

**EFFECT OF SUPPLY CHAIN FINANCE ON SMALL AND MEDIUM
MANUFACTURING ENTERPRISES PERFORMANCE: A CASE OF
NAIROBI COUNTY**

BY

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DECLARATION

I declare that this project is my original work and has not been submitted by another person to any institution or presented for any award of degree.

Signed: _____ Date: _____

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This project has been submitted for examination with my approval as university supervisor.

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DEDICATION

I dedicate this research project to my family for their understanding and support during my entire period of study.

ABSTRACT

Longer supply chains due to globalization have increased the pressure to make financing the supply chain more efficient. Due to increasing volatility of global markets and complexity of supply chains, small and medium enterprises face huge challenges which also include financial aspects and risks in their supply chain. However, there still is a lack of understanding of the various financial supply chain management methods and their effect on the overall organisational performance. This project involved the study of supply chain financing and its effect on Small and Medium Enterprises (SME) in the Manufacturing sector. The study evaluated financial performance indicators such as sales growth, cash flow, cost of goods sold, inventory turnover, gross margin, operating margin, net margin, return on assets and return on investments and how supply chain financing affects these financial performance indicators. This study employed a descriptive research design to obtain data for the study. The target population of the study included 410 registered manufacturing SMEs located in Nairobi County. The study used simple random sampling technique in coming up with the sample size of 41 registered manufacturing SMEs. The analysis of data was done using correlation and regression statistics with the help of SPSS 21. The study findings indicated that there is a significant relationship between sales growth, cash flow, cost of goods sold, inventory turnover, gross margin, operating margin, net margin, return on assets and return on investments and SME performance. It also established that there is a relationship between the performance of SMEs in 2011 and 2012 financial year and that, cost of goods sold and inventory turnover is influenced by planning, sourcing, making and deliverance of goods. The study recommends the need for both management and staff responsible for managing supply chain activities to be aware of the financial performance metrics so that decisions made at the operational level are tied to expected outcomes. The study indicated that supply chain financing leads to positive results in sales growth, cash flow, gross margin, operating margin, net margin, return on assets and return on investments.

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LIST OF ABBREVIATIONS

ABC/M	Activity based costing and management
COGS	Cost of goods sold
ECR	Efficient Consumer Response issue
GVC	global value chain
JIT	Just-in-time
MRP	Materials requirements planning
QR	Quick Response
ROI	Return on Investment
ROA	Return on Asset
SCF	Supply chain finance
SCM	Supply chain management
SCOR	Supply Chain Operation Reference Model
SME	Small and Medium Enterprises
TQM	Total quality management
VMI	Vendor Managed Inventory

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

According to Hatten (2008) the term SME (Small and Medium Enterprises) is used in the European Union and other international organizations to designate companies that have a limited, specified number of employees, while the United States typically uses the term "SMB" (Small to Medium Business) instead. Classification as an SME is based on the number of employees, generally between 10 and 100, depending on the country in which the business is set up (Norlaphoompipat, 2008). In Kenya, a micro-enterprise is defined as having no more than 10 employees; a small enterprise with 11-50 employees; and a medium/large enterprise with more than 50 employees, as indicated by National Micro and Small Enterprise Baseline Survey (1999).

The emergence of integrative trade and global value chains (GVCs) over the past two decades has changed the competitive landscape in international goods and services markets. Competition in many lines of businesses, particularly in the manufacturing sector, is now taking place more at a value chain level than at a company level (Aberdeen Group, 2007). This development has increased the focus of large corporations on the efficiency with which goods, information and money flow within GVCs. Factors that characterize GVCs, such as geographic dispersion and a high number of participants, make it challenging to manage these three types of flows in a coordinated fashion. This study aims at investigating role of supply chain finance on SMEs performance, Nairobi County.

1.1.1 Supply Chain Finance

Supply-chain finance (SCF) refers to the set of solutions available for financing specific goods and/or products as they move from origin to destination along the supply chain. The SCF is also called supplier finance, and mainly it is used to deal with the financial issues in supply-side value chain management. It aims at improving the financial efficiency of the supply chain and substantially reduces the working capital of both buyers and suppliers. It allows buyers to extend payment terms while providing suppliers access to better financing rates. It creates a true win-win for all the parties involved as one of the most attractive tools for companies to diversify funding sources, enrich and solidify the relationships with their trade partners. The impact of SCF on corporate performance reflects in the improved supply chain efficiency in terms of cost saving payable processes and payment term extension.

The supply chain disruptions in relations to supplier defaults can have long-term negative effects on a firm's financial performance. Hendricks and Singhal (2005) show that companies suffering decreases in 33-40% lower stock returns relative to their industry benchmarks because of supply chain glitches caused by suppliers. Furthermore, the impact of supply chain performance on financial indicators has also been revealed by *Avanzo et al.* (2003) from financial accounting points of view. The risks in the supply chain management associated with "volatility and supplier failure" had increased 54% between mid-2007 and mid-2008 (Kerle 2010). The importance of supply chain risk management is illustrated by the results of a recent survey, which reveal that 90% of firms felt threatened by supply-side risks (Snell 2010).

The introduction of SCF into SCM, i.e. financial supply chain management (Min, and Mentzer, 2004) will help companies consolidate the competition in the marketplace by means of generating real cash flow benefits. Farris and Hutchison (2002) emphasize a cash-to-cash cycle time as an important indicator in supply chain management metric. Additionally, Bhagwat and Sharma (2007) consider the total cash flow time as an element into the balance scorecard (BSC) measurement model. However the failure to relate key measures to performance drivers brings obstacles of applying BSC to track the cause-effect relationships between performance indicators and further improvement of corporate value.

1.1.2 Financial Performance

In recent recession, the importance of decreasing the costs has been highlighted more. Logistics can play an important role for decreasing costs to keep the performance high. One of the parts of performance is financial performance. The financial ratios can be used to construct the financial items (Pinches et al, 1972) of the financial performance. Financial ratios derived from income statement and balance sheet cited by Söderberg (2009) are: *Cash Flow, Growth Profit Margin, ROI, ROA, Profit Margin, Inventory turnover*. These are important terms that comes from five mostly spoken financial indicator groups of: sales growth, profitability indicators relating to income, return on assets, inventory turnover, and cash flow (Söderberg, 2009). The point is that these ratios are the most common ones, but there is not any standard for some of them due to inability to find overall accepted denominators (Lindberg, 2009).

ROI as the ratio of the net income over the total assets is one of the most important measures for business performance. ROA is the other scales for measuring performance and it is the ratio of operating income to the average of the operating assets (DeBruine and Sopariwala, 2006). Cash flow is the summation of net income, depreciation, amortization, and depletion. Inventory turnover shows how successfully the firm could sell its inventory and it is a standard to check inventory performance (Gaur et al, 2005). Cost of Goods Sold is an operational identity of the firm and gross income is the income before subtracting depreciation and maintenance costs (Kalecki, 1938). Meanwhile due to approximation depreciation, the net income is not reliable. Operating income is the income of the company due to its different activities before accounting taxes. Sales growth is an important factor for companies and it can be assessed in percent of changes in the net sales (Batt, 2002).

1.1.3 Relationship between Supply Chain finance and financial Performance

The ability of firms to succeed in competitive markets is largely a function of their internal capabilities and competences. Evolutionary economics theory elaborates on the superior ability of firms to develop particular organizational *capabilities*, which consist of critical *competencies*. Within a supply chain, SMEs attempt to offer products with value that buyers perceive as exceeding the value of alternative offerings. The urge to provide superior buyer value drives manufacturing SMEs to create and maintain a business culture that fosters the requisite business behaviors (D'Avanzo et al, 2003).

Nowadays, companies should use their resources and equipments effectively and productively in case they want to be successful in competitive globalized economy. Measuring the performance can support their competitiveness. There are lots of studies that show the importance of supply chain management in financial performance measurement. Kazan et al (2006) used a multiple regression analysis method to reveal the effect of quality and “cost and flexibility”, as two main indicators of manufacturing strategies, on financial performance. Skrinjar et al (2008) proved that business process orientation leads to better non-financial performance and indirectly to better financial performance. They believed that building appropriate relations with stakeholders like employees, customer and suppliers can result in increasing the stakeholder wealth. They divided organizational performance into two separate parts of financial performance (FP) and non-financial performance (NFP). While measuring ROA and value added per employee are considered as two conceptual items of financial performance, relationship with supplier, net fluctuation with employees, customer complaints number, and some other factors are defined as non-financial items. Improved efficiency and customer satisfaction are parts of TQM and operating income, net sales, revenues, cash flow and the others will comprise the financial performance. An empirical reexamination of the link between TQM and financial performance was done by Stewart (1997).

There is a link between supply chain and financial performance (D’Avanzo et al, 2003). They showed empirically that supply chain excellence through implementing sophisticated supply chain plans will result in supply chain excellence and this improvement define in terms of financial performance.

They could demonstrate that these improvements in supply chain management will result in shareholder equity in terms of inventory turnover, cost of goods sold, return on assets. They revealed that competitive advantage of the companies derived from supply chain management. Hence integrated models of supply chains that incorporate internationally accepted business processes are demanded by companies to improve their performance. These models have to have the ability to deal with customer side, supplier side, new product development, and also logistics activities (D'Avanzo et al, 2003). Hence models like supply chain maturity model can be defined as the examples of world class integrated models that can improve the financial performance of the company. This theory shows how the link between the supply chain improvement programs (in here supply chain maturity) can improve the financial ratios like: ROA, Revenue, COGS, ROA.

There are also some other literatures that demonstrated the SCOR processes impact on financial performance. Huan and Sheoran (2004) showed this impression by focusing on market analysis, as an indicator of cost efficiency. Customer buying behavior is conceptual part of market analysis for change management in industries. Hence an intimate relation with customer and designing a supply chain tailor to transfer profit to each customer portion. Market analysis is considered as a main input to the future strategy decision of the SCOR model and weighed up in value-added customer productivity (Huan and Sheoran (2004). Furthermore, total logistic management cost and warranty cost are other criterions that they are analyzed and measured in SCOR model precisely (Huan and Sheoran 2004).

1.1.4 Small and Medium Enterprises in Nairobi County

SMEs play a crucial role in market especially during recession of market and when domestic growth is limited (Lages and Montgomery, 2004). There is not a widespread accepted definition for SMEs around the world, instead some considered number of employees (Lages and Montgomery, 2004); the other group considered deficiency of financial resources against large enterprises (Goldberg and Jonsson, 2009).

SMEs are not subsidiaries, they are independent firms, but the number of employees will not follow a common and certain rule around the world. Instead every country defined its classification for number of employees for SME. Based on EU definition SMEs have less than 250 employees, US classification consider less than 500 employees while some countries set limits for 200 employees while the rest have not any clear definition for number of employees in their SMEs (Organisation for Economic Co-operation and Development, 2009). In addition thesis written on Swedish SMEs usually consider less than 500 (Petrovski and Yinjie, 2009). But the European commission definition is also important where they say SMEs are enterprises with less than 250 employees, turnover less than 50 million Euros and annual balance sheet fewer than 43 million Euros (European Commission Enterprise and Industry, 2009). Hence in this work the higher acceptance EU definition will be adopted.

Since the 1960s to date, small and medium sized enterprises (SMEs) have been given due recognitions especially in the developing nations for playing very important roles towards fostering accelerated economic growth, development and stability within several economies.

They make-up the largest proportion of businesses all over the world and play tremendous roles in employment generation, provision of goods and services, creating a better standard of living, as well as immensely contributing to the gross domestic products (GDPs) of many countries (OECD, 2000). Over the last few decades, the contributions of the SMEs sector, the development of the largest economies in the world have shown the spotlight on the uniqueness of the SMEs, succeeding in overruling previously held views that SMEs were only “miniature versions” of larger companies.

1.2 Research Problem

Longer supply chains due to globalization have increased the pressure to make financing the supply chain more efficient. Due to increasing volatility of global markets and complexity of supply chains, companies face huge challenges. These challenges also include financial aspects and risks in their supply chain. The financial crisis has revealed structural weaknesses. To increase the supply chain stability and to reduce the overall costs, buyers having good credit ratings are increasingly interested in improving their financial supply chain. Financial Supply Chain Management (FSCM) includes a set of approaches (Supply Chain Financing or Natural Hedging) that should help to optimize the financial supply chain setup regarding liquidity and financial risks in order to gain competitive advantages. FSCM is an emerging field in practice and research and its potential is undisputed. However, there still is a lack of understanding of the various FSCM methods and their impact on the overall benefit, especially regarding organisational performance.

Thus, the overall goal of this research project is to explore the impact of the SCF program and the effects of development on short term organisational performance.

In Kenya, many SMEs continue to struggle with the challenge on their survival due to stiff competition in the market, standard quality of goods and services and lack of access to capital for their expansion which contributes to their failures. This results to large companies to enjoy this disadvantage of the SMEs by emphasizing on effective supply chain finance. Local studies have been done on SMEs in Kenya. Nyambura (1992) carried out an investigation into the characteristics of small scale manufacturing enterprises of Gikomba market. The study found that access to business information service, such as access to information on customer service, business expansion and diversification and technology and providing access to linkages affected the growth of SMEs and thus recommended that there should be increased support for learning visits to improve the information flow from business associations and for attendance at trade fairs and business exhibitions. Nkungi (2008) in his study on contribution of SMEs to economic growth in Kenya found that SMEs have pioneered quality services and delivery of good which have challenged the large companies. It is expected that with the presence of rapid growth of SMEs and their competition strategies adopted such as procurement practices, such businesses would be assured of survival, yet no study has have been done on role of supply chain finance. It is against this background that the researcher aimed at filling the existing academic gap by investigating role of supply chain finance on the performance of Manufacturing SMEs in Nairobi County.

1.3 Objectives of the Study

The objective of this study was to investigate the effect of supply chain finance on financial performance of Manufacturing SMEs in Nairobi County.

1.4 Value of the Study

1.4.1 Small and Medium Enterprises Sector

The findings of this study will be of great significance to SMEs sector. By using analyzed results, entrepreneurs in the sector would be in a better position to understand role of supply chain finance on SMEs performance and be conversant with best solutions in regards to business growth and sustainable profitability. Additionally, since the study draws attention to the role of supply chain finance on SMEs performance, the study provides use of adaptive and creative strategies which would be consistent with current economic and competitive environmental realities. The institution through various stakeholders would facilitate development of operational policies that will ensure rapid growth of the sectors hence immense contribution to the economy.

1.4.2 Financial Institutions

Financial institutions would be able to understand the impact of supply chain finance on SMEs performance. Thus they would be in a position to make sound decisions on the competitive strategies they can deploy to capture a bigger market share. Studying supply chains finance provides an insight and foundation for the design of policies and institutional arrangements that lower operation costs with aim of increasing profitability.

1.4.3 Scholars and Researchers

Like any other research the findings would be used as a reference as far as further studies are concerned and spark off further research in supply chain finance and its relation to organization performance. The researcher would be able to understand how supply chain finance impact to organization performance and how effective an institution they can be in practicing supply chain finance.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This section presents literature reviewed on the relationship between supply chain finance and financial performance of SMEs. The first section gives an overview of supply chain theory and supply chain management theory. The second section extensively discussed the measures of supply chain finance and financial performance, while the final section presents empirical review on the study area.

2.2 Theoretical Framework

This study is based on sustainable supply chain theory and supply chain management theory.

2.2.1 Sustainable Supply Chain Theory

In their publication “A framework of sustainable supply chain management: moving towards new theory,” Carter and Rogers (2008) defined SSC management “as the strategic, transparent integration and achievement of an organization’s social, environmental, and economic goals in the systemic coordination of key inter-organizational business processes for improving the long-term economic performance of the individual company and its supply chains.” The authors delineated a total of five propositions addressing the links between the three components of SCM.

The authors predicted that “firms that strategically undertake SSC management strategies will achieve higher economic performance than firms that pursue only one or two of the three components of the triple bottom line.” They supported this hypothesis on the fact that supply chains which integrate social and environmental resources and knowledge may be more difficult to imitate and therefore, they have a competitive advantage. Although their framework remained quite theoretical, it broke new ground with regards to the conceptualization of the three components of SSCs.

2.2.2 Supply Chain Management Theory

In his October 2004 article “The triple-A supply chain,” Stanford University’s Hau L. Lee described the attributes a top-performing supply chain must have—agility, adaptability, and alignment and how to recognize and develop them. Lee challenged the up to then common understanding that the drivers of supply chains should be high speed and low cost. He maintained that although these are necessary conditions, they aren’t sufficient to give companies a sustainable competitive advantage over competitors. Based on observations of supply chain leading companies such as Walmart, Amazon and Dell Computer, he concluded that the supply chains of top performers are simultaneously agile, adaptable and agile. The methods described by Lee to accomplish each of these traits constitute useful guidelines to be extrapolated to the SSCF framework:

Agile supply chains are those that respond to short-term changes in demand or supply quickly.

Two of the methods identified by Lee are particularly relevant for the SSCF framework: i) continuously provide supply chain partners with data on changes in supply and demand so that they can respond promptly; and ii) collaborate with suppliers and customers to redesign processes, components and products in ways that provide a head start over competitors.

Adaptable supply chains are those that adjust design to accommodate market changes. Two of the methods are pertinent for this framework: i) track economic changes, especially in developing countries; and ii) use intermediaries to find reliable vendors in unfamiliar parts of the world.

Aligned supply chains are those that align incentives for partners to improve performance of the entire chain. Lee mentions four significant methods to achieve the alignment goal: i) provide all partners with equal access to forecast, sales data and plans; ii) clarify partners' roles and responsibilities to avoid conflict; iii) redefine partnership terms to share risks, costs and rewards for improving supply chain performance; and iv) align incentives so that players maximize overall chain performance while also maximizing their returns from the partnership. With regards to alignment, Lee particularly mentions the role that FIs can play in vendor (supplier) managed inventory, for example by buying components from suppliers at hubs and selling them to manufacturers. He explains how every party benefits given that the intermediaries' financing costs are lower than the vendors'. Lee points out that this technique requires trust and commitment from all parties involved. (Lee 2004)

2.3 Measures of supply chain finance

Conventional organizations choose internal financing resources to finance the supply chain and the related business processes. Yet, retained earnings, depreciation, redistribution of capital from the balance sheet of a company do not have cash payments associated. Accounting earnings can present the economic value added in the firm but not the direct cash that are ready to be spent (Burgess, Singh and Koroglu, 2006). Many academic researchers have described the differences between financial chain and physical chain in terms of inventory, process and cash management. Yet, the measures on the cost of capital regarding the impact of SCM solutions have not been explicitly considered, because the financed assets as well as the cost of financing are not normally concerned on the bases of supply chain activities.

As a consequence new tasks at the intersection of finance and logistics/SCM open new business areas for banks as well as financial and logistics service providers (Hong and Jeong, 2006). The new concept about the integration of financial, information and physical flows brings supply chain managers new thoughts to concern the importance of the financial side of business activities. In turn, it gives the new challenges to supply chain executives of speaking the financial languages to communicate on board and in the mean while to build up cross-functional competences. The new trend of inter-organizational interactions and cross-functional relationships provides new opportunities for the development of supply chain efficiency and financial performance (Carter, Pearson, and Peng, 1997).

Collaborations between the financial side and the operating side need an encompassing approach. It should not be an isolated concept but rather as an aspect of a more integrated system or program to map the gaps between SCM operating performance and financial performance (Chakravarthy, 1986). The physical supply chain uses analysis and planning tools to meet and predict future demand as well as international logistics; the financial supply chain incorporates external financial service providers to jointly create value through means of planning, steering, and controlling the flows of financial resources. The SCF program aligns the operational flows with the financial flows (Tan, Kannan and Handfield, 1998).

Reducing the financing costs and optimizing cash flows in the supply chain can be seen as the main functions of the SCF program. It is orientated to motivate supply chain development, risk adjustment and value creation through improved operational performances with respect to the reconfiguration of financial resources (Thompson, 1993). The levers of the SCF program are volume, duration and cost of money.

Benchmark financial indicators using supply chain operations reference (SCOR) model can help supply chain managers to visualize the link between operational performance and the financial statement (Huin, Luong and Abhary, 2002). Nowadays, the supply chain management expands to a scope beyond the operational level of management. The task of SCF is to save the capital cost by means of integrated relationships of partners and advanced financing activities in supply chains. Applying this financial aspect to finance the supply chain gives us a new knowledge on the level of management - financial supply chain management (FSCM).

The financial supply chain management is a specific set of solutions and services to expedite the flows of financial resources and information between trading partners (Min, and Mentzer, 2004). The development of e-invoicing-paper-free transferring process of payment and the supplementary corporation with third-party financial institutions result in a simplified integrating supply chain procedure.

York and Miree (2004) has conducted an empirical study on the impact of SCF on short-term corporate performance. KPIs for both supply chains and financial flows are applied to present corporate performances. He concludes the implementation of the SCF program is mostly used to solve short-term cash flow issues and to reduce operating costs. In the summary, inventory turnover, return on sales and return on equity have been increased at certain significant levels. In addition, the reduced cost of goods sold can increase profitability significantly. The selection of the analytical variables in Wang's paper relies on experience, so it is a kind of empirical analysis on common corporate valuation indicators and ratios by a consideration of SCF application. The introduction of the SCF program contributes financial services to business processes that relate to financial issues in supply chains. The collaborations are based on committing to share the resources, capabilities, information and risks on a contractual basis. Stronger/larger participants are orientated to concentrate on the process optimization and visibility between trading partners; smaller/weaker participants are expected to provide sufficient financial and operating information.

Generally, the large participants who initiate the SCF program are intended to increase the economic value added through payment term extension, and the small participants who join the SCF program are going to enhance the liquidity through financing costs reduction. The improved corporate performance can be observed from profitability, cash flows and credit ratings.

Changing suppliers is risky but essential and beneficial for the supply chain under certain circumstances. However, sometimes many supply chains rely on a set of specialized suppliers who are not easy to be replaced, and in the meanwhile it takes long time to build up the new mutual trust supplier-buyer relationships in a short time. Therefore, financing the supply chain is the most effective time-saving strategy. Additionally, the application of open account rather than letter of credit (LC) in international trade condenses the transaction costs in terms of charge fees from banks and increases the cash flow speed in terms of a simplified payment process. By the means of letter of credit, a vendor/supplier has to prepare all the required documentation and then claim the payment from the bank with certain LC costs.

SCM practices implemented in SMEs will influence SCM-related financial performance both directly and also indirectly through operational performance. A detailed description of the SCM practices construct along with both operational and SCM-related organizational performance constructs is provided in the following subsections. Based on the extant literature, the proposed relationships among SCM practices, operational performance and SCM-related financial performance of SMEs are discussed.

2.3.1 Supply Chain Management practices

SCM practices involve a set of activities undertaken in an organization to promote effective management of its supply chain. The literature is replete on the dimensions of SCM practices from variety of perspectives. In a more recent study, Li et al. (2005) attempted to develop and validate a measurement instrument for SCM practices. Their instrument has six empirically validated and reliable dimensions which include strategic supplier partnership, customer relationship, information sharing, information quality, internal lean practices and postponement. Strategic supplier partnership represents the long-term relationship between the organization and suppliers.

Customer relationship covers the practices on complaint handling, customer satisfaction, and long-term relationship establishment. Information sharing means the information communicated between partners where the accuracy, adequacy, and timeliness refer to the quality of information. Lean practices are represented by the elimination of waste, low inventory, small lot sizes and JIT delivery. Postponement is the delayed differentiation of products on the supply chain.

2.3.2 Operational performance

A central objective of effective SCM is to create a major source of competitive advantage for the enterprise to differentiate itself in the eyes of the customers from its competitors by operating at a lower cost and hence at a greater profit (Christopher,1992).

Recently, Gunasekaran et al. (2004) developed a framework for SCM performance measures and metrics listed for supply chain process (plan, source, make and deliver) and level of management (strategic, tactical and operational levels).

The empirical literature provides various dimensions of operational performance which may also be applicable to SME context. The measures of the operational performance construct used in this study are flexibility, reduced lead time in production, forecasting, resource planning, cost saving and reduced inventory level. These measures are identified in the following paragraphs.

Flexibility: SCM practices may enhance a firm's flexibility, which could be defined as the firm's ability to adapt to the changes in its business environment. The adaptation of the "many suppliers" practice could increase flexibility generating alternative sourcing for procurement by reducing supply chain risks. Building long-term partnership relations with suppliers and customers also helps to improve the flexibility of the supply chain by creating a mutual understanding among the members (Chang et al., 2005). Holding safety stock and sub-contracting could dampen down supply and demand chains uncertainties through delivering from inventory and/or purchasing sub-contracted resources. Outsourcing and 3PL are two of the frequently used SCM practices by firms to provide flexibility to internal capacity to ring fence their resources for the core activities.

Reduced lead time in production: E-procurement, delivery from stock, single sourcing and JIT delivery practices may help reduce delivery lead time as well as increase responsiveness, and thus provide competitive advantage to the firm.

Forecasting: Forecasting accuracy is the most important feature in the performance of supply chains. It is a joint performance of a combination of resources such as supply of material, manufacturing, production planning and customer demand prediction. Wickramatillake et al. (2006) applied the baseline forecast to consider the major milestones of a large-scale project in order to measure the performance of the supply chain with respect to meeting the delivery targets. Through closer partnerships with suppliers and customers, it is anticipated that information could be shared, and thus, fed into demand forecasts to improve the accuracy of predictions. This forecast will in turn enable the firm to deliver the order more confidently.

Resource planning and cost saving: With appropriate strategic planning, it may be anticipated that the utilization of resources will be optimized leading to cost savings. For example, reduced cycle time in production could be materialized through reducing set-up time and/or eliminating non value-added activities. With a shortened cycle time, more orders could be processed, which would then result in improved efficiency and reduced production cost per unit. In addition, the use of an e-procurement tool could also shorten order lead time and reduce ordering cost.

Reduced inventory level: JIT supply allows minimum inventory holding through supplies delivered when they are needed. This SCM practice will not only reduce inventory level, but will also free up warehouse space and untighten cash flow (Mistry, 2006). This is particularly important for SMEs which are in constant need for cash to run the business.

2.4 Measures of Financial Performance

Previous studies have measured organizational performance relying on both financial and non-financial criteria. The short-term objectives of SCM are essentially to enhance productivity and reduce inventory and lead time, while long-term objectives are to increase market share and integration of supply chain for all members of the supply chain (Li et al., 2006). Based on this discussion, the following items are adopted to measure SCM-related financial performance in this study.

Increase in sales: A competitive supply chain in the market might be characterized by efficient use of chain resources which would lead to lower product cost, better product quality, faster response and therefore eventually higher market share. Through practice of supply chain benchmarking, emerging as a leader in the industry would provide a firm with the opportunity of increased sales. If an industry leader position is still far reaching, benchmarking the supply chain performance against the best practice in the industry would provide incentives for further improvement that will eventually lead to increased sales.

More accurate costing: The use of an e-procurement tool would assist the company to provide a more accurate costing for the product and service produced. This can be achieved through real-time evaluation and the updated information in key accounts of buyers and suppliers. (Rao, 2006). Working with “few suppliers” helps reduce the number of transactions for procurement. “JIT supply” reduces the holding cost, which is hard to predict. The cost of goods and services outsourced to subcontractors and companies may be calculated more accurately than producing them in-house.

Increase in coordination between departments: Strategic planning could increase integration between various departments of an organization through information retrieval and sharing. This SCM practice helps to reduce the departmental barriers and generate an organization-wide plan. “JIT supply” and “few suppliers” practices are the consequences of JIT philosophy which traditionally relies on tight collaboration in every levels of organization. The benefits of close relationship with suppliers and customers are only realized in a well coordinated organization.

Increase in coordination with suppliers: The use of few suppliers, forming close partnerships with suppliers and practice of e-procurement could increase coordination with suppliers. The practice of using few suppliers helps to build more effective supplier relationships. Through establishing close partnerships with suppliers, product, process and technology innovations could be better achieved, e.g. joint development of a new product, joint effort in reducing purchased lead-time, cross training workforce, etc. This partnership will not only benefit the supplier and the customer, but will also improve the coordination with the suppliers due to a closer “control” of the supply chain (Helo and Szekely, 2005). With an e-procurement practice, the ordering process could be streamlined and automated. Transactions could be managed more centrally and hence it is clear that the increase in coordination with suppliers in this context is via information technology (Rahman, 2004).

Increase in coordination with customers: Increase in coordination with customers could be achieved through forming close partnerships with customers. For example, potential customer orders could be negotiated and clarified jointly (Wu et al., 2004).

This may help to reduce late design changes and/or order changes, which subsequently affect the delivery performance of the company.

2.4 Empirical Review

There are a lot of study on supply chain finance, competition capabilities and business performance. In one, Frohlich and Westbrook (2001) in their study, examined the effect of supply chain finance on performance, classified the supply chain finance in five classes (inward-, periphery-, supplier-, customer-, outward-facing) according to the integration intensity of the company towards the customer direction and the supplier direction. They examined the performance differences between these five classes. As a result, it is found that outward-facing companies which were defined as the most comprehensive finance level of supply chain, have better performance in many criterias than the other companies in other classes.

Simatupang and Sridharan (2002) propose that members of the supply chain should consider appropriate performance measures, Integrated policies, information sharing, and incentive alignment for collaboration. Narasimhan and Kim (2002) examined the effect of Supply chain finance on the relationship between diversification and a firm's competitive performance. By comparing the main and interaction effects of supply chain finance and diversification on performance, they showed that supply chain finance strategy modifies the relationship between diversification and performance.

Additionally, they argued that coordinated use of supply chain finance and diversification strategies has a significant effect on firm performance.

Rosenzweig *et al.* (2003) examined the supply chain finance's effect on the business performance in the consumer products sector in their study and also considered the competitive capabilities which affect the relationship. They reached the conclusion that supply chain finance is directly related with the business performance. The consumer products producers which have high integration density found to have better product quality, delivery reliability, process flexibility and cost leadership. Delivery reliability and cost leadership capabilities are the prominent links between the integration and performance. It is mentioned that integration affects the financial performance indicators positively through decreasing operational cost. Apart from this, no effect of integration intensity on performance indicators such as sales increase and customer satisfaction has been detected.

Vickery *et al.* (2003) examined the performance implications of an integrated supply chain strategy, with customer service performance followed by financial performance as performance constructs. The relationship of supply chain finance to financial performance was indirect, through customer service; i.e., customer service was found to fully (as opposed to partially) mediate the relationship between supply chain finance and firm performance for first tier suppliers in the automotive industry.

Kim (2006) found that supply chain finance plays a critical role for the performance improvement for the small companies while supply chain practices and competitive capabilities have much more important effect on the performance improvement in bigger companies.

Therefore it is mentioned that it is more important to focus on the supply chain finance in the early phases and it is better to focus on supply chain practices and competitive capabilities after being integrated.

Leavy (2006) emphasis that Making supply chain management a competitive advantage requires meeting two main challenges, the strategic challenge and integration challenge.

Devaraj *et al.*, (2007) examined the effects of e-business technologies on the performance, they have considered the supply chain finance is one of the factor which has an effect on this relationship. They integration with the customers and suppliers in the supply chain and this affects the performance. As a result, they found that integration with suppliers affect the cost, quality, flexibility and delivery performance in a positive way, while the integration with customers does not have an effect.

Lee *et al.* (2007), have examined the effect of integration(internally, with suppliers and customers) on the supply chain performance. Performance was handled under under two titles; cost and reliability. They have found that internal integration is basic determinant of the performance regarding the cost and integration with the suppliers is the basic determinant of reliability and overall performance.

Koh *et al.* (2007) in their study, which examined the supply chain practices' effect on SME's performance, found that supply chain practices have positive effect on operational performance and that they do not have significant effect on organisational performance related with supply chain.

Fabbe-Costes and Jahre (2007) mentions that with the evidence from the studies, it is difficult to come to a conclusion that integration clearly affects the performance, since in the studies in this field, integration and performance have been defined and measured in a different and mostly limited way.

Sezen (2008) examined the effect of supply chain design, integration and information sharing on the supply chain performance. Performance has been handled with flexibility, resource and output titles. While it is detected that none of the variables; design, integration and information sharing; have significant effect on the performance related with flexibility; only supply chain design's significant effect is detected on the performance related with the resource and output.

Özdemir (2009) found that the supply chain finance affects the product quality positively. it is mentioned that SME's which form close relationship within departments in the business and their customers will affect their competitive capabilities in a positive way and it is found that highly integration within departments in the business and the customers has positive affect on product quality.

2.5 Summary of the Literature

This study attempted to describe the catalytic role of supply chain finance in improving financial performance of SMEs in Kenya. As discussed in the introductory section of the study, SMEs continue to struggle with the challenge on their survival due to stiff competition in the market, standard quality of goods and services and lack of access to capital for their expansion which contributes to their failures.

Supply chain finance can be one of those dynamic measures that can spark growth and enable firms to break the status quo and leapfrog towards superior performance.

Thus, the study sheds light on the significance of supply chain finance in SMEs by reviewing the past and recent relevant literature that discusses the linkage between supply chain finance and financial performance. It also proposes a theoretical framework where SCF mediates the relationship between SCF practices and financial performance. SCF is quite a daunting task as it depends on certain pre-requisite conditions. Small and medium firms' propensity and ability to succeed depends upon the strategic supplier partnership, customer relationship, information sharing, information quality, internal lean practices and postponement. Entrepreneurs are largely responsible for shaping the culture of their firms by the positive SCF practices they implement in the firm.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is a general approach to studying a research topic. This chapter, therefore, explores how the research was carried out. It sets out various stages and phases that were followed in completing the study. It involves a blueprint for the collection, measurement and analysis of data. Specifically the following subsections are included; research design, population, sample, data collection, data analysis and finally reliability and validity.

3.2 Research Design

This study employed a descriptive research design. A descriptive research design attempts to describe or define a subject, often by creating a profile of a group of problems, people, or events, through the collection of data and tabulation of the frequencies on research variables or their interaction, (Cooper and Schindler, 2006). It is concerned with describing the characteristics of a particular individual, or of a group. In this case, the research problem was to investigate the role of supply chain finance on Manufacturing SMEs performance, Nairobi County. A descriptive research defines questions, people surveyed, and the method of analysis prior to beginning data collection. Thus, this approach is appropriate for this study, since the researcher intended to collect detailed information through descriptions and is useful for identifying variables and hypothetical constructs.

3.3 Population

According to KAM (2009), there were 745 registered active manufacturing SMEs in Kenya. Out of this figure, 410 were in Nairobi Metropolis. The study targeted SMEs involved in manufacturing business in Nairobi Metropolis.

3.4 Sample

The study used simple random sampling technique in coming up with the sample of the study. Simple random sampling technique was used as it minimizes sampling error as each element in the target population is accorded equal (unbiased) probability of being selected.

Using probabilistic sampling each population member had a known chance of being included in the sample. Statistically, in order for generalization to take place, a sample of at least 30 must exist (Cooper and Schindler, 2003). Moreover, larger sample minimize errors. Kotler (2001) argues that if well chosen, samples of about 10% of a population can often give good reliability.

3.5 Data Collection

The study collected secondary data for the purpose of investigating if the financial performance of prior years had an effect on the financial performance of the current year; if the maturity of supply chain processes and financial performance of prior years had an effect on current financial performance and if the maturity of supply chain has an effect on current financial performance.

Financial ratios were extracted from a Kenya company registration office database. The data includes the current year and prior years. The current year is 2012 financial ratios: sales growth, cash flow, cost of goods sold (COGS), inventory turnover, gross margin, operating margin, net margin, return on assets (ROA), and return on investments (ROI). Prior years are the years 2010 and 2011.

The following financial ratios were adapted from Söderberg (2009):

- 1) Sales growth: the difference of current year net sales and the prior year divided by net sales of the prior year.
- 2) Cash flow: cash flow related to the outstanding debts, visualize the ability to handle the outstanding debts with operation profits and it is estimated as cash flow divided by upstanding debts.
- 3) Inventory turnover: is the summation of inventory divided by net sales.
- 4) Cost of goods sold (COGS): this is the results of subtracting purchasing costs and human resource costs from net sales.
- 5) Gross margin: this is income before writing off assets divided by net sales.
Operating margin: this is the income after subtracting operating expenses from net sales and dividing by net sales.
- 6) Net margin: this is income after financial items divided by net sales.
- 7) ROA: return on assets and specifically it is the summation of income after writing off the assets and other positive financial items divided by the total assets.

- 8) ROI: return on investments, measures profitability in relation to the capital instead of the income. This is the product of income after financial items and (1-taxes) and then dividing by assets.

3.6 Reliability and Validity

3.6.1 Validity

According to Mugenda and Mugenda, (2003), validity is the accuracy and meaningfulness of inferences, based on the research results. The study used content validity to ascertain the validity of the data. Content validity draws an inference from test scores to a large domain of items similar to those on the test. Content validity is concerned with sample-population representativeness.

3.7 Data Analysis

The data analysis steps included: data cleaning to find out one or two outbound companies, then correlation analysis without outliers to find the correlated variables, and regression analysis to find the effect of supply chain process maturities and financial performance of prior years on current year financial performance. Supply Chain Operation Reference Model (SCOR) was used. The SCOR model is based on five distinct management processes: Plan, Source, Make, Deliver, and Return.

- 1) Plan – Processes that balance aggregate demand and supply to develop a course of action which best meets sourcing, production, and delivery requirements.

- 2) Source – Processes that procure goods and services to meet planned or actual demand.
- 3) Make – Processes that transform product to a finished state to meet planned or actual demand.
- 4) Deliver – Processes that provide finished goods and services to meet planned or actual demand, typically including order management, transportation management, and distribution management.
- 5) Return – Processes associated with returning or receiving returned products for any reason. These processes extend into post-delivery customer support.

The main data analysis techniques utilized are correlation and regression with the help of SPSS. Regression analysis is used here because the study wants to investigate the correlation of different variables on a single variable (Pallant, 2007). First, the correlation among variables was calculated and then in the regression analysis the R-squared was estimated to see how much the independent variables describe the dependent variable.

The study used a significance level (α) of 0.05 (95%), Degrees of freedom (df) of 5, and two-tailed test. The degree to which flexibility, reduced lead time in production, forecasting, resource planning, cost saving, reduced inventory level, increase in sales, more accurate costing, increase in coordination between departments, suppliers and customers if related to financial performance is expressed in the positive correlation coefficient (r) = 0.789, coefficient of determination (r^2) = 0.622 indicating 62% probability of the above are related to financial performance.

The computed t-value ($t=2.001$) is smaller than the critical t-value ($t=2.015$) and the p-value of 0.227 is larger than the significance level of 0.05. This then indicates that there is a significant relationship between flexibility, reduced lead time in production, forecasting, resource planning, cost saving, reduced inventory level, increase in sales, more accurate costing, increase in coordination between departments, suppliers, customers and financial performance.

CHAPTER FOUR: DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Introduction

This chapter presents the analysis of study findings of the effect of supply chain finance on financial performance of SMEs in Nairobi County based on sales growth, cash flow, cost of goods sold, inventory turnover, gross margin, operating margin, net margin, return on assets and return on investments. This chapter analyses the variables involved in the study and estimates of the model presented in the previous chapter.

4.2 Data Presentation

4.2.1 Response Rate

The response rate of the respondents who participated in the survey is as shown in table 4.1 below. Out of the 47 SME manufacturing firms, data was collected from 35 firms representing 74.4% of the total SME firms in the sample, while data could not be collected from 12 SME firms representing 25.6% of the total firms in the sample. It can be inferred that the response rate was good. According to Mugenda and Mugenda (2003) states that a response rate of 70% and over is excellent for analysis and reporting on the opinion of the entire population.

Table 4.1: Response Rate

Response	Frequency	Percentage
Firms that responded	35	74.4%
Firms that did not respond	12	25.6%
Total	47	100

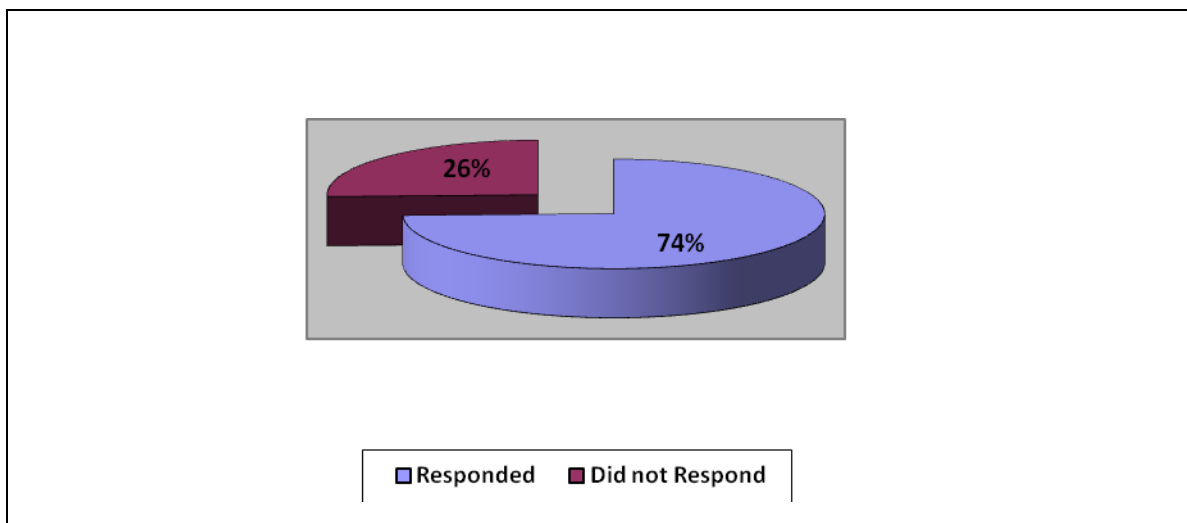


Figure 4.1: Response Rate

4.2.2 Firm Details

4.2.2.1 Category of the Firm

Table 4.2 below indicated the sizes of the firms that responded. 51.4% of the firms were in small scale category, while 48.6% were in the medium size category. The results indicate a relatively fairly even response across the two categories of the study.

Table 4.2: Frequency Distribution of category of firm

Firm Categories	Category of the Firm	
	F	%
Small	18	51.4
Medium	17	48.6

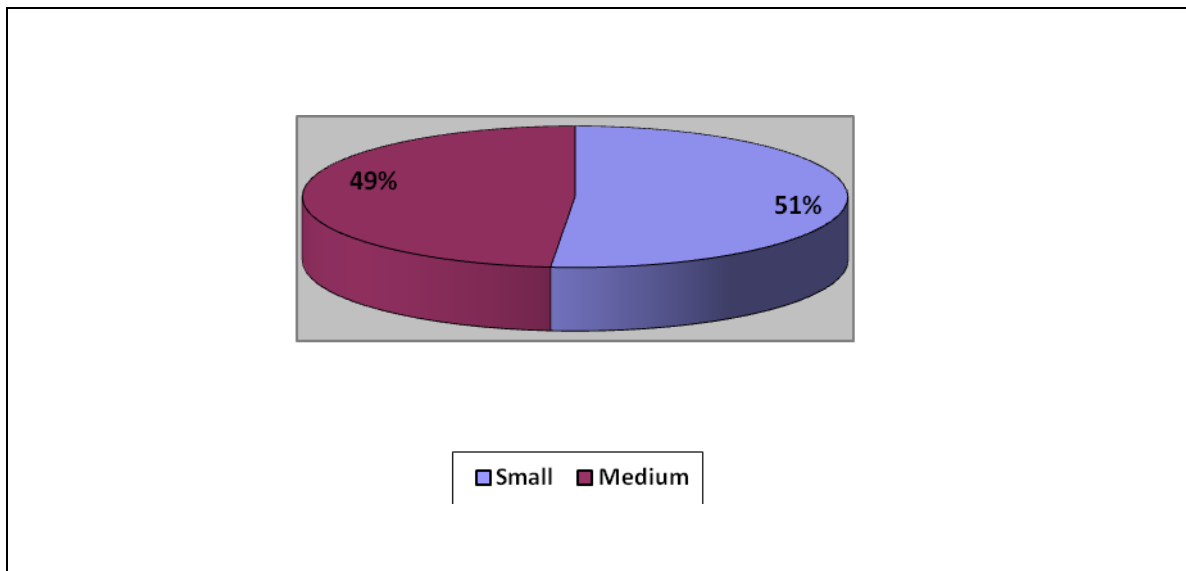


Figure 4.2 Firm Size

4.2.2.2 Years in Business

Results (Table 4.3) of the study indicate that 45.7% of the firms have been in business for a period ranging between 1-4 years, 28.6% have been in business for a period between 5-9 years, while 25.7% of the firms have been in business for a period of between 10 and above years. This shows that the study covered businesses which have been in business for a varied period of time.

Table 4.3: Frequency Distribution of Firms' Years in Business

Years in Business	Years in Business	
	(n = 35;%=100)	
	F	%
1-4 Yrs	16	45.7
5-9 yrs	10	28.6
10 and Over	9	25.7

4.2.3 SME Performance

4.2.3.1 Measures of SME Performance

The study examines whether the coefficients on flexibility, reduced lead time in production, forecasting, resource planning, cost saving, reduced inventory level, increase in sales, more accurate costing, increase in coordination between departments: suppliers and customers is different from 0 so that these measures have a relationship with financial performance or if alternatively any apparent differences from 0 is just due to random chance.

The study used a significance level (alpha) of 0.05 (95%), Degrees of freedom (df) of 5, and two-tailed test.

The degree to which flexibility, reduced lead time in production, forecasting, resource planning, cost saving, reduced inventory level, increase in sales, more accurate costing, increase in coordination between departments, suppliers and customers if related to financial performance is expressed in the positive correlation coefficient (r) = 0.789, coefficient of determination (r^2) = 0.622 indicating 62% probability of the above are related to financial performance.

The computed t-value ($t=2.001$) is smaller than the critical t-value ($t=2.015$) and the p-value of 0.227 is larger than the significance level of 0.05. This then indicates that there is a significant relationship between flexibility, reduced lead time in production, forecasting, resource planning, cost saving, reduced inventory level, increase in sales, more accurate costing, increase in coordination between departments, suppliers, customers and financial performance.

This is illustrated in table 4.4 below and appendix I.

Table: 4.4: Regression Model

Model	R	R Square	df	P-Value	Sig.
1	0.789 ^a	0.622	5	0.227 ^a	0.039 ^a

a. Dependent Variable: SME Performance

4.2.4 Effect of Supply Chain Finance on SME Performance

4.2.4.1.1 Growth of Sales

Appendix II indicates that majority (17.1%) of SMEs had sales growth of between 100,000-1,000,000 Kenya Shillings in financial years 2011/2012, while (5.7%) of the SMEs had sales growth of 10,000,000 and above and the rest were between the above sales growth categories. This shows that at least all the SMEs realised some growth depending on their sizes and financial deployment in the supply chain.

4.2.4.1.2 Percentage of Sales Growth

Results of the study indicated that (14) of the SMEs realised sales growth of between 1-10% in 2011/2012 financial years, (9) realised sales growth of between 10-20%, (6) achieved sales growth of 30-40% (4) firms, realised 50-60% , while (3) and (1) realise sales growth of 70-80% and 90-100% respectively. From the study it can be inferred that majority of the SMEs were in the lower category of growth percentage with fewer in the highest category.

4.2.4.1.3 Relationship between Sales Growth and SME Performance

Results on table 4.5 and 4.6 below the correlations between SMEs performance and sales growth, while holding the correlation coefficient (r) value at between plus and minus one (-1.00 and +1.0).

The study used the significance level of $\alpha = .05$. (95%), Degrees of freedom (df) of 7, and two-tailed test. Based on the study, correlation coefficient (r) was .833 and the coefficient of determination (r^2) was .693 indicating that 69% of the SMEs performance is influenced by sales growth.

Since the correlation of .693 is positive it can be concluded that the correlation is statistically significant, hence there is a positive relationship between SME performance and sales growth.

Table: 4.5 Frequency Distribution of the Rate of sales Growth

Growth Rate (2011/2012)		
(n = 35; %=100)		
Rate of Growth (%)	f	%
1-10	14	40.0
10-20	9	25.7
30-40	6	17.1
50-60	4	11.2
70-80	3	8.6
90-100	1	5.7

Table 4.6 Correlation Model

Model	R	R Square	df	Sig
1	.833 ^a	.693	7	.028

b. Dependent Variable: Supply Chain Finance

4.2.4.2 Cash Flow

4.2.4.2.2 Rate of increase of Firms' Cash Flow

Appendix III indicates the results of the study which show that (4) of the SMEs had constant and negative cash flow of between -1-0% in 2011/2012 financial years, (11) had cash flow of between 1-10%, (9) realised a cash flow of 10-20%, (5) SMEs, had 30-40% , (3) firms had 50-60%; while (2) and (1) had 70-80% and 90-100% respectively. From the study it can be inferred that majority of the SMEs realised an improvement in their cash flows.

4.2.4.2.1 SME Cash flow

Appendix III shows that the study majority (8=17.1%) of SMEs had a cash flow of between 500,000-1,500,000 Kenya Shillings in financial years 2011/2012, while (1=2.9%) of the SMEs had a cash flow of Kenya shillings of 21,000,000 and above while the rest of the firms were between 1,600,000-2,700,000 and 10,100,000-20,000,000.

It can be inferred that the level of financial deployment in the supply chain influence the cash flow level in most of the SMEs.

4.2.4.2.3 Relationship between Firms Cash flow and SMEs Performance

Table 4.7 shows the correlations between firms cash flow and SME Performance, while holding the correlation coefficient (r) value at between plus and minus one (-1.00 and +1.0). The study used the significance level of alpha = .05. (95%), Degrees of freedom (df) of 6, and two-tailed test.

Based on the study, correlation coefficient (r) is .643 and the coefficient of determination (r²) is .413 indicating that 41% of the firms' cash flow is related to SME Performance. Since the correlation of .643 is positive it can be concluded that the correlation is statistically significant, hence there is a positive relationship between SME Performance and cash flow.

Table 4.7 Correlation Model

R	R Square	df	sig
.643 ^a	.413 ^a	6	.031

b. Dependent Variable: SME Performance

Table 4.7 Correlation Model

R	R Square	df	sig
.643 ^a	.413 ^a	6	.031

b. Dependent Variable: SME Performance

4.2.4.3 Cost of Goods

4.2.4.3.1 Cost of Goods Sold

Majority (5) SME firms representing (14.3%) of the total study SMEs incurred cost of goods sold of between 1,100,000-2,000,000 Kenya Shillings in financial years 2011/2012, while (5=14.3%) and (5=14.3%) had incurred cost of good of between the categories of 50,000-100,000 and 1,100,000-1,000,000 respectively, while the rest of the SME firms had incurred cost of goods of between 2,100,000-3,000,000 Kenya shillings and 10,100,000 and above. It can be inferred that the cost of goods category depended on the goods produced and the supply effort of the firms.

Table 4.8 Frequency Distribution of Cost of Goods Sold

Cost Categories (in Kshs)	Cost of Goods Sold	
	(n = 35; %=100)	
	f	%
50,000-100,000	5	14.3
1,100,000-1,000,000	5	14.3
1,100,000-2,000,000	7	20.0
2,100,000-3,000,000	4	11.4
3,100,000-4,000,000	3	8.6
4,100,000-5,000,000	2	5.7
5,100,000-6,000,000	3	8.6
6,100,000-7,000,000	2	5.7
7,100,000-8,000,000	2	8.6
9,100,000-10,000,000	1	5.7
10,100,000 and above	1	5.7

4.2.4.3.2 Rate of decrease in Cost of goods sold

Findings of the study shows that (12) SMEs had a decrease of cost of goods of between 1-10% in 2011/2012 financial years, (10) had a decrease of cost of goods of between of between 10-20%, (7) had a decrease of between 20-30%.

While (4) SMEs, (1) and (1) SMEs had 1-10%, 20-30 % and 30-40% respectively. From the study it can be inferred that majority of the SMEs realised a decrease in the cost of goods.

Table 4.9 Frequency Distribution of the Rate of decrease in Cost of goods sold

Rate of Decrease (%)	Cost of Goods Sold (n = 35;%=100)	
	f	%
-1-10	12	34.2
-10-20	10	28.6
-30-40	7	20.0
1-10	4	11.4
10-20	1	2.9
30-40	1	2.9

4.2.4.3.3 Relationship between SMEs Performance and Cost of goods sold

The study shows the correlations between supply chain finance and Cost of goods sold, while holding the correlation coefficient (r) value at between plus and minus one (-1.00 and +1.0). The study used the significance level of alpha = .05. (95%), Degrees of freedom (df) of 6 and two-tailed test. Based on the study, correlation coefficient (r) is .761 and the coefficient of determination (r²) is .579 indicating that 58% of SMEs performance can be related to cost of goods sold.

Since the correlation of .579 is positive it can be concluded that the correlation is statistically significant, hence there is a positive relationship between cost of goods sold and SMEs performance.

Table 4.10 Correlation Model

R	R Square	df	Sig
.761 ^a	.579	6	.026

b. Dependent Variable: SMEs Performance

4.2.4.4 Inventory Turnover

4.2.4.4.1 Rate of Inventory Turnover

Appendix IV indicate that most (7) of SME firms representing (20.0%) of all study SMEs had inventory turnover of between 100,000-500,000 Kenya Shillings in financial years 2011/2012, while (5=14.3%) and (5=14.3%) had inventory turnover of between of between the categories of 600,000-1,000,000 and 3,100,000-4,000,000 respectively, while the rest of the SME firms had had inventory turnover of between, 1,100,000-2,000,000, 2,100,000-3,000,000, and 9,100,000 and above.

The results indicate that most of the firms realized lower inventory costs during the financial years of 2011/2012 and it may be concluded that it may have been due to effective deployment of finance in the supply chain of most of the SMES.

4.2.3.4.2 Rate of increase in Inventory Turnover

The results on the table 4.11 shows that (11) SMEs had an increase of inventory turnover rate (ratio) of between 1-10 in 2011/2012 financial years, (9) had an increase of inventory turnover rate (ratio) of between 11-20, (7) had an increase of between 21-30 while (45 SMEs, (2) and (1) SMEs had 31-40, 41-50 % and 51 and above respectively. From the study it can be seen that majority of the SMEs realised an increase in inventory turnover rate (ratio) and it can be inferred that there was improved sales and distribution efficiency among the SMEs.

Table: 4.11 Frequency Distribution of the Rate of increase in Inventory Turnover

Inventory Turnover		
(n = 35;%=100)		
Inventory Turnover Ratio	f	%
1-10	11	31.4
11-20	9	25.7
21-30	7	20.0
31-40	5	14.3
41-50	2	5.7

4.2.3.4.3 Relationship between Inventory Turnover and SMEs Performance

While holding the correlation coefficient (r) value at between plus and minus one (-1.00 and +1.0); the study used the significance level of alpha = .05. (95%), Degrees of freedom (df) of 6, and two-tailed test. The results of the study indicated, correlation coefficient (r) = .684 and the coefficient of determination (r²) = .467 indicating that .47% of the SMEs' performance is related to inventory turnover. Since the correlation of .467 is positive it can be concluded that there is a positive relationship between SMEs performance and inventory turnover.

Table 4.12. Correlation Model

	R	R Square	df	Fig
1	.684 ^a	.467	6	.041

b. Dependent Variable: SMEs Performance

4.2.3.5 Gross Margin

4.2.3.5.1 SMEs Gross Margin

In the financial years 2011/2012, majority (6) of SME firms representing (17.1%) of the SMEs had gross margin of between 100,000-1,000,000 Kenya Shillings, while (5=14.3%) had gross margin of between of between the categories of 1100, 000-2, 000, 000, 3,100,000-4,000,000 and 4,100,000-5,000,000 respectively, while the rest of the SME firms had had gross margin ranging between the categories of 2,100,000-3,000,000; and 11,100,000 and over.

The findings of the study indicate that most firms' healthy gross margins during the financial years of 2011/2012 and it may be concluded that it may have been due to effective deployment of finance in the supply chain of most of the SMES.

Table 4.13 Frequency Distribution of Gross Margin

Margin Categories	Gross Margin	
	(n = 35; %=100)	
	f	%
100,000-1000,000	6	17.1
1100,000-2,000,000	5	14.3
2,100,000-3,000,000	4	11.4
3,100,000-4,000,000	5	14.3
4,100,000-5,000,000	5	14.3
6,100,000-7,000,000	3	8.6
7,100,000-8,000,000	2	5.7
9,100,000-10,000,000	3	8.6
11,100,000 and over	2	5.7

4.2.3.5.2 Rate of Increase in Gross Margin

Table 4.13 shows that there was an increase of gross margin across the varied SMEs businesses: (9=10-20%); (5=30-40%), (4=1-10%); (3= 50-60); (2=70-80%) and (1=90-100 respectively).

From the study it can be seen that most of the SMEs realised an increase in gross margin in the period 2011/2012 it can be concluded that it was due to increase in efficiency of the use of supply chain finance among the SMEs.

Table: 4.14 Frequency Distribution of the Gross Margin

Rate of Increase (%)	Inventory Turnover (n = 35;%=100)	
	f	%
1-10	4	11.4
10-20	9	25.7
30-40	5	14.3
50-60	3	8.6
70-80	2	5.7
90-100	1	2.9

4.2.3.5.3 Relationship between Gross margin and SMEs Performance

The study used a significance level (alpha) of 0.05 (95%), Degrees of freedom (df) of 5, and two-tailed test. The study expressed the degree to which gross margin is related to SMEs performance by correlation coefficient (r) = 0.789, coefficient of determination (r^2) = 0.622 indicating 62% probability of SMEs performance is related to an increase in gross margin.

Table: 4.15: Correlation Model

Model	R	R Square	df	P-Value	Sig.
1	0.789 ^a	0.622	5	0.227 ^a	0.039 ^a

b. Dependent Variable: SMEs Performance

4.2.4.6.1 SME Operating Margin

Seven (7) of SME firms representing (20.0 %) of the total SMEs under study had operating margin of between the financial categories of 1100,000-2,500,0001100; (6=17.1% had operating margin of between the financial categories of 100,000-1,000,000 and 2,600,000-3,700,000 Kenya Shillings in the 2011/2012 financial year, while the rest of the SME firms had had operating margin ranging between financial categories of 3,800,000-4,900,000; and 8,000,000 and over as shown on table 4.16 below. The findings of the study indicate that most firms had improved operating margin between the two financial years.

Table: 4.16. Frequency Distribution of Operating Margin

Margin Categories	Operating Margin	
	(n = 35; %=100)	
	F	%
100,000-1000,000	6	17.1
1100,000-2,500,000	7	20.0
2,600,000-3,700,000	6	17.1
3,800,000-4,900,000	5	14.3
5,000,000-5,500,000	4	11.4
5,600,000-6,700,000	2	5.7
6,800,000-7,900,000	2	5.7
8,000,000 and over	3	8.6

4.2.3.6.2 Operating Margin

Results of the study show that (5) SMEs had an operating of between 1-10% in 2011/2012 financial years, (9) had operating margin of between 10-20%, (6) had between 20-30%, while (4) SMEs had operating margin of 50-60%. From the study it can be inferred that majority of the SMEs had at least a healthy operating margin which may be attributed to operating efficiency within the 2011/2012 financial years as shown on table 4.17 below.

Table: 4.17 Frequency Distribution of the Rate of Operating Margin

Rate of Operating Margin (%)	Operating Margin (n = 35;%=100)	
	F	%
1-10	5	11.4
10-20	9	25.7
30-40	6	14.3
50-60	4	8.6

4.2.6.3 Relationship between operating margin and financial performance

The study used a significance level (alpha) of 0.05 (95%), Degrees of freedom (df) of 5, and two-tailed test in the determination of the degree to which the firms operating margin is related to SME performance. Results of the study established a positive correlation coefficient (r) = 0.865 and (r^2) =0.748 indicating that 74.8% probability of SMEs performance is influenced by the firms operating margin.

Table: 4.18 Regression Model

Model	R	R Square	df	P-Value	Sig.
1	0.865 ^a	0.748 ^a	5	0.189 ^a	0.013 ^a

a. Dependent Variable: SMEs Performance

4.2.3.7 Return on Assets

4.2.3.7.1 Return on Assets Ratio

Findings of the study indicated: (7) SME firms representing (20.0 %) of the total SMEs under study achieved return on assets ratio of between the financial categories of 50,000-100,000 and 110,000-1,000,000; (5=14.3%) achieved return on assets ratio of between the financial categories of 2,000,000-3,000,000 Kenya Shillings in the 2011/2012 financial year, while the rest of the SME firms achieved return on assets ratio ranging between financial categories of 4,000,000-5,000,000 and 15,000,000 and above as shown on table 4.19 below. The findings of the study indicate that most firms had improved profitability relative to their total assets arising from the efficiency from which the firm uses their assets to generate earnings.

4.2.3.7.2 Rate of increase in Return on Assets Ratio

Table 4.20 shows that there was percentage increase of return on assets ratio among SMEs firms under study: (9=30-40%), (8=1-10%), (6=10-20%); (5= 50-60); (4=70-80%) and (3=90-100 respectively. From the study it can be seen that most of the SMEs realised an increase on return on assets in the period 2011/2012 it can be concluded that it was due to improved efficiency of the use of the firms' assets.

Table: 4.19 Frequency Distribution of Return on Assets

Return on Assets
(n = 35; %=100)

Return on Assets Ratio Categories (Kshs)	F	%
50,000-100,000	7	20.0
110,000-1,000,000	7	20.0
2,000,000-3,000,000	5	14.3
4,000,000-5,000,000	3	8.6
6,000,000-7,000,000	4	11.4
8,100,000-9,000,000	2	5.7
10,000,000-12,000,000	3	8.6
13,000,000-14,000,000	2	5.7
15,000,000 and above	2	5.7

Table: 4.20 Frequency Distribution of rate of increase in return on assets

Rate of Increase (%)	Inventory Turnover	
	(n = 35;%=100)	
	F	%
1-10	8	22.9
10-20	6	17.1
30-40	9	25.7
50-60	5	14.3
70-80	4	11.4
90-100	3	8.6

4.2.3.7.3 Relationship between return on assets and financial performance

The findings of the study shown on table 4.21 below indicate the existence a relationship between SMEs performance and return on assets. The results of the analysis indicated a correlation coefficient $r = .586$, and $r^2 = .343$ which in this case is positive indicating that 34.3% probability of SMEs performance is influenced by the firms return on assets.

Table 4.21 Correlation Model

R	R Square	Df	Sig
.586 ^a	.343	5	.036

a. Dependent Variable: SME Performance

4.2.3.8. Return on Investment

4.2.3.8.1. SME Return on Investment

In the financial years 2011/2012, majority (6) of SME firms representing (17.1%) of the SMEs achieved return on investment of between 51,000-1,00,000 Kenya Shillings, (5=14.3%) achieved return on investment of between the categories of 1,500,000-2,000,000; (4=11.4) achieved return on investment of between the financial categories of 500,000-1,000,000 and 2,500,000-3,000,000; (3=8.6) achieved return on investment of the financial categories of between 4,500,000-5,000,000 and 6,500,000-7,000,000; (2=5.7) achieved return on investment of between the financial categories of 7,500,000-8,000,000; while (1=2.9) achieved 9,500,000 and above. The findings of the study indicate that most firms' achieved a positive return on their investments during the financial years of 2011/2012.

4.2.3.8.2. Rate of Return on investment

Results Appendix VI indicates the rate of return on investment among SMEs firms under study: (12=1-10%), (10=10-20%), (6=30-40%); (2= 50-60); (3=70-80%) and (2=90-100) respectively. From the study it can be seen that most of the SMEs realised an increase on rate of return on investment in the period 2011/2012 it can be concluded that it was due to improved efficiency in investment.

Table: 4.23 Frequency Distribution of Rate of Return on investment

Rate of Increase (%)	Return on investment (n = 35;%=100)	
	F	%
1-10	12	34.3
10-20	10	28.6
30-40	6	17.1
50-60	2	5.7
70-80	3	8.6
90-100	2	5.7

4.2.3.8.3. Relationship between Return on Investment and Financial Performance

The findings of the study on the relationship between SME performance and return on investment shows a correlation coefficient (r) =.695, while (r^2) =.483 indicating that 48.3% probability of SMEs performance is influenced by the firms return on investment.

Table: 4.24. Correlation Model

R	R Square	Df	Sig
.695 ^a	.483	5	.031

Relationship between Supply Chain Operation Reference Model (SCOR) and SME Financial Performance

The study based the analysis on the significance level (alpha) of 0.05 (95%), degrees of freedom (df) of 5, and two-tailed test, shows the degree of the relationship between supply chain finance and SME financial performance. Results of correlation and coefficient of determination of: plan and cost of goods sold ($r^2 = 0.328$); plan and inventory turnover ($r^2=.478$); source and cost of goods sold ($r^2=.241$); source and Inventory turnover ($r^2=.329$); make and cost of goods sold ($r^2=.507$); make and inventory turnover ($r^2= .237$); deliver and cost of goods of sold ($r^2=.403$) and deliver and inventory turnover ($r^2=.501$).

This indicated that: cost of goods sold and inventory turnover is influenced by planning, sourcing, making and deliverance of goods. In addition, the computed t-value ($t=2.21$) for cost of goods sold and ($t=2.11$) for inventory turnover are smaller than the critical t-value ($t= 2.57$) and is higher than the significance threshold of 1.96 (0.05). This then indicate that there is a significant relationship between planning, sourcing, making delivery and cost of goods sold and inventory turnover, among SMEs.

Table 4.25 Relationship between Supply Chain Operation Processes and SME Performance

Variables	Cost of Goods Sold			Inventory Turnover		
	r	r ²	T	r	r ²	T
Plan	.573	.328	2.619	.692	.478	1.865
Source	.491	.241	1.635	.574	.329	2.414
Make	.712	.507	1.860	.487	.237	1.509
Deliver	.635	.403	2.763	.708	.501	2.671

4.2.6.3 Relationship between Supply Chain Finance indicators and SME financial performance

Results of the study on table 4.24 and 4.25 based on the significance level (alpha) of 0.05 (95%), degrees of freedom (df) of 5, and two-tailed test, shows the degree of the relationship between supply chain finance and SME financial. The findings established a positive correlation coefficient (r), = 0.859, (r²) = 0.737 (indicating that 73.7% probability of SME performance is influenced by sales growth, cash flow, cost of goods sold, inventory turnover, gross margin, operating margin, net margin, return on assets and return on investments. In addition, the computed t-value (t=2.002) is smaller than the critical t-value (t= 2.015), while the p-value of 0.128 is larger than the significance level of 0.05.

This then indicate that there is a relationship between sales growth, cash flow, cost of goods sold, inventory turnover, gross margin, operating margin, net margin, return on assets and return on investments and SME performance.

Table: 4.26 Regression Model

Model	R	R Square	Df	P-Value	Sig.
1	.859 ^a	.737 ^a	5	.128 ^a	.037 ^a

a. Dependent Variable: SME Performance

4.2.6.4 Relative Comparison of the influence of independent variable on Dependent variable

Table 4.26 above indicates the direction of influence of sales growth, cash flow, cost of goods sold, inventory turnover, gross margin, operating margin, net margin, return on assets and return on investments on SMEs performance and the comparable influence of these variables on SMEs performance.

Results of the B values (sales growth=.026; cash flow=.004; cost of goods sold=.009; inventory turnover=.010; gross margin=.002; operating margin= .015; net margin=.006; return on assets=.028; return on investments=.008) show positive influence SME performance. While Beta values indicate that relative to each others influence on dependent variable the independent variables can be ranked as follows: return on assets= (.130), sales growth= (.124), inventory turnover (.085), return on investments (.073), operating margin (.068), cost of goods sold (.052), net margin (.041), cash flow (.026), gross margin (.016).

CHAPTER FIVE: SUMMARY, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

Supply-chain finance (SCF) refers to the set of solutions available for financing specific goods and/or products as they move from origin to destination along the supply chain. The SCF is also called supplier finance, and mainly it is used to deal with the financial issues in supply-side value chain management. It aims at improving the financial efficiency of the supply chain and substantially reduces the working capital of both buyers and suppliers.

It allows buyers to extend payment terms while providing suppliers access to better financing rates. It creates a true win-win for all the parties involved as one of the most attractive tools for companies to diversify funding sources, enrich and solidify the relationships with their trade partners. The impact of SCF on corporate performance reflects in the improved supply chain efficiency in terms of cost saving payable processes and payment term extension.

5.2 Summary

The research study established that supply chain operation reference processes influence SME performance as it affects the efficiency and effectiveness in terms of cost, time and requisite resources at which the supply chain finance is deployed, utilised and reviewed.

The supply chain operation reference model elements are:

- 1) Plan – Processes that balance aggregate demand and supply to develop a course of action which best meets sourcing, production, and delivery requirements.
- 2) Source – Processes that procure goods and services to meet planned or actual demand.
- 3) Make – Processes that transform product to a finished state to meet planned or actual demand.
- 4) Deliver – Processes that provide finished goods and services to meet planned or actual demand, typically including order management, transportation management, and distribution management.
- 5) Return – Processes associated with returning or receiving returned products for any reason. These processes extend into post-delivery customer support

The SCOR activities consists of planning, which involves assessing supply resources, aggregating and prioritizing demand requirements, planning inventory for distribution, production, and material requirements, and planning capacity for all products and all channels.

Sourcing involves obtaining, receiving, inspecting, holding, issuing, and authorizing payment for raw materials and purchased finished goods. Making involves requesting and receiving material, manufacture and test product; package, hold, and/or release product. Delivering involves executing order management processes; generate quotations; configure product; create and maintain a customer database.

The research study found out sales growth, cash flow, cost of goods sold, inventory turnover, gross margin, operating margin, net margin, return on assets and return on investments influence SME performance. Current cash flow can be predicted with cash flow of prior years as positive company activities in prior years result in positive cash and this positive liquidity enhance firms operations in upcoming years and consequently higher earnings. Cost of goods sold of prior years has an effect on defining cost of goods sold of the current year.

A firm that has a higher amount of gross margin money has better available resources and can produce well and build positive sales growth. Inventory turnover influences SME performance as it dictates the efficiency of supply chain and indicates the frequency of clearing inventories in a firm. The higher the ratio, the better a firm uses of inventory and the shorter the time between sales and cash collections.

Operating margin has an effect not only on the current but also on the operating margins and cash flow of future periods in the firm and their performance in terms of profitability, while, gross margin of the company in prior years is a resource for operations in upcoming years. Hence, high gross margin at the end of financial year is an indicator of available resources for the coming year operations. Returns on assets have positive effect on organization performance as the income after writing off assets has a positive effect on the amount of assets. The prior years also has a significant effect on the ROA of the current year and the amount of money after accounting for taxes is an indicator of a firm's return on investment.

5.3 Conclusions

Supply Chain Operation Reference processes influence SME performance as it affects the efficiency and effectiveness in terms of cost, time and requisite resources at which the supply chain finance is deployed utilised and reviewed. Good planning of the supply chain can help to decrease the amount of remaining inventory, while investing in the sourcing, making and delivery process decreases the firms COGS.

Sales growth, cash flow, cost of goods sold, inventory turnover, gross margin, operating margin, net margin, return on assets and return on investments affect SME performance. Cash flow of prior years affect current sales growth; cash flow of prior years affect cash flow of current year; Positive cash flow increases the gross margin and also operating margin of either the current or prior years, while gross margin also has an effect on operating margin. Operating margin and cash flow of prior years' affect the amount of return on assets. Net margin of this year is a function of prior years' operating margin and cash flow.

So as to positively influence SME performance, COGS can be decreased by effective planning and improvement in the delivery process over the years; inventory turnover can be increased by efficient planning sourcing and delivery process; gross margin can increase with a gradual increase over years and cash flow of prior years. Operating margin is a function of prior cash flows and gross margin of prior years, while ROA rely upon prior years' operating margin, cash flow and net margin.

5.4 Limitations of the study

Owing to the nature of the target respondents, some reluctance was experienced from some organization staff in the provision of documents containing relevant information with regards to the survey for fear of being reprimanded by the Managers in the organizations who are responsible for handling issues related to the matter under study.

Some organization had poor record keeping hence there was scant information that could be accessed in terms of financial statements, however the researcher used other relevant documentation to collect the required information despite the fact that it took longer than anticipated.

Another limitation of the study was the use of a sample as opposed to using the entire population. The entire population could not be used for the study due to time limitation and costs restraints.

There was limited time for the research and hence the researcher could not get time to study all the variables for measurement of financial performance of all Manufacturing SMESs in Nairobi County.

The model used consisted of too many variables hence the data analysis was complex and involved use of many tables for data recording. The data presentation and analysis was therefore time-consuming because of the many variables in the model.

5.5 Recommendations

5.5.1 Policy recommendations

To decrease COGS, firms need to invest in their delivery process and to be involved in effective planning of the supply chain to ensure a gradual decrease in the amount of inventory. To establish the link between effective supply chain management and improved financial performance, management must commit to developing an understanding in the firm on how supply chain performance affects financial performance

There is need for both management and staff responsible for managing supply chain activities to be aware of the financial performance metrics so that decisions made at the operational level are tied to expected outcomes. A process must be established to educate those in non-management, operational roles on the impact of their daily actions on the firm's overall performance.

Management need to develop an understanding and appreciation of how the day-to-day activities of managing the supply chain relate to the firms' financial performance. At the same time, managers involved in the day-to-day supply chain operations need to become conversant with the language of management relating to supply chain finance so as to put in place a process that ensures significant effect of a well-managed supply chain on the firms' performance.

5.5.2 Recommendations for future research

This research study was limited to data collected from SME located in Nairobi County however there are many other SMEs in the manufacturing spread throughout the country. Hence there is need for other researchers to consider larger and different sample sets from other counties in the country so as to make comparison the results obtain other work.

The researchers need to assure the respondents of the confidentiality of the documents that they provide and sought authority from management to undertake research in organizations.

Further research may be done on supply chain financing using a different model in order to improve on the study of the effect of supply chain finance on the financial performance of organizations.

More time should be allocated for other researchers so as to be able to study a larger sample and consequently reduce sampling error in the study.

Future researchers should aim to obtain information from Management of the organizations as opposed to lower levels of staff. This will make access of information easier as the lower level of staff are reluctant of providing information prior to consent of management.

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