,

according to Sen (2009), successful implementation of GSCM practices such as green purchasing, cooperation with customers, eco-design, and investment recovery will lead to improved environmental and economic performance supports improved operational and organizational performance. Thus as the organizations making up a supply chain become aware of customer demands for products and services provided without damage to the environment, managers will make decisions that support the integration and coordination of GSCM practices throughout the supply chain (Vachon & Klassen, 2007).

The Kenyan banking industry has continued to grow both in terms of new local and foreign entrants, customer and deposit base, regionalization and increased scrutiny from the regulators specifically the Central Bank of Kenya. This new shift in the Kenyan banking industry can be attributed to the liberalization of the sector, increased adoption of information technology and improved business environment due to reforms being undertaken in the political, economic, social and cultural fields. With these changes, the level of competition in the banking industry has reached an all level high and coupled with an enlightened customers and increased scrutiny from the regulators, local banks have had to shift their attention to differentiating factors such practicing green supply chain in their organizations. Adoption of such practices have been found to be a source of competitive advantage more so in such environment characterized by stiff competition and enlightened customers (Chao et al., 2010). Therefore, one of the ways that commercial banks in the country can use to maintain its relevance and competitiveness is adoption of green supply chain practice. Competitiveness of an organization will lead to sustainability which refers to the development that meets the needs of the present

generation without compromising the ability of the future generation to meet their needs (Bundtland Commission, 1987).

A number of studies have been undertaken locally in the area of green supply chain. Obiso (2011) undertook a study on GSCM practices in the petroleum marketing firm in Kenya. He found out that adoption of GSCM practices had a positive relationship with the environmental performance of the petroleum marketing firms. Further, the study found out that the government has had a great influence in adoptions of GSCM practices in the sector. Murage (2011) on her part researched on green supply chain initiative and Challenges by manufacturing firm in Kenya. The research found out that Incentives on the manufacturers should be on the forefront in this course since only incentives with an economic benefit will entice the business community to embrace GSCM practices as well as adoption of relevant technologies could also be subsidized where appropriate. Achieng (2011) carried out a research on Information Integration on supply chain management in the food processing firms in Kenya. She found out that the current information system among the food processing firms in Nairobi satisfy supply chain communications requirements in the organization as there is smooth communication flow between the customers and the firm leading to satisfaction of both. From the above studies, it is evident that there has not been a study that links the role of the adoption of GSCM practices and a firm's competitiveness. Therefore this study leads to the following question: what effect do the GSCM practices have on competitiveness of commercial banks in Kenya?

1.3 Research Objectives

The objective of the study was to establish the relationship between Green Supply Chain Management practices and the competitiveness of Commercial Banks in Kenya.

1.4 Value of the Study

The understanding of the GSCM practices adopted by commercial banks in Kenya will help policy makers – governments and other stakeholders – to design targeted policies and programs that will actively stimulate the growth and sustainability of the commercial banks in the country, as well as helping those policy makers to support, encourage, and promote the establishment of appropriate policies to guide the firms. Regulatory bodies such as Central Bank of Kenya (CBK), Capital Markets Authority (CMA) and the Kenya Revenue Authority (KRA) can use the study findings to improve on the framework for regulation.

The study findings will benefit management and staff of commercial banks who will gain insight into how their institutions can effectively manage their green supply chain practices. This study offers an understanding on the importance of adopting an efficient supply chain practices and thus offer competitive advantage to the firms. Several practices on green supply chain and their effects have been discussed and for the benefit of the managers. This is because commercial banks need to adapt to the changing needs of the current business set up and requirement of various customers and providers of services. As a result, commercial banks in the country and other affiliated institution will derive great benefit from the study.

This study will also create a monograph which could be replicated in other sectors of the economy. Most importantly, this research will contribute to the literature on the green

supply chain practices in firms especially in developing countries like Kenya. It is hoped that the findings will be valuable to the academicians, who may find useful research gaps that may stimulate interest in further research in future. Recommendations have been made on possible areas of future studies.

This study is further justified since it will be of value to those interested in setting up financial institutions in the country since they will be able to understand what to do right to succeed and what if done wrong would bring the business down.

CHAPTER TWO: LITERATURE REVIEW

The chapter provides information from publications on topics related to the research problem. It examines what various scholars and authors have said about the concept of green supply chain practice. The chapter covers: concept and measure of competitiveness in firms, concept of green supply chain practice, benefits of adopting green supply chain practice and challenges in implementing green supply chain in organizations.

2.1 Concept and Measure of Competitiveness in Firms

In the simplest terms, an unprofitable firm is uncompetitive. An uncompetitive firm is one with an average cost that exceeds the market price of its product offering. The value of the resources the firm is using (opportunity cost) exceeds the value of the goods and services it is producing. Resources are misallocated and wealth is being reduced (Bruce, 1992). In a homogeneous-product industry, a firm may be unprofitable because its average cost is higher than the average costs of its competitors.

In a profit-maximizing equilibrium in a homogeneous-product industry, the lower a firm's marginal or incremental cost is relative to those of its competitors, the larger is its market share, and, other things being equal, the more profitable it is. Thus, market share reflects input cost and (or) productivity advantages. Additionally other things being equal, the less attractive a firm's product/service offering is, the lower is its equilibrium market share. The attractiveness of a firm's product offering may also reflect the efficiency of its past use of resource (Baumol & McLennan, 1985)

Banks must be competitive to sell their services in the marketplace. Competitiveness is an important factor in determining whether a Bank prospers, barely gets by, or fails. Banks compete through some combination of their marketing and operations functions.

Marketing influences competitiveness in several ways, including identifying consumer wants and needs, pricing, and advertising and promotion (Stalk, 1992).

Stalk (1992) further states that operations has a major influence on competitiveness through product and service design, cost, location, quality, response time, flexibility, inventory and supply chain management, and service. Supply chain management involves coordinating internal and external operations (buyers and suppliers) to achieve timely and cost-effective delivery of goods throughout the system.

2.2 Green Supply Chain Management Practices

The need for GSCM practices has been growing as organizations and researchers begin to realize that the management of environmental programs and operations do not end at the boundaries of the organization. According to Rao (2002), major companies around the world have developed and implemented comprehensive programs to control and improve their environmental practices across the entire supply chain. These programs imply environment-related interactions with upstream suppliers and, usually to a lesser extent, with downstream customers. The programs include several activities, such as managing reverse flows of materials and packaging, sharing environmental management techniques and knowledge among supply chain partners, controlling environmental risk associated with suppliers' operations, and assuring proper product utilization by customers (Snir, 2001).

According to Vachon and Klassen (2006), the green supply chain management practice has been lacking a comprehensive framework until more recently the internalization/externalization framework from the international management literature

has proposed a theoretical foundation to categorize environmental management in the supply chain. The framework, which was also used recently to characterize supplier development activities and corporate social responsibility suggests that organizations can either conduct activities through markets (externalizing) or by incorporating those activities within the organization hierarchy (internalizing) (Husted, 2003). Hence, an organization's green supply chain practices imply internalizing by integrating its environmental management activities with other organizations in the supply chain or externalizing environmental management in the supply chain by employing market-based mechanisms. The former is termed environmental collaboration while the latter is environmental monitoring.

2.2.1 Environmental Collaboration

Environmental collaboration can be defined as the planning and development of environmental activities and projects that require direct involvement of an organization whether with its suppliers or with its customers to jointly develop environmental solutions (Geffen and Rothenberg 2000). Environmental collaboration requires an organization to invest specific resources in cooperative activities that address environmental issues in the supply chain. These activities potentially capture the added value that can emerge from collaborative interaction among the members of a supply chain to reduce environmental impact. As an example of this type of GSCM practices, GEMI (2004) gave an example of the chemical management services, where a supplier of chemicals is collaboratively working with customers at their facilities to reduce their use of chemicals.

Collaborative activities also include joint planning sessions in regard to the environment and knowledge-sharing activities, such as workshops and seminars pertaining to management systems, leading to a reduction of waste in the logistics process (Rao, 2002). He further pointed out that environmental collaboration focuses less on the immediate outcome of the suppliers' environmental efforts, such as compliance to existing regulations, and more on the process by which more environmentally sound operations or products might be achieved.

2.2.2 Environmental Monitoring

Environmental monitoring implies environmental activities in the supply chain that have market-based or arm's-length transaction characteristics. It usually involves activities like an examination of a supplier's environmental practices through publicly disclosed environmental records, questionnaires, and audits conducted by either the buyer or an independent third party (Min and Galle 2001). As such, buying organizations try to minimize their involvement and resources directed to environmental management in the supply chain.

Supplier audit and certification has attracted much attention as organizations have become tied to the environmental and social practices of upstream suppliers in the minds of consumers. For instance, several chemical producers have increasingly adopted product stewardship principles to assure the proper use of their products by downstream organizations. In fact, the risk of non-compliance with regulations and liabilities in the supply chain have been associated with greater green purchasing practices in U.S. buying organizations (Min and Galle 2001). Environmental monitoring can also take the form of a supplier requirement for compliance with a voluntary code of practice or public

standard. Increasingly, these standards are embedded in the selection and evaluation criteria of suppliers. For example, one prevalent approach is ISO 14001 certification that is now required by several large automotive companies of their tier-one suppliers. Such requirement constitutes one means by which environmental safe-guards can be imposed on suppliers.

2.2.3 Purchasing and In-Bound Logistics

From the purchasing perspective of the supply network it is under discussion that GSCM practices has several benefits, ranging from cost reduction to integrating suppliers in a participative decision-making process that promotes environmental innovation (Bowen et al., 2001; Hall, 2003; Rao, 2002). Green purchasing strategies which is the largest part of inbound logistics side is adopted by organisations to respond to the global concern of environmental stability.

Green purchasing might enhance issues such as using environmental transportation, cost, reduction, material substitution and waste minimization of hazardous materials.

The involvement and support of suppliers is crucial to achieving such goals. Therefore, organisations are increasingly managing their suppliers' environmental performance to ensure that the materials and equipments supplied by them are environmentally-friendly in nature and are produced using environmentally friendly processes.

Integration of suppliers into environmental management system could be completed in two steps (Walton et al, 1998). First step, Walton et al suggest that environmental issues become main part of strategic planning to response regulations and the demands of

environmental accountability. In second step, organizations integrate their supplier to their supply chains to make reduction operational costs and improve customer service.

2.2.4 Greening the Production Phase

There are several notions that could be explained about green supply chain in production phase, such as cleaner production, design for environment, remanufacturing and lean production. Lean production has an importance to decrease the environmental impact of the internal supply chain. Lean production improves environmental performance by reducing general waste and minimizing hazardous wastes.

Production phase has an important role in keeping same quality level of organization in having environmentally-friendly production; prevention of pollution at source; cleaner production practices are adopted; closed loop manufacturing (reverse logistics) is incorporated to the fullest extent possible, re-use and recycling of materials is maximized; material usage is reduced; the recyclable content of a product is increased; the production processes are optimized so that generation of waste, both hazardous or otherwise, is minimized; and products are redesigned .

2.2.5 Greening the Outbound Function and Reverse Logistics

On the outbound side of the green supply chain, reverse logistics, environment-friendly packaging, and environment-friendly distribution, are all initiatives that might improve the environmental performance of an organization and its supply chain. Management of wastes in the outbound function such as reverse logistics and waste exchange can lead to cost savings and enhanced competitiveness (Rao, 2003). Many of these initiatives involve

compromises between various logistics functions as reverse logistics and environmental consideration in order to improve the environmental performance of an organization.

In an eco-transportation system, required parameters of a transportation system such as type of transport, fuel sources, infrastructure, operational practices and organization, can be considered. These parameters and the dynamics that connect them, determine the environmental impact generated in the transportation logistics phase of the supply chain (Kam et al., 2003).

2.2.6 Linking GSCM Practices and E-Banking Technology

E-banking, or electronic banking, refers to all types of banking transactions performed electronically, without visiting a brick-and-mortar bank. For customers, this means performing actions such as paying bills, checking balances on their accounts, transferring funds and purchasing financial instruments remotely, using a personal computer. E-banking consumers can do well by doing good, improving financial control while eliminating the paper bills, statements and checks that harm the environment – saving 17 million trees and avoiding 4 billion tons of greenhouse gases a year (Marketing Charts reports, 2008).

In Kenya, majority of banks have introduced internet banking, mobile banking and other e-banking facilities, to enhance delivery channels to their customers. The major indicator of e-banking is ATM banking. According to the survey conducted by financial sector deepening Kenya in association with Central Bank of Kenya, it was indicated that Kenya had a total number of 968 by the end of December 2007. Further, indication was that, an

increase of 31.3 percent from 2006 was experienced, when the industry had 737 ATMs (Nyangosi , 2012).

In recent years, banks, payment system providers, and mobile operators have begun experimenting with “branchless banking” models which reduce costs by taking small-value transactions out of banking halls and into local retail shops, where “agents,” such as airtime vendors, gas stations, and shopkeepers, register new accounts, accept client deposits, process transfers, and issue withdrawals. One form of branchless banking, called “mobile banking,” uses a client’s mobile phone to communicate transaction information back to the bank. This enables clients to send and receive electronic money wherever they have cell coverage. They need to visit a retail agent only for transactions that involve depositing or withdrawing cash. These mobile transactions eliminate the need for paper bills and statements and are just one way for people to start living a greener lifestyle (Butcher, 2012).

2.3 Benefits of Adopting Green Supply Chain Management Practices

Companies at present now consider GSCM practices as a strategic move based on customer demands for products that are environmentally sustainable and that have been produced by processes that are designed and operated to enhance environmental sustainability. Zhu and Sarkis (2004) found a positive relationship between adoption of GSCM practices and improvements in environmental and economic performance. They describe the possibility of a ‘green multiplier effect’ that results from the extension of green purchasing practices from immediate suppliers to second and third tier suppliers’ suppliers and thus green purchasing and supply policies are likely to result in improved environmental performance. Practices, such as green purchasing, cooperation with

customers, eco-design, and investment recovery, are designed to positively impact environmental performance (Diabat and Govindan, 2011).

GSCM practices focus on the elimination of wastes associated with environmental sustainability. Such waste minimization should lead to reduced costs resulting in improved economic performance. Rao and Holt (2005) demonstrated a link between green supply chains and economic performance and also pointed out that GSCM practices led to competitiveness and better economic performance. Klassen and McLaughlin (1996) studied the effect of announcements of winning environmental awards by the organizations on stock prices. They found evidence that the market valued such recognition and duly awarded the firms with increased valuations as reflected by higher stock prices. The cost saving nature of environmental performance should lead to improved economic performance and both environmental performance and economic performance should yield improved operational efficiency. Environmental, economic, and operational performance generate cost savings and reflect an organization's ability to satisfy changing customer demands for environmentally sustainable products and services. The cost and marketing implications of environmental, economic, and operational performance should lead to improvement in the overall financial and marketing performance of the organization.

A strong customer focus on the part of manufacturing organizations leads to improved marketing and financial performance (Green et al., 2005). As customers begin to demand that the products and services that they purchase be eco-friendly, it is important that manufacturers generate intelligence related to these changing customer demands. A manufactured product that remains unsold in inventory, because it does not satisfy

customer demand is blatantly environmentally unfriendly. Resources necessary to produce and market the product have been consumed with no direct benefit to a customer. Products, therefore, must have both utility and be eco-friendly. From among similarly priced products, environmentally conscious buyers will likely choose the comparatively more eco-friendly product and will use and dispose of the product in a sustainable manner.

2.4 Challenges in Implementing Green Supply Chain Management Practices

A number of barriers have been identified that hinder the operations of GSCM practices in organizations. As a result of these challenges, GSCM practices processes have in some circumstances been poorly managed or not implemented all together. To be effectively implemented, GSCM practices will need to be managed through collaboration with all stakeholders; both internal and external. The factors that affect implementation of reverse supply chain can be categorized as either external or internal factors.

2.4.1 Internal Challenges to Green Supply Chain Management Practice

The importance of green supply chain practices in a company's business strategy plays a significant role in determining the GSCM practices in the organization. Enterprises which regard GSCM practices mainly as an extended producer responsibility or a need to abide by laws and those which see it as a strategic weapon to gain long-term profit will adopt totally different approaches. According to Stock (2001), organizations which tend to corroborate that self-support system or joint management approach will likely be used when green supply chain is regarded as a source of long-term profit. If reverse logistics is implemented mainly for observing environmental laws and regulations, outsourcing is usually used to allow the company to focus resources on its core competency.

Financial considerations comprising investment, profitability, and cost is yet another internal factor that affects adoption of green supply chain management processes. Developing a self-support system, for example, will involve heavy financial investment because treatment of returned products requires special equipment and facilities. However according to Rogers and Tibben-Lembke (1999) outsourcing some of this functions may help shift the risk to third parties and save the company significant equipment and infrastructure costs. On the other hand, higher profitability can be achieved under the self-support model due to lower material cost and better customer service and corporate image in the long run. Further, the use of third parties to provider for reverse logistics to comply with environmental laws and regulations can reduce risk and cost though it only achieves relative low or even no profit to the firm.

According to Wu and Cheng (2006), an organizational management skill is yet another internal factor affecting adoption of green supply chain in organizations. Management skills refer to the knowledge and capabilities to manage the facilities, equipment, people, and information involved in the different reverse supply chain systems. To run a self-support system, the demand for management skills is high as the company will be responsible for everything ranging from maintenance of equipment and facilities, training of staff, internal communication among departments, to proper management of information for integrating both forward and reverse logistics of the whole supply chain. For information management, self-support system requires mainly internal communication whereas the outsourcing and the collaborative approaches demand effective joint management and information exchange among partners (Wells and Seitz, 2005).

2.4.2 External Factors Affecting GSCM Practices

The external barriers are closely linked together and a set of comprehensive improvement measures requiring efforts from both the government and the firms are needed to remove the obstacles (Hult et al., 2005). Lack of public awareness on the need to return some of the used products has been found to be a factor in the process of green supply chain. While awareness of sustainable development and extended producer responsibilities are relatively high for large corporations for example in the electronic industry of China, public awareness of environmental protection and conservation needs to be enhanced as end-of-life returns from consumers for recycling are still relatively small in volume (Wu and Cheng, 2006). In this regard, the government can improve the situation by educating citizens on the need for waste reduction and recycling and promoting the use of environment-friendly products. It can also assist in establishing return collection channels and setting up collection points to encourage wider public participation. Manufacturers should also adopt more green designs for their products to reduce the use of hazardous materials and to facilitate recycling.

Another barrier to green supply chain management practice in most of the countries is legislation that has led to a lack of enforceable laws and regulations. According to Park and Ungson (2001) for example, the growth in the Chinese economy over the last decade has made the central government to be hesitant to impose stringent environmental legislations to overly restrain economic growth. After all, small manufacturers competing on cost will find it difficult to maintain their competitive advantage or even survive if they are mandated to set up costly reverse logistics systems to handle returns. For long-term sustainable development and competitiveness in the global market, however, the

government has to set up as soon as possible regulations to promote, control, and standardize reverse logistics management practices. It should also introduce to the industry corresponding laws and directives for end-of-life products like those implemented by the EU. They recommend that the government should play the role of coordinator or facilitator by stipulating rules and regulations on the sharing of responsibilities and obligations among manufacturers, distributors, and end-users.

2.5 Chapter Summary

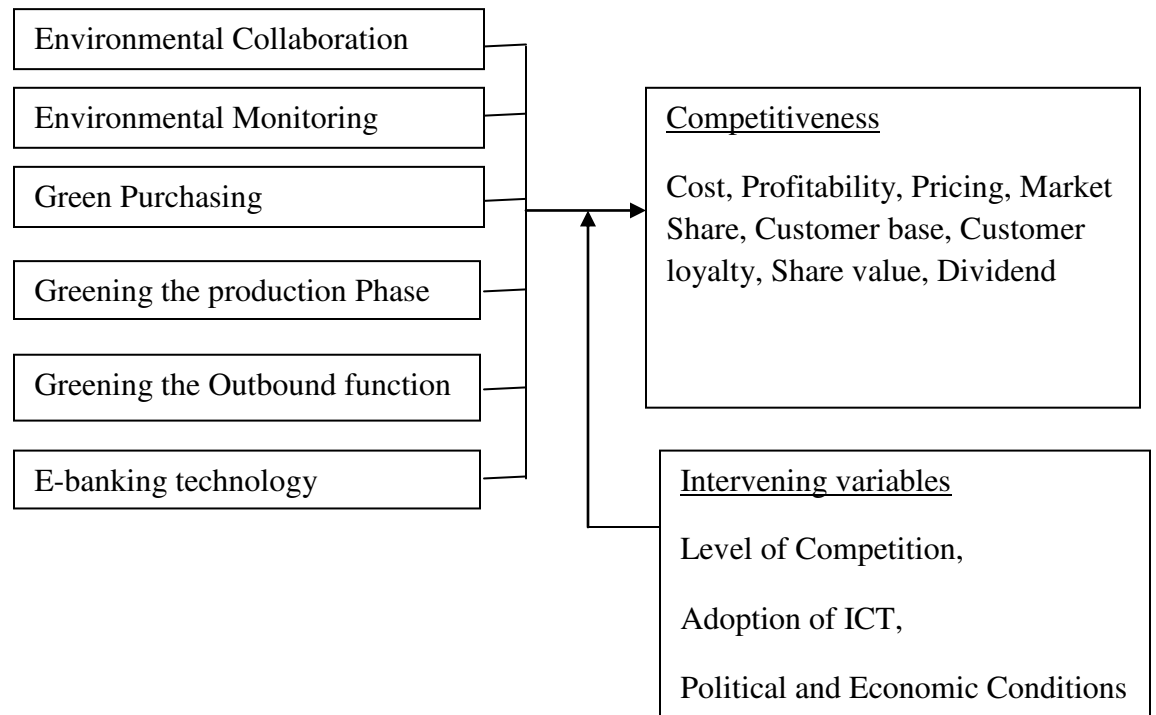
The GSCM practices has been expounded in detail both in the literature as well as from the empirical studies done on the subject area. A business entity operating in the current business context characterized by increased competition and a consumer base that is enlightened on the need of products being environmentally friendly was identified as the major drivers to organizations at present adopting the green supply chain practices. The literature also showed that the common practices of green supply chain employed firm's include environmental collaboration of both up-stream and downstream partners, environmental monitoring and also the sharing of management control and environmental risk with both governmental and non governmental agencies. However, it was noted that at present there lacks a comprehensive framework on the GSCM practices and as a result different organization adopts different practices that they deem is suitable to their business context. As a result, there is no green supply chain practice that can be said to be universally accepted.

The literature also reviewed the benefits of adopting the green supply chain that included the existence of a positive relationship between GSCM practices and the improvement in environmental and economic performance, increase in customer demands that the

products services that are purchased are economically friendly and business firms should generate products that meet customer demands. However, it is evident from the literature that none of the studies done has been able enough to investigate the role of green supply chain practices on organizational performance.

2.6 Conceptual Model to Link GSCM Practices and Competitiveness

Figure 2.1: Conceptual model to link GSCM practices and Competitiveness



If GSCM practices are to be fully adopted by all organizations, a demonstrable link between such measures and improving economic performance and competitiveness is necessary (Rao and Holt, 2002). This research will endeavour to identify potential linkages between GSCM practices, as an initiative for environmental enhancement and competitiveness amongst Commercial banks in Kenya. For this purpose a conceptual model has been developed from literature sources. (Figure 2. 1)

CHAPTER THREE: RESEARCH METHODOLOGY

The chapter describes the research method that was used. This includes the research design, the target population, sampling design, data collection instruments and the techniques for data analysis.

3.1 Research Design

The research design for the study was a descriptive survey. This research design was deemed appropriate for this study because it allowed the researcher to draw conclusions about the effect of the GSCM practices on a firm's competitiveness. A cross sectional study was also used since different banks were surveyed during the same time period. The cross sectional study was adopted because it provided a quick snapshot of what was going on between the GSCM practices and organizational competitiveness.

3.2 Population

The population of the study was made up of all the 45 commercial banks in Kenya as at 31st Dec 2011 (Appendix 3). The selection of the commercial banks as the population of the study is that the commercial banks represents different institutions with varying capital base, branch network, distribution networks, spread of their network within the country and regionally and hence their management practices are different. In addition, the banking sector has been experiencing intense competition both from local and international banks and one of the ways in which these banks have been able to maintain their competitiveness is through adoption of appropriate GSCM practices. Because the number of commercial banks is small a census study was used.

3.3 Data Collection

The researcher used primary data which was collected through self-administered questionnaires. The questionnaires were administered by the researcher using the drop and pick later method. The questionnaire consisted of closed ended questions designed to elicit specific responses for qualitative analysis. A likert scale was used for close –ended questions. A questionnaire was chosen since it acts as a useful tool for collecting data from respondents because of the need to provide a means of expressing their views more openly and clearly. Secondary data on the subject area was collected through annual reports and organizational publications both within and without the organization. Staff questionnaires were administered to two managers in the procurement department and two managers in the operations department. The questionnaire was made up of three parts; Part A consist of the demographic information of the respondent, Part B dealt with the green supply chain practices while Part C linked the green supply chain practices and organizational competitiveness.

3.4 Data Analysis and Presentation

The data was analyzed by the use of descriptive statistics to summarize and relate variables which were attained from the administered questionnaires. The data was classified, tabulated and summarized using descriptive measures, percentages and frequency distribution tables while tables and graphs were used for presentation of findings. However, before final analysis was performed, data was cleaned to eliminate discrepancies and thereafter, classified on the basis of similarity and then tabulated. A multiple regression model was developed to describe the relationship between the banks green supply chain practices and competitiveness.

The regression equation assumes the following form:

$$Y = \beta_0 + \beta_1 X_1$$

Where Y= Level of competitiveness

β_0 = Constant factor

X_1 = green supply chain practice adopted.

CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

The research objective was to establish the role of green supply chain management practices on competitiveness of commercial banks in Kenya. This chapter presents the analysis and findings with regard to the objective and discussion of the same. The findings are presented in percentages and frequency distributions, mean and standard deviations. A total of 42 questionnaires were issued out. The completed questionnaires were edited for completeness and consistency of the 42 questionnaires issued, 35 were returned. This represented a response rate of 81%.

4.2 Demographic and Respondents Profile

The demographic information considered in this study included gender of the respondents, age bracket, highest level of education and length of continuous service with the institution. 61% of the respondents were male while 39% were female. 42.9% of the respondents were between 21 and 30 years while 34.3% were under 31-40 years old and the rest of the respondents were found to be in the age bracket over 41 years. Cumulatively, 77% of the respondents were found to have ages of less than 41 years. This means that the work force sampled from this research can be considered to be relatively younger and it is possible that majority of the respondents could have worked in the same bank after their schooling. In addition, 23% of the respondents had ages over 41 years implying that this category of the respondents have worked most of their life's and can be deemed to have accumulated adequate knowledge that can facilitate answers to the research questions.

54.3% of the respondents have been working in the bank for 2 - 5 years, 28.6% of the respondents indicated that they have worked in the company for between 6 – 10 years while 11% of the respondents indicate that they had worked in the bank for over 10 years. The results indicate that majority of the respondents had worked in the bank for less than five years. This result can be attributed to the position that most banks have a younger workforce especially from colleges and at the same time quite knowledgeable on various disciplines and what they will be seeking in most employers will be experience. Therefore it can be claimed that the respondents were a combination of knowledge and experience which was a valuable characteristic for the study.

91.4% of the banks have been in existence for a period over 16 years while 5.7% of the banks surveyed had only been in operations for less than 5 years and the balance of 2.9% of the banks had been in operation for between 11 – 15 years. What this results means is that majority of the Kenyan banks have been operating for more than 15 years and this implies that for purposes of this research they will have adopted modern practices of supply chain due to the expansion process that they will have implemented.

4.3 Green Supply Chain Practices

Different banks adopt different green supply chain practices depending on the activities that they are engaged in and also which green supply chain practice will yield better competitiveness to the bank. These companies set up their processes based on knowledge of existing environmental collaboration, environmental monitoring, purchasing and inbound logistics, need of greening the production phase and also the need for greening the outbound function and reverse logistics functions.

4.3.1 External Green Supply Chain Practices

The questions sought to establish the extent to which the banks have been practicing various green supply chains tenets. It was also found out that all commercial banks appreciate the role of green supply chain practices. The results are presented in table 4.1.

The respondents were asked to give their independent opinion on the extent to which the factors in the table on green supply chain had been adopted by the bank using a five point Likert scale. The range was 'Strongly agree - (5)' to 'strongly disagree - (1)'. The scores of strongly agree / agree have been taken to present a variable which had a mean score of 3.5 to 5 on the continuous Likert scale; ($3.5 \leq S.E < 5$). The scores of 'moderately extent' have been taken to represent a variable with a mean score of 2.5 to 3.4 on the continuous Likert scale: ($2.5 \leq M.E. < 3.4$) and the score of disagree/strongly disagree have been taken to represent a variable which had a mean score of 0 to 2.4 on a continuous Likert scale; ($0 \leq L.E. < 2.4$). A standard deviation of > 1.0 implies a significant difference on the impact of the variable among respondents.

The results presented in table 4.1 on green supply chain practices adopted by commercial banks in Kenya was that as to whether environmental collaboration had resulted in increase of customer base (mean 3.9714), increasing customer loyalty (mean 3.6857) and the increase in the banks market share (mean 3.5429). The results above show that the adoption of the green supply chain concepts results in reduction in the operation costs, increased in customer loyalty, increased in market share and generally an increase in the performance of the firm in terms of profitability and levels of dividends paid. Adoption of green supply chain leads to an enhancement operational efficiency in green supply chain and provides greater supply chain visibility.

Table 4.1: External Green Supply Chain Concepts

	Mean	Std. Deviation
Environmental Collaboration		
The bank has invested in environmental activities that have resulted in increase of customer base	3.9714	1.17538
The bank collaborates with suppliers to produce safe products and thus increasing customer loyalty	3.6857	1.20712
Training of staff on environmental systems management and implementation of the same has led to an increase in the banks market share	3.5429	0.98048
Environmental Monitoring		
Adherence of the code of conduct by the bank has increased its customers loyalty	3.6857	1.20712
Conformance of standards by the organization has led to an increase in the banks customer base	3.4000	0.88118
The bank's profitability has increased as a result of compliance with various regulations and environmental regulations	3.2286	1.28534
Attaining of ISO 4001 by the Bank has led to increase in its market share	2.5143	1.01087
Purchasing and In-bound logistics		
The banks performance has increased as a result of incorporating in bound logistics in the purchasing process	3.6857	0.99325
Integration of suppliers in the supply chain as lead to improvement in service and thus customer base	3.5429	0.88593
The bank has introduced GSCMP in its strategic plan leading to a reduction in operational costs	3.4000	1.09006

The findings from table 4.1 above means that by a bank enhancing its environmental collaboration actions such as investing in specific cooperative activities, developing safe and environmentally sustainable products will lead to a bank reducing its operational cost, increasing customer loyalty, and market share which eventually leads to the banks profits increasing. In addition, with a bank investing in collaborative initiatives with suppliers came out to have the strongest effect on customers' loyalty with the mean of 3.9714 with standard deviation of 1.17538. Similarly conformance by the banks on the environmentally sustainable practices was considered by the respondents to have greater effect on environmentally monitoring green supply chain practice of the banks. What this findings means is that for banks to enhance their profits and cut down on operational costs by avoiding litigations, then they need to adopt green supply chain practices such as environmental collaboration, monitoring and in their purchasing and in-bound logistics.

4.3.2 Internal Green Supply Chain Practices

The questions sought to establish the extent to which the banks have been practicing various internal green supply chains concepts. The results are presented in table 4.2.

The respondents were to give their opinion on the extent to which the internal actions in the bank on green supply chain were going to influence the competitiveness of the institutions using a five point Likert scale. The range was 'Strongly disagree- (1)' to 'strongly agree - (5)'. The score of disagree/strongly disagree have been taken to represent a variable which had a mean score of 0 to 2.4 on a continuous Likert scale; $0 \leq L.E. < 2.4$). The scores of 'moderately extent' have been taken to represent a variable with a mean score of 2.5 to 3.4 on the continuous Likert scale: $2.5 \leq M.E. < 3.4$) and the scores of strongly agree / agree have been taken to present a variable which had a mean

score of 3.5 to 5 on the continuous Likert scale; ($3.5 \leq S.E < 5$). A standard deviation of >1.0 implies a significant difference on the impact of the variable among respondents.

Table 4.2: Internal Green Supply Chain Concepts

Greening the production phase	Mean	Std. Deviation
Institution of pollution prevention and management systems has reduced contingent costs to the bank and thus increasing customer base	3.7429	.98048
The bank has a plan for improving product design and environmental performance by enlisting the input of suppliers leading to increase in profitability	3.4857	1.01087
Closed loop manufacturing has been implemented to the fullest extent possible in the organization and therefore leading to a reduction in costs	3.2000	.93305
Greening the outbound function and reverse logistics		
Encouraging efficient utilization of material by customers has led to greater customer loyalty	3.5143	1.09468
The bank controls environmental risk associated with suppliers	3.4286	1.14496
The bank shares environmental management systems with other firms leading to the increase in customer base	3.3143	1.18251
The bank manages reverse flows of material which has lead to reduction in operational costs	3.2000	.96406

The results presented in table 4.2 on green supply chain practices adopted by commercial banks in Kenya was that the practice of a bank sharing environmental monitoring

management system with other banks was found to have a mean of 3.3143 while the one practice that came out to be a stronger practice that lead to an increase in customer loyalty was found to be a bank practice of encouraging efficient utilization of bank resource and operating material with a mean of 3.5143.

As was also found out in table 4.1, the results from the study was that a bank had to institute internal measures that lead to the greening of the production phase and also greening of the outbound function and reverse logistics. These measures was found to result in the reduction of the bank's operational cost and which will result in increased profitability, customer base and loyalty.

4.4 Benefits of Green Supply Chain to a Bank

The questions sought to establish from the respondents the various benefits accruing to the bank as a result of practicing the green supply chain in their distribution channel. The results are presented in table 4.3.

The results presented in table 4.3 was that green supply chain practices adopted by commercial banks in Kenya has helped the banks to gain a competitive edge over competitors (mean, 3.6000) improved financial performance (mean 3.5714), reduction in the waste level in the supply chain (mean 3.8517), leads to the production of superior quality products and services (mean 3.6286) and better and eco-friendly disposal of products in a sustainable manner (mean 3.5429). The results above show that the adoption of the green supply chain concepts by a bank can be associated to a greater extent to the organization competitiveness, this competitiveness will come from the bank

management of costs, increased customer loyalty and therefore customer base and all these will lead to improved profitability to the firm.

Table 4.3: Benefits accruing from Green Supply Chain Practices

	Mean	Std. Deviation
Reduction in the waste level in the supply chain	3.8571	1.00419
Improved operational efficiency	3.7143	1.10004
Leads to the production of superior quality products and services	3.6286	1.08697
The bank has gained an edge over competitors	3.6000	1.03469
There bank has recorded an improved financial performance	3.5714	0.88403
Better and eco-friendly disposal of products in a sustainable manner	3.5429	1.03875
Increased customer base	3.3714	0.91026
Improved intelligence gathering process	3.3429	1.05560
Increased valuation of the firm and its stock	3.2857	1.01667

4.5 Green Supply Chain Management and Competitiveness

Table 4.4: Results of General Least Square

Model		Un-standardized Coefficients		Standardized Coefficients	T
		B	Std. Error	Beta	
1	(Constant)	1.887	.218		1.236
	X ₁	1.02	.026	-.349	-1.049
	X ₂	0.039	.012	-.585	0.266
	X ₃	0.24	.5	-.017	-.061
	X ₄	1.008	.006	.568	1.349
	X ₅	0.876	0.127	0.035	0.457

Source: Researchers' computation

The determinants of a firm competitiveness from the green supply chain practices were investigated from the results of the respondents. From Table 4.4 above, the established multiple linear regression equation becomes:

$$Y = 1.887 + 1.02X_1 + 0.039X_2 + 0.24X_3 + 1.008X_4 + 0.876X_5$$

Where;

Y = Firms competitiveness

X₁ = Environmental collaboration

X₂ = Green purchasing

X₃ = Environmental monitoring

X₄ = Green production

X₅ = Greening the outbound function

The coefficient of intercept C has a value (1.887) and is significant with a p-value of 1.236 at the 95% significance level. The environmental collaboration coefficient has a positive coefficient of 1.02 and is also significant at the 5% level of significance with a p-value of 1.049. Indeed the coefficient of all the independent variables are positive at $\alpha = 5\%$, and implies that the increase in the independent variables results in an increase in the banks degree of competitiveness. However, the least significant independent variable that is found to lead to competitiveness is the green purchasing with a coefficient of 0.039 and a p-value of 0.266. Adoption of the green production in a banks service delivery process was found also to be critical with a coefficient of 1.004 and a p-value of 1.349. In addition, from the coefficients, it can be deduced that the most critical factor which

affects an organizations supply chain performance is the increased service quality that results from outsourcing of services.

Table 4.5 below shows a model summary for the regression. The R^2 , also called the coefficient of multiple determinations, is the percentage of the variance in the dependent variable explained uniquely or jointly by the independent variables and is 52.7 %. This means that 52.7 % of the changes in the firm’s competitiveness is explained by the changes in the independent variables in the model. The remaining 47.3% of the changes in the Y is explained by other factors not in the model. The C is the constant, where the regression line intercepts the y axis, representing the amount the dependent y will be when all the independent variables are 0. Here C is 1.887; the probability of the coefficient is significant. The F statistic is used to test the significance of R. Overall; the model is significant as F-statistics is 49.4.

From the above it can be concluded that competitiveness in commercial banks in Kenya has a relationship with the green supply chain management practiced by the Banks. Green supply chain management practices have significantly improved the performance of commercial banks in Kenya.

Table 4.5: Model Summary for the Regression

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate	F -statistic
1	.726	.527	.439		.2296886	49.4

Source: researchers’ computation

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

The study found out that Kenyan banks are practicing several forms of green supply chain in order to gain competitiveness in their operations. Different banks adopt different green supply chain practices depending on the activities that they are engaged in and also which green supply chain practice will yield better competitiveness to the bank. These banks set up their processes based on knowledge of existing environmental collaboration, environmental monitoring, purchasing and in-bound logistics, need of greening the production phase and also the need for greening the outbound function and reverse logistics functions. At the same time, it was found out that organizational green supply chain environmental sustainability must first be adopted as a strategic objective of the firm. This requires that top-level management work to incorporate environmental sustainability as a key part of the organization's mission statement and that the necessity to develop processes and deliver products and services that are environmentally friendly be communicated throughout all levels of the organization.

In the majority of the banks, green supply chain management forms part of the company's long-term strategy to gain competitive advantage over its competitors and thus the activity is seen as a unique capability that adds value to the product. The green supply chain practices employed by the banks are integrated and coordinated and included in process such as purchasing, marketing, information systems and in the banks operation will cover environmental collaboration, monitoring and greening of the production phase. It was also found out that with competition at the supply chain level and a focus on the

changing demands of final consumers, it is necessary for a bank to identify and adopt practices that yield competitiveness.

The competitiveness to the bank was found to arise in different forms and include reduction in the operating cost borne by the bank, increase in the customer loyalty which in most cases will led to the increase in the banks customer base and market share. The study also found out that with the bank initiating green supply chain practices in its operation, the bank profitability was found to increase due to the favourable customer perspective on the organization. Further, it was found out that adoption of green supply chain by the bank will lead to improved corporate image of the organization with all other stakeholders, promote longer term inter-firm relationship, increased sales, improved customer satisfaction, improved management of threats from competitors, improved stock performance, sharing of information with suppliers has enhanced operational efficiency with customers, and sustainable production and consumption of products. The practice in a bank will be affected by the capacity of the bank to initiate a returns process, collaboration with suppliers and customers, selecting disposition procedure, analyzing the performance of the reverse supply chain process and crediting the customer process for adopting the process.

5.2 Conclusions

The potential benefits for integrating green supply chains in the operations of a firm are compelling to any organization in the present day competitive environment. The globalised nature of the businesses requires that organization management understand the increasing influence of consumers and lobby groups on matters of environmental conservation. There is need therefore for organizations to incorporate greening process in

its operations be it a service or manufacturing organizations in order to gain in the competitiveness that results. Cooperation with customers directly impacts environmental performance but does not directly impact economic performance. Instead, cooperation with customers indirectly impacts economic performance through environmental performance. Of the four green constructs linked to environmental performance, cooperation has the largest impact followed by investment recovery and eco-design. The study revealed that internal environment management, investment recovery and green distribution emerged the major, GSCM practices being considered currently and being adapted to some degree by banks in Kenya. This result indicates that the adoption of GSCM practices had a positive relationship with the environmental performance of banks.

From the findings of the study, it can also be concluded that the organizational competitiveness is no longer be found on the products and services an organization is offering alone but instead it is those inimitable characteristics of a firm such as policies and green supply chain practices that will differentiate and give an organization the required competitiveness. The benefits accruing to the companies as a result of the adoption of green supply chain have been found to include competitive advantage, reduction in operational cost and also increasing the customer loyalty and customer base. They should however be wary of the challenges which inhibit them from obtaining economies of scale and significantly reduces the economic value from the adoption of the green supply chain concepts.

5.3 Recommendations

The study found out that not all banks practice green supply chain and at the same time those which practice it have not embraced it fully due to the initial cost incurred in setting up the green supply chain concept. It is therefore recommended that the companies should consider adopting green supply chain fully as the potential benefits to be realized are enormous compared to the initial and operational cost of implementing the practice. The government has a role to play in ensuring successful implementation of the green supply chain in organizations by coming up with appropriate measures that will encourage the banks and other organization to adopt the green supply chain practice.

The realization of the green supply chain can only be possible with the consumers having sufficient knowledge about it and it is recommended that public awareness of product recovery activities be undertaken by the companies and also awareness of the benefits. At the same time legislative regulations should be enacted urgently if reverse supply chain management is to be fully and successfully implemented by all the firms.

5.4 Recommendations for Further Research

The results of this study can be further utilized to suggest several directions for future research. A field study can focus on investigating what consumers' demand and whether there is any preference in consumer demand of services from companies that practice green supply chain in comparison to the other organizations that do not practice the same.

In addition, managers need to develop GSCM knowledge and skills in addition to the knowledge and skills necessary to manage at the organizational level. Managers must now focus on improving the supply chain in order to improve organizational performance. They need to understand the importance that organizations adopting GSCM

strategies achieve and work to improve the processes that extend throughout the supply chain

REFERENCES

- Achieng S.O (2011) "Information Integration on supply chain management in the food processing firms in Kenya". Unpublished MBA Project, University of Nairobi.
- Baumol, W., and McLennan, K. 1985. *Productivity Growth and U.S. Competitiveness* (New York, Oxford University Press).
- Bowen, F.E., Cousins, P.D., Lamming, R.C., Faruk, A.C. (2001), "Horses for courses: explaining the gap between the theory and practice of green supply", *Greener Management International Autumn*, pp.41-60.
- Bruce, N. 1992. "The Cost of Capital and Competitive Advantage." In T. Courchene and D. Purvis, eds. *Productivity, Growth and Canada's International Competitiveness* (Kingston, The John Deutsch Institute for the Study of Economic Policy, Queen's University) pp. 77– 117.
- Buckley, P., Pass, C., and Prescott, K. (1988). Measures of international competitiveness: a critical survey. *Journal of Marketing Management*, vol 4, 175-200
- Chau, C.K., Tse, M.S., Chung, K.Y. (2010), "A choice experiment to estimate the effect of green experience on preferences and willingness-to-pay for green building attributes", *Building and Environment*, Vol. 45 No.11, pp.2553-61.
- Chopra, S., Meindl, P. (2004), *Supply Chain Management: Strategy, Planning, and Operation*, 2nd ed., Pearson Prentice Hall, Upper Saddle River, NJ.
- Diabat, A., Govindan, K. (2011), "An analysis of the drivers affecting the implementation of green supply chain management", *Resources, Conservation and Recycling*, Vol. 55 No.6, pp.659-67

- Elliot, S. (2011), "Transdisciplinary perspectives on environmental sustainability: a resource base and framework for IT-enabled business transformation", *MIS Quarterly*, Vol. 35 No.1, pp.197-236.
- Geffen, C., Rothenberg, S. (2000), "Suppliers and environmental innovation: the automotive paint process", *International Journal of Operations & Production Management*, Vol. 20 No.2, pp.166-86.
- GEMI (Global Environmental Management Initiative) (2004), Forging new links: enhancing supply chain value through environmental excellence,. Available online at: www.gemi.org
- Gnoni, M.G., de Felice, F.F., Petrillo, A.A. (2011), "A multi-criteria approach for strategic evaluation of environmental sustainability in a supply chain", *International Journal of Business Insights and Transformation*, Vol. 3 No.3, pp.54-61.
- Green, K.W. Jr, Inman, R.A., Brown, G., Willis, T.H. (2008), "Market orientation: relation to structure and performance", *Journal of Business and Industrial Marketing*, Vol. 20 No.6, pp.276-84.
- Hansmann, K.W., Claudia, K. (2001), "Environmental management policies", in Sarkis, J. (Eds), *Green Manufacturing and Operations: from Design to Delivery and Back*, Greenleaf Publishing, Sheffield, pp.192-204.
- Hick, S. (2000), "Morals make the money", *Austrian CPA*, Vol. 70 pp.72-3.
- Hall, J. (2001), "Environmental supply-chain innovations", *Greener Management International*, Vol. 35 pp.105-19.

- Hall, J. (2003), "Environmental supply chain innovation", *Greening of the Supply Chain*, Greenleaf.
- Hick, S. (2000), "Morals make the money", *Austrian CPA*, Vol. 70 pp.72-3.
- Hult G.T.M.,Ketchen D.J.Jr and Slater S.F.(2005) Information processing,Knowledge development,and strategic supply chain performance, *Academy of management Journal* 47(2),pp 241-253
- Jaffe, A.B., Peterson, S., Portney, P., Stavins, R. (2005), "Environmental regulation and the competitiveness of US manufacturing: what does the evidence tell us?", *Journal of Economic Literature*, Vol. 33 No.1, pp.132-63.
- Linton, J.D., Klassen, R., Jayaraman, V. (2007), "Sustainable supply chains: an introduction", *Journal of Operations Management*, Vol. 25 No.6, pp.1075-82.
- McIntyre, K., Smith, H., Henham, A., Pretlove, J. (1998), "Environmental performance indicators for integrated supply chains: the case of Xerox Ltd", *Supply Chain Management: An International Journal*, Vol. 3 No.3, pp.149-56.
- Min, H., Galle, W.P. (2001), "Green purchasing strategies: trends and implications", *International Journal of Purchasing and Materials Management*, Vol. 33 No.3, pp.10-17.
- Murage J.M (2011) "Green supply chain initiatives and challenges by manufacturing firms in Kenya". Unpublished MBA Project, University of Nairobi.
- Obiso E.I (2011) "A Survey of Green supply chain management practices in the petroleum marketing firms in Kenya". Unpublished MBA Project, University of Nairobi.

- Preuss, L. (2002), "Rhetoric and reality of corporate greening: a view from the supply chain management function", *Business Strategy and the Environment*, Vol. 14 No.2, pp.123-39.
- Rao, P.(2002), Greening of the supply chain: a new initiative in South East Asia. Int. *Journal of Operation Production Management*.,22, 632–655.
- Rao, P., Holt, D. (2005), "Do green supply chains lead to competitiveness and economic performance?", *International Journal of Operations & Production Management*, Vol. 25 No.9 and 10, pp.898-916.
- Sarkis, J. and Cordeiro, J.J. (2001), An empirical evaluation of environmental efficiencies and firm performance: pollution prevention versus end-of-pipe practice. *European Journal of Operations Research*, 135, 102–113.
- Sen, S. (2009), “Linking green supply chain management and shareholder value creation”, *The IUP Journal of Supply Chain Management*, Vol. 7 No. 3 and 4, pp. 95-109.
- Shultz, C.J. II, Holbrook, M.B. (2009), "Marketing and tragedy of the commons: a synthesis, commentary and analysis for action", *Journal of Public Policy and Marketing*, Vol. 18 No.2, pp.218-29.
- Snir, E.M. (2001) *Liability as a catalyst for product stewardship*. *Production Operation Management* 10, 190–206.
- Stalk, George, P. Evans, and L. E. Shulman . “Competing on Capabilities: The New Rules of Corporate Strategy.”*Harvard Business Review*, March–April 1992, pp. 57–69.

- Vaccaro, A., Echeverri, D.P. (2010), "Corporate transparency and green management", *Journal of Business Ethics*, Vol. 95 No.3, pp.487-506
- Vachon, S. (2007), "Green supply chain practices and the selection of environmental technologies", *International Journal of Production Research*, Vol. 45 No.18 and 19, pp.4357-79.
- Vachon, S., Klassen, R. (2007), "Supply chain management and environmental technologies: the role of integration", *International Journal of Production Research*, Vol. 45 No.2, pp.401-23.
- Vasileiou, K., Morris, J. (2006), "The sustainability of the supply chain for fresh potatoes in Britain", *Supply Chain Management: An International Journal*, Vol. 11 No.4, pp.317-27.
- Wells, P. and Seitz, M. (2005), "Business models and closedloop supply chains: a typology", *Supply Chain Management: An International Journal*, Vol. 10 No. 4, pp. 249-51.
- Wu, Z., & Pagell, M. 2011. Balancing priorities: Decision-making in sustainable supply chain management. *Journal of Operations Management*, 29(6): 577-590.
- Zelbst, P., Green, K. Jr, Sower, V., Abshire, R. (2010), "Relationships among market orientation, JIT, TQM, and agility", *Industrial Management & Data Systems*, Vol. 110 No.5, pp.637-58

Zhu, Q., Sarkis, J. (2004), "Relationships between operational practices and performance among early adopters of GSCM PRACTICE in Chinese manufacturing enterprises", *Journal of Operations Management*, Vol. 22 No.3, pp.265-89

Zhu, Q., Sarkis, J., Kee-hung, L. (2008), "Confirmation of a measurement model for GSCM PRACTICE implementation", *International Journal of Production Economics*, Vol. 111 No.2, pp.261-73

Appendix 1: Cover letter

Wilson Omonge,
P.O. Box 28820 00200,
Nairobi.

August, 2012

Dear Respondent,

RE: RESEARCH QUESTIONNAIRE

This questionnaire (attached) is designed to gather information on the role of green supply chain management practices on competitiveness of commercial banks in Kenya.

This study is being carried out for a management project paper as a requirement in partial fulfillment of the Master of Business Administration, University of Nairobi

Please note that this is strictly an academic exercise towards the attainment of the above purpose. You are hereby assured that the information will be treated with the strictest confidence. Your co-operation will be highly appreciated.

Thank you for your anticipated kind response.

Yours Sincerely,

Wilson Omonge

Appendix 2: Questionnaire
RESEARCH QUESTIONNAIRE

PART A: DEMOGRAPHIC AND RESPONDENTS PROFILE

1. Name of the Respondent (optional)
2. Name of your organization.....
3. Gender: Male [] Female []
4. What is your age bracket? (Tick as applicable).
 - a) Under 20 years []
 - b) 21 – 30 years []
 - c) 31 – 40 years []
 - d) 41- 50 years []
 - e) Over 50 years []
5. Length of continuous service with the organization?
 - a) Less than two years []
 - b) 2-5 years []
 - c) 6- 10 years []
 - d) Over 10 years []
6. For how long has your organization been in existence?
 - a) Under 5 years []
 - b) 6-10 years []
 - c) 11-15 years []
 - d) Over 16 years []

PART B: GREEN SUPPLY CHAIN PRACTICES

7. As an organization do you appreciate the role of green supply chain management?

Yes ()

No ()

8. The following measures give an indication of the banks competitiveness. In a scale of 1-5 please indicate the extent of the banks competitiveness.

5) Greater extent; 4) Great extent; 3) Moderate extent; 2) Low extent; 1) Very low extent

	Competitiveness	5	4	3	2	1
1	Cost Reduction					
2	Increase in Profitability					
3	Increase in Market Share					
4	Pricing					
5	Increase in Customer base					
6	Increase in Customer loyalty					
7	Increase in Share Value					
8	Increase in Dividend Payment					

9. Please tick appropriately the extent to which your organization has been practicing the following green supply chain concepts and effect it has had on the firms competitiveness (use the scale below to tick the most appropriate response).

5) Strongly agree; 4) Agree; 3) Moderate extent; 2) Disagree; 1) Strongly disagree

	Environment Collaboration	5	4	3	2	1
1	The organization has invested in specific cooperative activities with stakeholders and thus leading to the increase in customer base					
2	The organizations collaborates with suppliers in developing safe and environmentally sustainable products and thus increasing customer loyalty					
3	The environmental collaboration has increased the banks share value and market share					
4	The result of the collaboration has led to an increase in the bank's profitability compared to when the collaboration did was not considered					
	Environmental Monitoring	5	4	3	2	1
1	Suppliers of products and services should meet customer needs and expectation which has led to increase in the customer base					
2	The attaining of ISO 14001 by the bank has increased its market share.					
3	The organization adheres to voluntary code of conduct adopted by the industry in regulating the environment that has led to increase in market share					
4	The suppliers to the organization have to show compliance with					

	particular regulations such as emissions caps, hazardous material labeling which has reduced the cost and therefore increase the profitability,					
	Purchasing and In-Bound Logistics	5	4	3	2	1
1	The organization has included GSCMP in its strategic planning process in order to reduce its operational costs					
2	The organization has integrated suppliers in the supply chain in order to improve service and thus customer base.					
3	By employing in-bound logistics the bank has been able to grow its performance.					
4	The performance of the bank has improved (Profitability, Market share, Customer base, Loyalty, Share value, Dividend)					
	Greening the Production Phase	5	4	3	2	1
1	The organization has put in place pollution prevention, control and management systems to reduce contingent costs and thus increase customer base.					
2	A roadmap for improving product design and environmental performance by working closely with its suppliers has been developed and followed by the organization leading to increase in profitability.					
3	Closed loop manufacturing has been implemented to the fullest extent possible in the organization leading to reduction in cost.					
	Greening the Outbound function and Reverse Logistics	5	4	3	2	1
1	The organization manages reverse flows of material, environment-friendly packaging and environment-friendly distribution that might					

	improve the environmental performance of the organization and its supply chain leading to reduction in operation cost.					
2	It share environmental management techniques with other firms in the industry leading in increase in customer base					
3	The bank controls environmental risk associated with suppliers operation					
4	The bank encourages efficient utilization of materials by customers leading to greater customer loyalty.					
	Linking Green Supply Chain Management Practices and E-Banking Technology.	5	4	3	2	1
1	The bank has introduced modern technology to improve banking services to its customers.					
2	E-banking technology has reduced the cost of paper usage in the organization.					
3	The number of bank customers visiting the bank has reduces leading to efficient use of resources in the organization.					

10. The statements below describe the benefits that accrue from the adoption of green supply chain practices and thus leading to organizational competitiveness. Please indicate the extent to which your organization has benefited from the following:

Key:

- 5) **Very great extent** () 4) **Great extent** () 3) **Moderate extent** ()
1) **Low extent** () 1) **Very low extent** ()

	Benefits accruing from Green Supply Chain practices	5	4	3	2	1
1	Green supply chain practices has made the company meet customer demands on environmentally safe products and thus gaining as a result an edge over competitors					
2	The GSCM practices has led to an improved financial performance					
3	The organization has been able to reduce the level of waste since it adopted the green supply chain practices.					
4	The organization has been able to produce products and services of superior quality and lower cost than its competitors.					
5	The GSCM has increased valuations of the firm as reflected by higher stock prices					
6	Organizational operational efficiency has improved due to the adoption of the green supply chain practices by the bank.					
7	The GSCM practices have improved the customer base of the bank.					
8	The collaboration necessitated by the green supply chain practices with suppliers has improved the organizations intelligence gathering process					
9	Eco-friendly products that the company uses have helped in the disposal of products in a sustainable manner.					

Appendix 3: Notable commercial banks in Kenya

1. ABC Bank (Kenya)
2. Bank of Africa
3. Bank of Baroda
4. Bank of India
5. Barclays Bank
6. CFC Stanbic Bank
7. Chase Bank (Kenya)
8. Citibank
9. Commercial Bank of Africa
10. Consolidated Bank of Kenya
11. Cooperative Bank of Kenya
12. Credit Bank
13. Development Bank of Kenya
14. Diamond Trust Bank
15. Dubai Bank Kenya
16. Ecobank
17. Equatorial Commercial Bank
18. Equity Bank
19. Family Bank
20. Fidelity Commercial Bank Limited
21. Fina Bank
22. First Community Bank
23. Giro Commercial Bank

24. Guardian Bank
25. Gulf African Bank
26. Habib Bank
27. Habib Bank AG Zurich
28. I&M Bank
29. Imperial Bank Kenya
30. Jamii Bora Bank
31. Kenya Commercial Bank
32. K-Rep Bank
33. Middle East Bank Kenya
34. National Bank of Kenya
35. NIC Bank
36. Oriental Commercial Bank
37. Paramount Universal Bank
38. Prime Bank (Kenya)
39. Standard Chartered Kenya
40. Trans National Bank Kenya
41. United Bank for Africa
42. Victoria Commercial Bank