

**EFFECT OF CORPORATE RISK HEDGING PRACTISES ON FIRM VALUE OF LISTED
COMMERCIAL AND SERVICE FIRMS IN KENYA**

**BY
DENNIS MAUTI**

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
AWARD OF MASTER OF SCIENCE IN FINANCE AND ACCOUNTING IN THE SCHOOL OF
FINANCE AND ACCOUNTING AT KCA UNIVERSITY**

AUGUST, 2019

DECLARATION

I declare that this thesis is my original work and has not been previously published or submitted elsewhere for a ward of degree. I also declare this contain no material written or published by other people except where due reference is made and author duly acknowledged.

Name: DENNIS MAUTI

REG NO: 14/00700

Sign **Date.....**

I hereby confirm that I have examined the masters' thesis of

DENNIS MAUTI

And approved it for examination

Sign..... **Date.....**

Dr. Dominic Ojwang

Dissertation supervisor

ABSTRACT

This study aimed to examine the effect of financial risk hedging practices on firm value of listed commercial and service firms in Kenya. This study was guided by the following four objectives: To examine the effect of liquidity risk hedging on firm's value of listed commercial and service firms in Kenya, to assess the effect of credit risk hedging on firms value of firm's value of listed commercial and service firms in Kenya, to determine the effect of operational risk hedging on firm's value of listed commercial and service firms in Kenya, to determine the effect of forex risk hedging on firm's value of listed commercial and service firms in Kenya. The study employed descriptive research design using panel data analysis. The target population of the study encompassed 10 listed commercial and service firms in Kenya. All the 10 listed commercial and service firms in Kenya formed the sample size as the study was a census of listed banks in Kenya. Secondary data was extracted from published annual reports of individual listed commercial and service firms. The destructed data was recorded on data collection sheets. Both descriptive and inferential statistics were used. Descriptive analysis such as mean, frequencies and standard deviation were used. For inferential analysis, correlation analysis was adopted to test the association between risk hedging practices and firm value of listed commercial and service firms in Kenya. Simple OLS model was used to establish the causal effect relationship. The findings were presented using tables with associated explanations. The study established that credit risk hedging, liquidity risk hedging and operational risk hedging had statistically significant effect on firm's value of listed commercial and service

firms in Kenya. However, the effect foreign exchange risk hedging was not statistically significant. The study concludes that corporate risk hedging has a significant effect on firm's value of listed commercial and service firms in Kenya. The study recommends to management of listed commercial and service firms in Kenya to improve on their hedging activities towards credit risk. Specifically, the study recommends that the firms should set aside enough provisions for bad and doubtful debts to cover for any eventual bad debts, which may have to be written off. Secondly, the current study wishes to recommend to the top management of listed commercial and service firms to ensure the firms are liquid enough such that they do not run into financial distress a situation where they are not able to settle short-term obligations as they fall due. Finally, the current study wishes to recommend to the top management of listed commercial and service firms to control forex risk however, since the effect of forex risk hedging was not significant especially for firms with minimal currency exposer.

Keywords: Financial risk hedging, firm Value, forex risk hedging, credit risk hedging and liquidity risk hedging.

ACKNOWLEDGEMENT

I acknowledge the contribution of my supervisor, my classmates for their valued ideas towards this study. I also acknowledge the support of teaching and non-teaching staff of KCA University, especially the library staff for their valued assistance throughout my study.

TABLE OF CONTENT

DECLARATION	ii
ABSTRACT	iii
ACKNOWLEDGEMENT	iv
TABLE OF CONTENT	v
LIST OF TABLES	viii
ABBREVIATIONS AND ACRONYMS	ix
CHAPTER ONE	1
INTRODUCTION	1
1.1 Background of the study.....	1
1.2 Statement of the problem.....	5
1.3 Objectives of the study.....	7
1.4 Hypotheses of the Study.....	7
1.5 Significance of the Study.....	7
1.6 Scope of the Study.....	8
CHAPTER TWO	9
LITERATURE REVIEW	9
2.1 Introduction.....	9
2.2 Theoretical Review.....	9
2.3 Empirical Review.....	11
2.4 Research Gap.....	17
2.5 Conceptual Framework.....	17
2.5 operationalization of variables.....	18
CHAPTER THREE	19
RESEARCH METHODOLOGY	19

3.1. Introduction.....	19
3.2 Research Design.....	19
3.3 Target Population.....	19
3.4 Sample and sampling technique.....	19
3.5 Research Instruments.....	19
3.6 Data Collection Procedure.....	20
3.7 Data Analysis and presentation.....	20
3.8 Diagnostic Tests.....	21
CHAPTER FOUR.....	24
DATA ANALYSIS, FINDINGS AND DISCUSSIONS.....	24
4.1 Introduction.....	24
4.2 Descriptive Analysis.....	24
4.3 Diagnostic Tests Results.....	26
4.4 Regression Analysis.....	30
4.5 Hypothesis Testing.....	32
4.6 Discussion of Results.....	32
CHAPTER FIVE.....	35
SUMMARY, CONCLUSION AND RECOMMENDATIONS.....	35
5.1 Introduction.....	35
5.2 Summary of Findings.....	35
5.3 Conclusion.....	36
5.4 Recommendations the study.....	37
5.5 Recommendation for future Studies.....	38
REFERENCES.....	40

APPENDICES	51
Appendix I: Data Collection Sheet.....	51
Appendix II: Listed Commercial and Service Firms in Kenya.....	52
Appendix iii: Raw Data.....	53

LIST OF TABLES

Table 4. 1: Summary of Descriptive Statistics.....	24
Table 4. 2: Variance Inflation Factor (VIF).....	26
Table 4. 3: Breusch-Pagan test of Heteroscedasticity.....	27
Table 4. 4: Shapiro-Wilk Test Results.....	28
Table 4. 5: Autocorrelation Tests.....	28
Table 4. 6: unit root test.....	29
Table 4. 7: Hausman Test.....	29
Table 4. 8: Summary of Fixed Effect Model Regression Results.....	30
Table 4. 9: summary of hypotheses testing.....	32

ABBREVIATIONS AND ACRONYMS

ANOVA-	Analysis of Variances
CMA -	Capital Market Authority
CR -	Current Ratio
CA-	Current Assets
DF-	Degree of freedom
EMH-	Efficient Market Hypothesis
EUREX -	European Exchange
FOREX-	Foreign Exchange
MM	Modigliani and miller
NSE	Nairobi Securities Exchange
SD	Standard deviation

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

The environment in that majority of businesses perform their activities is highly changing and not certain. The volatile business environment has come up due to globalization as businesses sell their products in the global market place. In particular service firms are realising they are exposed a number of business risks that is becoming a threat to their long-term survival. In most cases, many of the business risk are a result of business practices that have failed and not supportive to business operations (Askari & Krichene, 2014). The business risks may be due to complex changes in the external environment or internal factors such as management activities as they implement new standard operations. The changes in complex eternal environment and internal environmental factors leads to the firms being exposed to a variety of risks not limited to market risk, operational risks, liquidity risks that may have serious impact on firm's value (Kasanen, Kinnunen & Niskanen, 2016).

Firms operating in the service and commercial industry with great deal of international activities in terms of export of products or import of raw materials and other supplies face complex risks associated with massive changes in commodity price variability. Additionally, the supply chain has presents a number challenges making firms vulnerable to the supply chain network associated risks such as operational risk like long reorder periods. In an attempt to satisfy the needs of firms operating in risky environment, financial hedging needs to come up with strategies for hedging risks aforementioned. In the global stage, derivatives markets have developed to provide specific derivatives to handle business risks that cannot be diversified. As a result, products such as futures, swaps, options and forwards have been developed to help businesses having international operations to help them extensively hedge against risk associated with international operations as well as domestic activities as the listed commercial and service firms are exposed to price variability and forex risks that threaten their activities (Armstrong & Ndiaye, 2011).

The financial management function of Financial Risk management is very crucial for commercial and service firms in Kenya especially those having a lot of their transactions dominated in foreign currencies due to export of finished products or import of raw materials and other supplies for their operations. In addition, the management of the firms must come up basic accepted financial risk management processes recognised in the process of identifying, analyzing, measuring, and stating the level of risk that may be tolerated or transferred by a firm (Askari & Krichene 2014). Companies that do not develop an elaborate financial risk management programme find themselves with constrained growth in comparisons to firms that have well-structured risk management processes and programs. Firms have a number of risk control techniques available to them including portfolio diversification for risks that can be reduced through diversifiable risks and hedging for categories of risks that cannot be mitigated through diversifiable of firm operations (Ledenyov & Ledenyov, 2012).

Hedging aids firms in lowering exposure to risks emanating from price movements in the future, that have the potential of affecting the value of the firm greatly through irregular cash flows if not managed using appropriate tools (Horne & Wachowicz, 2012). Empirical works show that hedging is adopted usually to protect firms against price movement that have the potential to affect profits through cash flows (Brigham & Ehrhardt, 2014). Risk hedging provides users with a relatively inexpensive and liquid position that can only be compared to benefits obtained with portfolio stock that are diversified (Sharpe, 2012). Even with the development of risk hedging tools in developed countries, developing countries still lag behind regarding availability of derivatives for mitigation of financial risk due to less developed derivative market components of capital markets. Studies show that emerging nations for instance South Africa and India majorly use financial derivatives in the short term contracts not limited to forwards, futures and swaps (Sivakumar & Sakar, 2011).

In Kenyan case, the most common kind of risk is exposure of businesses to inflation risk. The country has for instance experienced worst cases of inflationary pressures in the near past as reported in Central Bank of Kenya publications (CBK, 2010). The

inflationary pressures have been blamed for stagnation experienced in project and general tendency of prices of commodities in the market including price of petroleum products. Further, a number of challenges have been experienced that is attributable to the 2007-2009 credit crunch where most businesses were affected greatly. Unfortunately, Kenya like its counterpart emerging economies is characterized will less developed financial markets and therefore use of risk hedging tools like derivatives is not readily available. The under development of financial markets has been majorly been blamed participants attitudes, political environment, financial infrastructure, managerial skepticism, and international competition (Murungi, Murage & Wanjau, 2014).

1.1.1 Corporate Risk hedging

Risk Hedging is one of the tools for mitigating financial risks while aiming at improving firms value. Perfect markets may not need risk hedging due to assumption of perfect knowledge of the market factors leading to risk, however in reality, the financial markets are imperfect hence investors have varied information to low levels of markets efficiencies hence risks emerge that must be handled through hedging hence hedging has value. In fact, real world financial market is imperfect hence the practice of risk hedging has a direct impact on cash flows of a firm and intern affect firm's value both in the long run and short run. Different authors have defined hedging differently with majority describing a hedge as risk management strategy employed to reduce substantial losses that may me incurred by a firm or an individual if an event occurs in the real financial market leading to risks (Mburugu, 2014). Hedges may be constructed from many types of underlying securities or commodities and they come in verities including swaps, forward contracts, options, and other over the-counter derivative products. Hedging is a process and an act of taking a position in a market so as to offset and balance against the risk adopted by assuming a position in a contrary or opposing market or investment (Mburugu, 2014).

Financial hedging is an investment vehicle with the import of offsetting expected losses that a firm may experience due to risk factors such price variability, credit risk, liquidity risks or even risks due to natural disaster while employing a number of financial

instruments. On the other hand, operational hedging is a kind of a firm's risk hedging strategy that by methods that are not financial instruments for instance via operational activities. Multinational corporations (MNCs) or multinational enterprises (MNEs) will usually take to operational hedging in instances of both demand uncertainties and exchange rate (Hansen, 2015).

Most multinational firms adopt various hedging strategies to help them in stabilizing their financial earnings as well as firm's value especially in instances when it is very probable that inconsistencies will happen at the global stage due to forex movements . Empirical studies by Baker, Foley, and Wurgler (2014) noted that that an action taken by management of MNCs will surely directly or indirectly affect corporate value of the firm. On the contrary, some researchers such as Guay and Kothari (2013) have established that use of hedges has a minimal influence on firm's cash flows and value. Study by Giddy, (2013) reported that those firms may engage in speculation hence allowing their expectations of the future risk conditions in the markets to influence their current risk management activities. However, the size of this impact is not certain and may also be insignificant as noted by most researcher examining effect of risk hedging on firm's value both in the long run and short run period.

1.1.2 Firms Value

Scholars have defined the term firm value differently. Firm value may be described the sum total the monetary worth of a firm in terms of shareholder's value propositions in the business. Firms value can also be described a measure of economic value of an organization reflecting the total market measure of value of the entire firm for instance value attributable to a firms' stock holders and debt holders. The value consists of the market price of the business to be paid by purchasers. There can exist different variation of firm due to different deal structures, operating assumptions, terms of payment and use of different types of tools and methods of valuation. As noted by Pandey (2009, the value of a firm can be established by variety of methods. The method commonly used for evaluating value of a business is NPV method. The method works at ascertaining value of the business by getting the difference between discounted

present cash outflow and cash inflows expected in the future of the company (Pandey, 2009),

According to financial theory, a firm's value is equivalent to the net present value of all expected cash flows in the future time. Expected cash flows in future are not assured hence the longer the period the higher the discounting rate to take care of loss of value of money due to time passage (Eiteman,, Moffett, Stonheill, 2014). If the currency of reporting value of future expected cash flows is changed due to variability of the nominal exchange rate, the cash flows are also changed to the tune of variability in the exchange rate being experience by all firms in the country. A firm that under takes to take a position in hedges like currency derivatives may reduce the level of exposure to forex variability and its incidental impact on the value of the firm. A forex risk may therefore be described as the variance of the future expected cash flows and arises from unplanned exchange rate changes in the long run period (Ohanessian & Tramontano, 2017). Currency hedging reduces risk exposure to forex variability. This reduction of risk may not necessarily mean value-adding activity to the firm. A Hedge can only add to the value of the firm only if the favourable shift in currency exchange rate is big enough to cover the costs of hedging and leaves a surplus for the firm (Ohanessian & Tramontano, 2017).

1.1.3 Listed Commercial and Service Firms in Kenya

The commercial and services sector forms part of the various categories of Nairobi Securities Exchange. Other sectors include investment, investment services, manufacturing and allied, telecommunication and technology, real estate investment trust, exchange traded fund, agricultural, automobiles and accessories, banking, construction and allied, energy and petroleum and insurance. Firms listed under the commercial and services segment include Express Kenya Ltd, Kenya Airways, Longhorn Publishers Ltd, Nation Media Group, Scangroup Ltd, Standard Group, TPS Eastern Africa (Serena), Deacons (East Africa) Plc, Nairobi Business Ventures Ltd, Uchumi Supermarkets Ltd and Atlas Development and Support Services (NSE, 2018).

Firms listed under commercial and services sector provide crucial services in Kenya. The services offered by firms in these categories include retail services, publishing services, air transport, communication services, hotel and accommodation, gas and oil products. Such services are key to a developing economy such Kenya. Because of these diverse services they offer, they attract a keen eye from investors, financial consultants and researchers (Kinkel *et al.*, 2005). Commercial and service industry is an important driver of the Kenyan economy as it fuels economic growth, creates employment and increases the gross domestic product (UNCTAD, 2008).

1.2 Statement of the problem

Firms globally are facing financial risks in their operations due to the nature of the dynamic business environment that could be global, local or even internal in nature. Most scholars and practitioners of finance holds that business risks can only be handled through hedging or diversification (Eiteman et al., 2014). Diversification works so well for unsystematic risks while hedging works well for markets risks. The use of risk hedging can be very crucial for a firm aiming at reducing the impacts of financial risk on the operation of the business (Ohanessian and Tramontano, 2017). Most Kenyan Firms in general and listed commercial and service firms in particular have been facing the major problem of how best to control financial risks which has been blamed to erode the value of the firm in global studies.

A number of empirical researches have been done globally and in Kenya on financial risk hedging and firms value. Study by Wanja (2015) noted that firms in Kenya use futures, forward contracts and swaps and in mitigating risk associated with interest variability facing the firms studied. However, most firms are discouraged from adopting derivatives due to unfair institution policies and unsupportive market trading platform technology (Otsyula, 2014). Study by Allayannis and Weston (2011) noted that companies that instituted a financial hedging policy were able to experience an increase in firm value above their peers that decided not to adopt hedges. Moreover, study by Carter et al. (2016) noted that that airlines facing price of fuel volatility accrued through adoption of price hedges. However study by Jin and Jorion (2016), reported contrary

findings that hedging does not change value of MNCs that hedged as well as those that did not hedge their financial risk.

Even with the studies already done both locally and globally, there are a number of gaps that exist in literature. The major study gap was that empirical studies relating risk hedging to firm's value have established mixed findings with some noting significant relationships while others finding no relationship at all. Additionally, most studies done in Kenya have tended to relate risk hedging to financial performance of the firms rather than firm value. The current study therefore seeks to establish the effect of corporate risk hedging practises on Firms value of listed commercial and service firms in Kenya.

1.3 Objectives of the study

1.3.1 General Objective

The current research focuses on examining the effect corporate risk hedging practises on firm value of listed commercial and service firms in Kenya.

1.3.2 Specific Objectives

The specific objectives include:

1. To examine the effect of liquidity risk hedging on firm's value of listed commercial and service firms in Kenya.
2. To assess the effect of credit risk hedging on firm's value of firm's value of listed commercial and service firms in Kenya.
3. To determine the effect of forex risk hedging on firm's value of listed commercial and service firms in Kenya.

1.4 Hypotheses of the Study

H₀₁: Liquidity risk hedging has no significant effect on firm value of listed commercial and service firms in Kenya.

H₀₂: Credit risk hedging has no significant effect on firm value of listed

commercial and service firms in Kenya.

H₀₃: Forex risk hedging has no significant effect on firm value of listed commercial and service firms in Kenya.

1.5 Significance of the Study

The current study is timely and will generate information that will be useful to a number of purposes including practice, theory and policy. For theory purpose, this study has added value to empirical literature about risk hedging and firm's value. Majority of studies already done on the relationship between corporate risk management and firm value have tended to yield mixed results. This study has therefore intended to clear the conflict in literature by carrying out detailed study that will go a long way in getting conclusive evidence on the effect of risk hedging on firm's value. The study will serve as back ground literature for future researchers carrying out studies on the relationship between risk hedging practices and firm value.

For the purpose of financial practice, this research will serve in providing financial managers with insight to help in decision making regarding management of financial risks especially through risk hedging tools. Business organizations that have never considered risk hedging practises and tools may be encouraged in the light of this study to adopt the tools in the process of handling various risks that may arise in the normal business operations. Investors will also get access to valuable information on the possible effect of risk hedging on the firms before they can make any concrete decision on the firms to invest their resources in.

1.6 Scope of the Study

The current research sought to establish the influence of corporate risk hedging practises on value of commercial and service firms listed Kenya's NSE. The study targeted the ten listed commercial and service firms at the Nairobi securities exchange. The study covered seven-year period beginning 2011-to 2017. The study was limited to three risk-hedging practises that become the independent variables.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Chapter two review relevant literature concerning risk hedging and firm is value. The chapter elaborated on major theories under pinning the current study while elaborating on their link to the current study; the chapter followed up by examining different empirical literature on risk hedging strategies and firm's value.

2.2 Theoretical Review

Number of theoretical foundations have been forwarded to explain the association between risk hedging practices and firms value of listed. The current study interrogated the role of the following three theories on the current study. These theories include Liquidity preference model and Wrecker's theory of financial distress. A detailed elaboration on these theories is discussed in the succeeding sub sections.

2.2.1 Liquidity Preference Model

Keynes (1935) believed there were three motives to holding money; transactions motive, precautionary motive, and speculative motive. Under the speculative motive, money demand was negatively related to the interest rate consequently leverage. Holding money was one way of guarding against uncertainty. Hence, liquidity preference framework determines the equilibrium interest rate in terms of supply and demand for money. The model was developed by Keynes (1936) based on several assumptions. First, money pays no interest. Second, that there were only two kinds of assets for storing wealth: money and bonds. The current study was anchored on liquidity theory, given its emphasis on Liquidity, and the other variables under study; leverage, efficiency and capital adequacy. The theory notes clearly that liquidity alone does not guarantee success. Financial institutions in Kenya such as Daima Bank, Trade Finance, Allied credit ltd, International Finance ltd, Nairobi Finance ltd, Inter Africa Credit and Finance ltd and Dubai Bank that collapsed and liquidated while imperial Bank was put under receivership and chase was under statutory management for a short while as at 31st

December 2015. These institutions' liquidity was high in the year when their businesses went into liquidation or when they went into statutory management. The theory through its concept of holding money as a precautionary motive explains the importance of capital adequacy and liquidity requirement of ensuring that any future financial distress is properly managed. In addition, Modigliani (2011) defined liquidity as an asset in terms of the perfection of the market in which it is traded. An asset is liquid if a market is perfect thus an individual decision to buy or sell does not affect the price finitely since it is illiquid in the opposite case, it is riskless if the price at which it sells is constant or practically so and its risky if the price fluctuates widely (Modigliani, 2011). This theory therefore indicates that liquidity, capital adequacy, leverage and efficiency of the firm's liquidity are the key financial distress factors that may influence financial performance and firm value.

2.2.2 Wrecker's theory of financial distress

The wreckers theory was developed initially by Campbell, Hilscher and Szilagy (2005) suggested that stocks of distressed firms perform in a manner which is vastly inferior to stocks of financially healthy firms. The wreckers' theory of financial distress seeks to explain the benefits that may step out of financial distress to stakeholders (Kalckreuth, 2005). According to the theory, the business is said to be in a state of financial distress since it cannot service its debts as they fall due. The business can also not raise adequate finances to normal operations like payment for stock hence it slumbers into financial distress and it is at the mercy of financiers demanding their fair share of credit lent to the business. The initial signals of a state of financial distress is failure by business to settle debts as they fall due and the tendency to reduce dividend pat out ratio. Whitaker (1999) describes slumber into financial distress as the state where the business cash flows cannot cover and settle maturing short term and long-term debt obligations. The business will have enough resources to pay only if the current cash flow is above expectations from the debtors. The theory of financial distress therefore holds that the key in identifying companies in financial distress is their lack of ability to meet their contractual debt obligations as they fall due.

Paper by Wruck (1990) noted that those companies might find themselves in financial distress because of decline in the firm performance, economic distress and poor management of risks majorly. Study by Boritz (1991) describes financial distress as a process that begins a process of a financial distress that begins with a firm having poor managers that tend to commits serious financial blunders as well as unsupportive economic situations within the country of the location of the business establishment. In the case of listed commercial and service firm, in ability to of the business to make payments to creditors and goods supply to new debtors as well as make payment s of other maturing debts obligation may be termed a liquidity crisis. The failure by the business customers to pay the amounts expected from them to the business firm may constitute serious incidences of credit risk that if not checked through appropriate mechanisms may result to full blown financial distress.

The commercial and service business have no option but to find ways for avoiding financial distress depicting itself through liquidity and credit risks. The commercial and service firms must find their balance in managing credit and liquidity risk in order to avoid the financial distress. The theory of financial distress has been majorly associated with business suffering from risk of credit and liquidity in nature. The theory is relevant for the current study by providing a link between financial distress that is evidenced by credit risks and liquidity that have a bearing on firm's value. The theory further elaborates on the fact that the financial challenge of financial distress occurs at the point the firm cannot settle its debts obligations hence any firm closure to financial distress should find ways to ease the problem of liquidity and credit risk by finding appropriate hedging tools like allowance for bad debts as well as clear policy on dents management so as not to hold toxic debts that may plunge the business into financial distress and hence threatened n the firms value.

2.3 Empirical Review

There exists a battery a battery of studies on financial risk management practices both globally and locally. The empirical review has been organized in terms of the independents variables of the study and how each financial risk hedging practice relates

to firms value of various firms.

2.3.1 Credit risk hedging and firms value

Alshatti (2015) defined credit risk as the risk that a specific party to security may not comply with undertaking stated beforehand thereby making the other party to a financial asset to incur financial loss. Study by Mutua (2016) examined the influence of credit risk management strategies on financial performance among deposit taking Sacco's in Kitui County. The research adopted descriptive research design. Questionnaires were employed which were self-administered to the management of the Sacco's' studied. The research employed quantitative data analysis methods to examine the effect of credit risk management on financial performance of Sacco's in Kitui County. The study results showed strong association between financial performance of SACCOs and credit monitoring

Study by Alshatti (2015) analyzed the influence of credit risk management on the financial performance of commercial banks. The study employed causal effect research design to help in facilitating use of secondary data sourced from CBK publications and annual reports on the financial health of the banking sector. OLS regression analysis that was multiple in nature was employed to analyze the causal effect relationship between the dependent and independent variables. The research findings showed asset quality, capital adequacy, liquidity and management efficiency liquidity had weak association with financial performance. Additionally the study noted strong relationship between earnings and financial performance.

Paper by Kithinji (2010) on relationship between profitability of commercial banks in Kenya and credit risk management. NPLs was used as proxy for level of effectiveness of credit risk mitigation process. The study control variable as amount of loans given to borrowers which was measured by ratio of loans and advances divided by the sum total of bank assets. The explained variable adopted for the study was profitability measured ROA. The study concluded that the association between profitability, credit risk management and amount of credit was not statistically significant. The study by Kithinji

(2010) is different for the ongoing study in that the study was based on commercial banks while the current study focused on listed commercial and service firms in Kenya. Study by Gaitho (2010) examined the credit risk management practices employed by Sacco's in Nairobi. The study established that majority of Sacco's used credit risk management practices to hedge against risks basing on objective credit risk appraisal. Study also established that that most Sacco's had relied much on the discretion and ability of loan portfolio officers for effective credit risk management as opposed to a system that standardizes credit and credit risk decisions.

Study by Zeleot (2015) examined the effect of credit risk management on financial performance of commercial banks in Jordan. The study revealed that the credit risk management effects on financial performance of the Jordanian commercial banks as measured by ROA and ROE. The research further concludes that the credit risk management indicators considered in this research have a significant effect on financial performance of the Jordanian commercial banks.

2.3.2 Liquidity Risk hedging and firms value

Liquidity risk is a type of risk that a business may face when it finds itself not able to solicit enough financial resources to meet its daily commitments in relation to financial instruments. Study by Sheikhdon & Kavale (2016) examined factors of Liquidity management in influencing financial performance of commercial banks in Somalia. The study employed descriptive survey design. The study targeted 112 employees of commercial banks in Mogadishu Somalia. From the population, a sample of 87 respondents were selected. The study established that drivers of liquidity had a positive association with commercial banks financial performance. Overlay study findings showed that there was statistically significant relationship between accounts payable, account receivable management and cash management on financial performance of commercial banks. The study further established that drivers of liquidity had a statistically significant effect on commercial banks financial performance in Mogadishu, Somalia.

Paper by Githinji (2016) examined the association between financial risk management and commercial banks financial performance in Kenya. The study by Githinji employed a descriptive research design. The target population for the study was all 43 commercial banks licensed to operate in Kenya. The study adopted panel data analysis. The correlating coefficients of the study showed that liquidity and forex risk were negatively correlated with financial performance. The panel data regression revealed that forex risk and credit risk failed to show any statistically significant effect on commercial banks financial performance for banks operating in Kenya. The study therefore concludes that financial risk management does not have significant effect on commercial banks financial performance. The study however failed to examine how financial risk management affect the value of the firms.

A paper by Osoro & Muturi (2015) sought to examine the influence of liquidity risk management practices on the financial performance of Sacco's in Kisii County. The study objectives were to examine the effect of capital adequacy, asset quality management and capital leverage practices on the financial performance of Sacco's domiciled in Kisii County. The study used descriptive survey research design with the population targeted being 20 respondents from 5 licensed Sacco's in Kisii County. The sample size selected was 20 respondents hence no sampling was done as all the target population was used in the current study for collection of data. The data collected was Primary in nature using structured questionnaires. Secondary data on from financial reports was obtained from SASRA and individual Sacco's end year financial statements. The study established that Capital adequacy had a significant effect on ROA in SACCOs. Asset quality and capital leverage were found not to have any statistically significant effect on saving mobilizations of the Sacco's.

A study by Ngira, Oluoch & Kalui (2015) analyzed the influence of management of liquidity on the financial performance of firms listed NSE. The study adopted a Census on all companies listed in NSE over a period of 72-month from 2008 to 2013. The study simple OLS model to analyze the data inferentially. The study established that there was

significant difference in market performance of liquid companies in comparison to illiquid firms listed at NSE. the proxy for liquidity management was quick ratio. Additionally, research showed that management of liquidity had an influence on returns in the market while for firms that were not liquid the influence was not statistically significant. Further liquid firms posted statistically significant excess returns compared to illiquid firms. The study however failed to examine the effect of the same on firm's value hence this was a gap to be filled by the current study.

Research by Salim & Bilal (2016) examined the liquidity position of Omani banks and how it affects their financial performance. The study used a sample of 4 domestic commercial banks to analyze the association between Liquidity and Financial performance for the study period of five years beginning 2010 to 2014. The data was extracted from the published financial statement of the respective banks and recorded on data collection sheets. The inferential data analysis proceeded with using multiple regression analysis. Study results showed that the relationship between liquidity and financial performance was not statistically significant. The study however relied on examining effect of liquidity on financial performance rather than firm's value which was a concern for the current study

2.3.3 Foreign exchange Risk hedging and firms Value

Foreign exchange risk is shortened as forex it a type of risk that leads to fluctuation in value of a financial assets caused by variation in the value of currency. The falling strength of the domestic currency may lead to loss of the value of financial assets denominated in local currency when the local currency loses value hence influencing the value of the assets negatively as they lose value to unfavorable forex movements thus influencing business performance. Study by Okochi (2008) showed that commodity risk hedging has an effect that is not always direct and is exposed to several challenges. The study held that after the forex exposures are well defined and quantified, the firm ought to begin the process of analysis of the possibility and soundness of adopting hedging practices to hedge against forex exposers however the success of hedging

forex exposers depend on the ability of the firm to find strong association between spot prices and future prices so as to be able to quantify the forex exposers with highest possible accuracy level required for estimation to be successful. If the correlation if the condition is not satisfied, then there is possibility of incurring huge losses with derivatives if the movement in forex exposers is not as expected by the firm especially if the actual changes in currency values is not as estimated before by the firm. Incidentally, currency futures and contracts usually associate clearly with the underlying currency spot rates (Gaur and Seshadri, 2005).

Study by Yakup and Asli (2010) showed that increased forex risk exposures and heightened activity of hedging are because of globalization that is stiffening completion and exposing firm to global uncertainties. Yakup and Asli (2010) further points firms that have sales dominated in foreign currency, that have foreign income, and have foreign assets are extremely exposed to forex risk due to more of foreign currencies. the study further states that Oil firms also finds themselves more likely face forex risks as their activities are constantly exposed to currency movements (Yakup and Asli, 2010)

If the currency of reporting value of future expected cash flows is changed due to variability of the nominal exchange rate, the cash flows are also changed to the tune of variability in the exchange rate being experience by all firms in the country. A firm that under takes to take a position in hedges like currency derivatives may reduce the level of exposure to forex variability and its incidental impact on the value of the firm. A forex risk may therefore be described as the variance of the future expected cash flows and arises from unplanned exchange rate changes in the long run period (Ohanessian & Tramontano, 2007). The activity of hedging expected cash flows serves the purpose of lowering the distribution of mean cash flows implying that currency hedging reduces risk exposure to forex variability. This reduction of risk may not necessarily mean value-adding activity to the firm. A Hedge can only add to the value of the firm only if the favourable shift in currency exchange rate is big enough to cover the costs of hedging and leaves a surplus for the firm (Ohanessian & Tramontano, 2007).

Study by Hansen (2009) examined the forex risk management practices employed by firms in Nairobi. The study established that majority of firms used forex risk management practices to hedge against risks basing on objective forex risk estimation. Study also established that that most firms had relied much on the discretion and ability of finance managers for effective forex risk management as opposed to a system that standardizes forex risk decisions. Study by Zeleot (2015) analyzed the effect of management credit risk on financial commercial banks performance in Jordan. The research noted that the management of credit risk influences financial performance of the commercial banks in Jordanian with ROA and ROE used as proxies of financial performance. The study further concluded that the proxies of management of credit risk used in this study had a statistically significant influence on Jordanian commercial banks financial performance.

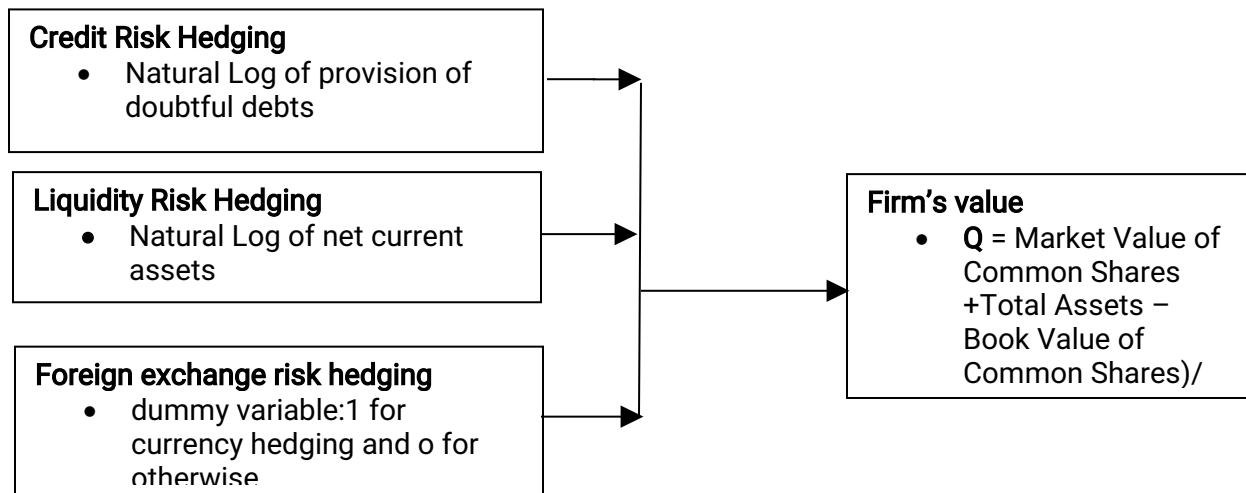
Research by Donija & demkov (2015) examined the forex risk exposers by of Omani banks and how it affects their financial performance. The study used a sample of 12 domestic commercial banks to analyze the association between foreign exchange and financial performance for the study period of five years beginning 2010 to 2014. The data was extracted from the published financial statement of the respective banks and recorded on data collection sheets. The inferential data analysis proceeded with using multiple regression analysis. Study results showed that the relationship between currency movement and variability and financial performance was not statistically significant. The study however relied on examining effect of currency variability on financial performance rather than firm's value that was a concern for the current study

2.4 Research Gap

Critical review has out cased studies done on effect of financial risk hedging practices on firm's value. A number of gaps have become evident from the literature. Most of the studies linking financial risk to firm's value have been carried out in the banking and insurance firms. Still some studies have been carried in export oriented non-finance firms. Additionally, most studies have tended to focused on specific financial risk hedging rather than detailed financial risk hedging. Other studies have also focused on

risk management in general rather than financial risk. Majority of studies have also tended to relate financial risk hedging to financial performance with few studies focusing on the effect of the same on firm's value. The current study therefore bridged the gap in literature by examining the effect of financial risk hedging on firm's value of listed commercial and service firms in Kenya.

2.5 Conceptual Framework



Independent variable

Dependent variable

2.6 Operationalization of Variables

The independent variable is financial risk hedging practices (credit risk hedging, liquidity risk hedging, operational risk hedging and foreign exchange risk hedging). The dependent variable was Firms value. The variables have been operationalised in the table 2.1.

Table 2. 1: Operationalization of Variables

Variable	Notation	Measurement	Possible sign
Dependent variable			

Firms Value	Y	Q = Market Value of Common Shares + Total Assets - Book Value of Common Shares) / Total Assets
-------------	---	--

**Independent
variables**

Credit risk hedging	X ₁	Ln of provision of doubtful and bad debts	+
Liquidity Risk Hedging	X ₂	Natural Log of net current assets	+
Foreign exchange risk hedging	X ₃	Dummy variable: 1 for firms that use currency derivatives and 0 if otherwise	+

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

The chapter presets the methodology that the study adopted. It discussed the Research design, Target population, Sample frame, sampling technique and sample size, data collection and analysis and their justification.

3.2 Research Design

The study adopted a descriptive survey design to examine the influence of financial risk hedging on firm's value of listed commercial and service firms in Kenya. A descriptive survey critical for this study as it aided in describing the characteristics of the population. Moreover, descriptive survey design is highly reliability and is simple to obtain by presenting all subjects with a standardized stimulus which ensures that observer subjectivity is greatly eliminated (Mugenda & Mugenda, 2013).

3.3 Target Population

The population of interest comprised of the 10 listed commercial and service firms at the NSE, Kenya (NSE, 2018). Mugenda and Mugenda (2003) recommended that a sample of 10-30% is adequate if properly selected. Hence, the study was undertaken as a census of the 10 listed commercial and service firms at the NSE.

3.4 Sample and sampling technique

A sampling technique is the method used to select an appropriate sample of respondents from the population. This study targets the list of listed commercial and service firms in Kenya. Since the study was a census of all the 10 listed commercial and service firms at the NSE, no sampling technique will be necessary when selecting Listed commercial and service firms to be part of the study. This study will use a survey of the entire 10 listed commercial and service firms in Kenya.

3.5 Research Instruments

The study relied on entirely on secondary data hence data collection sheets

was used for recording information extracted from the listed commercial and service firm's annual financial reports for the study period 2011-2017. Data collection sheet had financial data on the columns and years on the rows for the seven years (see appendix II).

3.6 Data Collection Procedure

The researcher first obtained introduction letter from the postgraduate school. The researcher then extracts financial data and record in collection sheet. Secondary data from listed commercial and service firms annual report to be collected on the study variable included, firms value of the companies measured using Q. forex risk hedging, credit risk hedging and Liquidity risk hedging. The study collected secondary data for the last 7 years starting year 2011 to 2017.

3.7 Data Analysis and presentation

The data collected was examined before analysis commenced for completeness and consistency. The collected panel data was subjected to computerized analysis using excel spreadsheets and STATA 14. STATA has been widely used by scholars to analyze panel data. Musau (2015), Garg and Gumbochuma (2015), Hunyh (2012) utilized STATA software in their respective panel data analysis. The data was then being analysed using descriptive statistics, correlation analysis, and multiple regression analysis. Descriptive statistics was use to summarize and explain the study variables as observed in the listed commercial and service firms in Kenya. Descriptive statistics included measures of central tendencies and dispersion. Inferential statistics included bivariate Pearson correlation, multiple regressions coefficients, ANOVA and coefficient of determination. This analysis enabled the testing the effect of financial risks hedging on firm's value of listed commercial and service firms at the NSE. The results were then being presented in tables with their associated explanations

3.7.1 Statistical Model

The statistical model shows the mathematical relationship between the independent variable financial risk hedging practices and dependent variable firms value of listed

commercial and service businesses in Kenya. The model is shown in equation (1)

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + e \dots \dots \dots (1)$$

Where Y is dependent variable firms value (Q)

X₁- X₃: are independent variables

X₁: credit risk hedging

X₂: liquidity risk hedging

X₃: forex risk hedging

β₁, β₂, β₃ and β₄: are the coefficients of independent variables

β₀: intercept term

e: stochastic error term

3.8 Diagnostic Tests

Panel data was subjected to diagnostic tests to evaluate conformity with multiple regression model assumptions. This ensured validity of the results. The study employed normality, heteroscedasticity, multicollinearity, serial correlation, random or fixed effects and panel unit root diagnostic tests.

3.8.1 Normality Test

The test is conducted to test whether data exhibits a normal distribution. If the data is not normally distributed, it may not display the correct relationship between variables studied (Garson, 2012). The study employed Shapiro-Wilk test to test normality. The test is most appropriate for a sample size of 50 or less. The choice of this test is informed by the small number of sample to be studied. Data is normal if the significance values for Shapiro-Wilk tests are greater than P-Value statistic test of 0.05. A value below 0.05 depicts the data is not normally distributed.

3.8.2 Heteroscedasticity Test

Gujarati (2003) described heteroscedasticity as lack constant error variance. The study utilized Glejser test by using the regression residual value of the independent variables.

There is no heteroskedasticity if the significance values are greater than the P-value statistics test of 0.05.

3.8.3 Multicollinearity

Kothari (2004) postulates that multicollinearity exists if there is an association of independent variables. Therefore, independent variables ought to be linearly independent of each other. Cooper and Schindler (2006) asserts the existence of multicollinearity leads to invalid significance tests due to the distorted regression coefficients. The study employed Variance Inflation Factor (VIF) to test the existence of multicollinearity. If VIF is less than 10, then there is no existence of multicollinearity (Gujarati, 2003).

3.8.4 Serial Correlation

Gujarati (2003) posit that serial correlation exists if an error term of one period is correlated with that of subsequent periods. The study used Wooldridge Drukker test to test existence of autocorrelation. A panel data has no serial correlation if P value is greater than the 5% level of significance.

3.8.5 Random or Fixed Effects

The study employed Hausman test to determine whether to use random effects model or fixed effects model. Bellouma (2011) asserts that Random effects model is preferred since fixed effects model is only efficient in producing acceptable estimates when the data being analyzed suffers from correlation issues. Further, fixed effects model may not be most appropriate if there is little variability of variables across time (Allison, 2009). If P-Value is greater than 5% level of significance, random effects model should be used.

3.8.6 Panel Unit Root Test

Panel unit root test is conducted to ensure that the variables are stationary. Gujarati (2003) posit that a data has no unit roots if the variance, autocorrelation and mean of the data structure do not vary with different time periods. Wooldridge (2012) asserted that stationarity/ panel unit root test ensures that the regression results are not

spurious thereby guaranteeing robust regression results. The study employed Augmented Dickey Fuller (ADF) unit root test to evaluate the availability of unit roots in the data. If P-Value is greater than 5% level of significance, it implies the data is not stationary i.e. availability of unit roots.

3.8.7 Random or Fixed Effects

The study employed Hausman test to determine whether to use random effects model or fixed effects model. Bellouma (2011) asserts that Random effects model is preferred since fixed effects model is only efficient in producing acceptable estimates when the data being analyzed suffers from correlation issues. Further, fixed effects model may not be most appropriate if there is little variability of variables across time (Allison, 2009). If P-Value is greater than 5% level of significance, random effects model should be used.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter presents the findings of the study. The study sought to analyse the effect of corporate risk hedging practices on firm value of listed commercial and service firms in Kenya. The research findings were computed from secondary panel data collected from Audited financial statements of the firms.

4.2 Descriptive Analysis

The purpose of the descriptive statistics was to describe the general distributional properties of the data, to identify any unusual observations or any unusual patterns of observations that may cause problems for later analyses to be carried out on the data. Thus, initial exploration of the data using simple descriptive tools was provided to describe and summarize the data generated for the study. This section provides the descriptive statistics as per the objectives of the study. That is effect of credit risk hedging, liquidity risk hedging, operational risk hedging and forex risk hedging on firm's value of listed Commercial and Services Firms in Kenya.

Table 4. 1: Summary of Descriptive Statistics

Variable	Obs	Mean	Std. Dev.
X1	70	6.4679	9.8084
X2	70	86.2407	133.9190
X4	70	0.14	0.36
Y	70	1.22	1.54

4.2.1 Credit risk hedging

The research sought to establish the central tendency and distribution of credit risk hedging among the listed commercial and service companies in Kenya. Credit risk hedging was measured using provision for bad and doubtful debts. The results are presented in table 4.1. The mean provision for bad and doubtful debts was ksh. 6.4679 million Suggesting that the average provision for bad and doubtful debts for the listed commercial and services firms studied was about ksh. 6 million. The standard deviation for the provision for bad and doubtful debts was ksh. 9.8084 million demonstrating that out of the listed commercial and services firms listed in Kenya, provision for bad and doubtful debts was spread around the mean with about ksh.10 million.

4.2.2 Liquidity Risk Hedging

The researcher sought to establish the central tendency and distribution of liquidity risk hedging among the listed commercial and service firms in Kenya. Liquidity risk hedging was measured by net current assets. The results are presented in table 4.1. The mean net current assets were ksh. ksh. 86.2407 million suggesting that the average net current assets for the listed commercial and service firms studied was about ksh. 86 million. The standard deviation for the net current assets was ksh. 133.919 demonstrating that the listed commercial and service firms studied, net current assets was spreads around the mean with about ksh.134 million.

4.2.3 Foreign exchange risk hedging

The also sought to establish the distribution of forex risk hedging among the listed commercial and service firms in Kenya. The dummy variable was used to measure risk hedging with 1 representing hedging with derivatives and 0 for otherwise. The results are presented in table 4.1. mean forex risk hedging was 0.14 suggesting that the average forex risk hedging for the listed commercial and service firms was 0.14. The standard deviation for forex risk hedging was 0.36 demonstrating that out of the listed Commercial and Services Firms, forex risk hedging was spread around the mean with about 0.36 points.

4.2.4 Firm Value

Finally, Q was used as a measure of firm value. The results are presented in table 4.1. The mean Q was 1.22 suggesting that the average Q for the listed commercial and service Firms studied was about 1.22. The standard deviation for the Q was 1.54 demonstrating that out of the listed commercial and services firms in Kenya, the Q was spread around the mean with about 1.54.

4.3 Diagnostic Tests Results

Panel data was subjected to diagnostic tests to evaluate conformity with multiple regression model assumptions. This ensured validity of the results. The study employed normality, heteroscedasticity, multicollinearity, serial correlation, random or fixed effects and panel unit root diagnostic tests.

4.3.1 Multicollinearity

The study employed Variance Inflation Factor (VIF) to test the existence of multicollinearity. If VIF is less than 5, then there is no existence of multicollinearity (Gujarati, 2003). The results are shown in table 4.3.

Table 4. 2: Variance Inflation Factor (VIF)

Variable	VIF	1/VIF
X2	2.14	0.467352
X1	2.13	0.469689
X3	1.02	0.983725
Mean VIF	1.76	

O'Brien (2007) suggested that a Variance Inflation Factor (VIF) greater than 5 are a sign of multicollinearity; the higher the value of VIF's, the more severe the problem. Results in table 4.5 show that all the variables had a variance inflation factors (VIF) of less than 5 and overall VIF of 1.76. These results show that multicollinearity was very low hence not a problem.

4.3.2 Heteroscedasticity Test

Gujarati (2003) described heteroscedasticity as lack constant error variance. The study utilized Breusch-Pagan test of Heteroscedasticity by using the regression residual value of the independent variables. The study null hypothesis is that the data exhibits homoscedasticity.

Table 4. 3: Breusch-Pagan test of Heteroscedasticity

$$Y[I D, t] = Xb + u[I D] + e[I D, t]$$

Estimated results:

	Var	sd = sqrt (Var)
Y	. 8330963	. 9127411
e	. 0319389	. 1787145
u	. 2456054	. 4955859

Test: Var (u) = 0

chi bar 2 (01) = 61.52
 Prob > chi bar 2 = 0.0000

The results in table 4.4 show that p value was less than 0.05 hence the study fails to reject null hypothesis that data has homoscedasticity hence study concludes that model for estimating the coefficients is not affected by problem of heteroscedasticity.

4.3.3 Normality Test

The study employed Shapiro-Wilk test to test normality. The hypothesis to test was whether the data was normally distributed as given by H_0 and H_1 , set $\alpha = 0.05$. The rule of hypothesis testing is reject H_0 if p-value is less than α and fail to reject H_0 if the p-value is greater than α (Garson, 2012).

Where: H_0 : The data is normal and H_1 : The data is not normal

Table 4. 4: Shapiro-Wilk Test Results

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
X1	70	0.82723	10.634	5.141	0.00000
X2	70	0.88763	6.917	4.206	0.00001
X3	70	0.92273	4.756	3.391	0.00035
Y	70	0.57066	26.427	7.121	0.00000

From table 4.3, the study should reject the null hypothesis H_0 that Credit risk hedging ($p = .0000$), Liquidity risk hedging ($p = .00001$), and Forex risk hedging ($p = .00035$) follow normal distribution. This owes to p-values being lower than 0.05. The data seems not normal since the sample size was small however, this cannot affect the estimation of coefficient of explanatory variables used in the study.

4.3.4 Serial Correlation

Gujarati (2003) posit that serial correlation exists if an error term of one period is correlated with that of subsequent periods. The study used Wooldridge Drukker test to test existence of autocorrelation. The study null hypothesis was that there is no serial correlation.

Table 4. 5: Autocorrelation Tests

Wooldridge test for autocorrelation in panel data

H_0 : no first order autocorrelation

$F(1, 10) = 0.341$

Prob > F = 0.5660

The results are as indicated in Table 4.6 and therefore the null hypothesis of no autocorrelation is accepted and therefore residuals are not auto correlated (p -value= 0.5660).

4.3.5 Panel Unit Root Tests

Most economic variables are usually non-stationary in nature and prior to running a regression analysis. Unit root tests were thus conducted using the LLC test to establish whether the variables were stationary or non-stationary. The purpose of this is to avoid spurious regression results being obtained by using non-stationary series.

Table 4. 6: unit root test

Variable Name	Adjusted Statistic	P-Value	Comment
Credit risk hedging	-1.5648	0.058	Stationary
Liquidity risk hedging	-3.2615	0.000	Stationary
Forex risk hedging	-0.1333	0.067	Non stationary
Firms value	-1.6557	0.048	Stationary

Results in Table 4.6 indicated that all variables are stationary except Forex risk hedging (i.e. absence of unit roots) at 5% level of significance.

4.3.6 Random or Fixed Effects

The study employed Hausman test to determine whether to use random effects model or fixed effects model. The test null hypothesis is that the preferred model is fixed effects model while the alternative hypothesis is that random effects model is preferred.

Table 4. 7: Hausman Test

--- Coefficients ---				
(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))	
FEM	REM	Difference		
S.E.				
X1	.238188	.2530045	-.0148166	0.006755
X2	.6529963	.6075069	.0454894	0.004536

X3 -0.0077888 .1541843 -0.1619731 0.003461

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\text{chi2}(2) = (b-B)'[(V_b-V_B)^{-1}](b-B)$$

$$= 1.534$$

$$\text{Prob}>\text{chi2} = 0.0033$$

Given that the value of P-Value ($p = 0.0033$) as shown in table 4.8 was less than 5% level of significance, the test fails to reject null hypothesis. This means that the fixed effects model was the appropriate model over the random effect Model.

4.4 Regression Analysis

Regression analysis was multiple in nature as there were four independent variables. Multiple regression analysis involved calculation of coefficient of determination, Analysis of Variances (ANOVA) and regression coefficients. The results is shown in table 4.8.

Table 4. 8: Summary of Fixed Effect Model Regression Results

```

Fixed-effects (within) regression              Number of obs   =          70
Group variable: ID                           Number of groups =          10

R-sq:                                         Obs per group:
  within = 0.7840                             min =          7
  between = 0.0156                            avg =          7.0
  overall = 0.0255                             max =          7

corr(u_i, Xb) = -0.3106                       F( 3, 57)      =          68.94
                                                Prob > F       =          0.0000
    
```

Y	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
X1	.238188	.0234154	10.17	0.000	.1912995	.2850764
X2	.6529963	.0518149	12.60	0.000	.5492387	.7567538
X3	-.0077888	.1182688	-0.07	0.948	-.2446181	.2290404
_cons	.1608595	.4381198	0.37	0.715	-.7164602	1.038179
sigma_u	.9757729					
sigma_e	.17871454					
rho	.96754414	(fraction of variance due to u_i)				

Independent variables: credit risk hedging (X1), liquidity risk hedging (X2) and forex risk hedging (X3).

Dependent variable: firm value (Y).

4.4.1 Coefficient of Determination and ANOVA

Tables 4.8 indicate that the model explains only 2.55% of the variations in firm value as shown by the coefficient of determination (R^2) value of .0255 hence 97.45 % variations in firm's value is explained by other factors not included in the model. It is therefore clear that corporate risk hedging explains only 2.56 % variations in firm's value of listed commercial and service firms in Kenya. Additionally, according to table 4.8 the overall significance of the model was 0.000 with an F value of 68.94. The level of significance was lower than 0.05 and this means that corporate risk hedging does show statistically significant effect on firm value of listed commercial and service firms in Kenya.

4.4.2 Coefficients of Independent Variables

Table 4.8 further shows the coefficients of independent variables (credit risk hedging, liquidity risk hedging, operational risk hedging and forex risk hedging and the values of p and values of t. The model was thus estimated as;

Firm Value = **.1608595** + **.238188** Credit risk hedging + **.6529963** liquidity risk hedging - **.0077888** forex risk hedging.

The estimated model above shows the causal effect relationship between the independent variable corporate risk hedging and dependent variable firm' value of listed commercial and service firms in Kenya. The estimated intercept term = **.1608595** shows the level of firm's value when the independent variables are held constant. The coefficients estimate of the model are explained in details in the following discussion.

The researcher established that credit risk hedging had a statistically significant effect on firms value ($\beta_1 = .238188$, $p = 0.000 < \alpha = 0.05$). Liquidity risk hedging had a statistically significant effect on firms value ($\beta_2 = .6529963$, $p = .000 < \alpha = 0.05$). Forex risk hedging had a statistically insignificant effect on firm's value ($\beta_3 = -.0077888$, $p = 0.948 > \alpha = 0.05$).

4.5 Hypothesis Testing

The study sought to test the hypotheses of the study using student t test for each of the independent variable of the study.

Table 4. 9: summary of hypotheses testing

Hypothesis	P	Decision
H01: Liquidity risk hedging has no significant effect on firm value of listed commercial and service firms in Kenya.	.000	P < 0.05 Reject null hypothesis
H02: Credit risk hedging has no significant effect on firm value of listed commercial and	.000	P < 0.05 Reject null hypothesis

service firms in Kenya.

H03: Forex risk hedging has no significant effect on firm value of listed commercial and service firms in Kenya.	.948	P > 0.05 Fail to reject null hypothesis
---	------	--

The hypotheses were tested using student t test in the regression analysis. The first three hypotheses were rejected while the fourth hypothesis was not rejected.

4.6 Discussion of Results

4.6.1 Effect of credit risk hedging on firm's value

The study tested the null hypothesis that credit risk hedging has no significant effect on firms value of listed commercial and service companies in Kenya using regression analysis, it was established that credit risk hedging had a statistically significant effect on firms value ($\beta_1 = .238188$, $p = 0.000 < \alpha = 0.05$). The null hypothesis was thus rejected since the value of p was less than 0.05 level of significance showing that credit risk hedging has a significant effect on firm's value of listed commercial and service firms in Kenya. The value β_1 was positive showing that credit risk hedging has a positive effect on firm's value of listed commercial and service firms in Kenya hence a unit increase in credit risk hedging as given by provision for bad and doubtful debts would lead to a .238188 units increase in firm value.

The study has a backing in the empirical review concerning the effect of credit risk management on firm's value. Study by Mutua (2016) examined the influence of credit risk management strategies on financial performance among deposit taking Sacco's in Kitui County. The study results showed strong association between financial performance of SACCOs and credit monitoring. Study by Alshatti (2015) analyzed the influence of credit risk management on the financial performance of commercial banks. Variables. The findings showed asset quality had weak association with financial performance. Kithinji (2010) on relationship between profitability of commercial banks in Kenya and credit risk management. The study concluded that the association between

profitability, credit risk management and amount of credit was not statistically significant.

4.6.2 Effect of liquidity risk hedging on firm's value

The null hypothesis that liquidity risk hedging has no significant effect on firm's value of listed commercial and service firms in Kenya was also tested. Regression analysis showed that liquidity risk hedging had a statistically significant effect on firms value ($\beta_2 = .6529963$, $p = .000 < \alpha = 0.05$). The null hypothesis was thus rejected since the value of p was less than 0.005 level of significance. The value β_2 was positive implying that that liquidity risk hedging has a positive effect on firm's value of listed commercial and service companies in Kenya hence a unit increase in liquidity risk hedging given by net current assets would lead to an increase in firm's value of listed commercial and services firms by 0.06 units.

The finding on the effect liquidity risk management was found to agree with empirical review. Osoro & Muturi (2015) sought to examine the influence of liquidity risk management practices on the financial performance of Sacco's in Kisii County. The study established that Capital adequacy had a significant effect on ROA in SACCOs. Asset quality and capital leverage were found not to have any statistically significant effect on saving mobilizations of the Sacco's. Additionally Ngira, Oluoch & Kalui (2015) analyzed the influence of management of liquidity on the financial performance of firms listed NSE establishing that there was significant difference in market performance of liquid companies in comparison to illiquid firms listed at NSE.. Additionally, research showed that management of liquidity had an influence on returns in the market while for firms that were not liquid the influence was not statistically significant. Further liquid firms posted statistically significant excess returns compared to illiquid firms. The study however failed to examine the effect of the same on firm's value hence this was a gap to be filled by the current study.

4.6.3 Effect of Foreign Exchange Risk Hedging on Firms Value

Finally, the research tested the null hypothesis that forex risk hedging has no significant effect on firm's value of listed commercial and service firms in Kenya. Regression analysis showed that forex risk hedging had a statistically insignificant effect on firm's

value ($\beta_3 = -.0077888$, $p = 0.948 > \alpha = 0.05$). Hence, the study failed to reject null hypothesis. The value β_4 was positive showing that forex risk hedging has a positive effect on firm's value of listed commercial and service companies in Kenya and that a unit increase in forex risk hedging would lead to a 0.0254072 units increase in firm's value. The finding on the effect of forex risk hedging on firm's value was in congruence with study by Donija & demkov (2015) who examined the forex risk exposers by of Omani banks and how it affects their financial performance.

Study results showed that the relationship between currency movement and variability and financial performance was not statistically significant. Jin and Jorion (2016), reported findings that forex risk hedging does not change value of MNCs that hedged as well as those that did not hedge their financial risk. Management techniques should be emphasized and utilized more effectively by Oil companies in Kenya. Allayannis and Weston (2011) however noted that companies that instituted a forex hedging policy were able to experience an increase in firm value above their peers that decided not to adopt hedges. Moreover, study by Carter et al. (2016) noted that that airlines facing price of fuel volatility accrued through adoption of price hedges.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The purpose of the study was to examine the effect of corporate risk hedging on firm's value of listed commercial and service companies in Kenya. The used secondary data sourced from audited financial statements of individual companies and from Nairobi securities exchange. The data was analysed using descriptive and inferential statistics. This chapter covers the summary, conclusion, recommendation and areas of further research.

5.2 Summary of Findings

A number of findings have been established regarding the study variables. The findings have been arranged according to study variables as follows.

5.2.1 Credit Risk Hedging

The mean provision for bad and doubtful debts was about Kenyan shillings six million suggesting that the average provision for bad and doubtful debts for the listed commercial and services firms studied was about six million. The standard deviation for the provision for bad and doubtful debts was spread around the mean with about ten million. The study established that credit risk hedging had a statistically significant effect on firm's value. The null hypothesis was thus rejected since the value of p was less than 0.05 level of significance showing that credit risk hedging has a significant effect on firm's value of listed commercial and service firms in Kenya.

5.2.2 Liquidity risk hedging

Liquidity risk hedging was measured by net current assets. The average net current

assets for the listed commercial and service firms studied was about eighty six million. The standard deviation demonstrate that the listed commercial and service firms studied, net current assets was spreads around the mean with about one hundred and thirty-four million Kenyan. The study also established that Liquidity risk hedging had a statistically significant effect on firm's value. The null hypothesis was thus rejected since the value of p was less than 0.05 level of significance. The value β_2 was positive hence a unit increase in liquidity risk hedging given by net current assets would lead to an increase in firm's value of listed commercial and services firms by units.

5.2.3 Foreign Exchange Risk Hedging

Mean forex risk hedging was zero point fourteen suggesting that the average forex risk hedging for the listed commercial and service firms was zero point thirteenth standard deviation for forex risk hedging was zero point thirty-six demonstrating that out of the listed Commercial and Services Firms, forex risk hedging was spread around the mean with about zero point thirty-six points. Finally, forex risk hedging had a statistically insignificant effect on firm's value. Hence, the study failed to reject null hypothesis. The value β_3 was positive showing that forex risk hedging has a positive effect on firm's value of listed commercial and service companies in Kenya and that a unit increase in forex risk hedging would lead to units increase in firms value.

5.3 Conclusion

The study has come up with a number of conclusions. The conclusions have been arranged according to study to study objectives as follows.

5.3.1 Credit Risk Hedging

Based on the findings of the study, a number of conclusions can be drawn. First, given

that credit risk hedging had a statistically significant effect on firm's value and that the null hypothesis was rejected. The study concludes that credit risk hedging has a significant effect on firm's value of listed commercial and service firms in Kenya. The value of coefficient of credit risk hedging was positive showing a unit increase in credit risk hedging would lead increase in firm value.

5.3.2 Liquidity risk hedging

Secondly, since liquidity risk hedging had a statistically significant effect on firm's value and that null hypothesis rejected, the study concludes that liquidity risk hedging has a significant effect on firm's value of listed commercial and service firms in Kenya. The value coefficient of liquidity risk hedging was positive hence, any unit increase in liquidity risk hedging would definitely lead to an increase in firm's value of listed commercial and services firms

3.3.3 Foreign Exchange Risk Hedging

Finally, given that forex risk hedging had a statistically insignificant effect on firm's value and since the study failed to reject null hypothesis. The study therefore concludes that forex risk hedging does not have a significant effect on firm's value of listed commercial and service firms in Kenya. The value coefficient of forex risk hedging was positive implying that that forex risk hedging has a positive effect on firm's value of listed commercial and service companies in Kenya and that an increase in forex risk hedging would lead to units increase in firm's value.

5.4 Recommendations the study

The recommendations of the study are anchored on study findings and conclusions.

The recommendations include the following:

5.4.1 Credit Risk Hedging

Based on the study conclusion that credit risk hedging has a significant effect on firm's value of listed commercial and service firms in Kenya. The study recommends to management of listed commercial and service firms in Kenya to improve on their hedging activities towards credit risk. Specifically, the study recommends that the firms should set aside enough provisions for bad and doubtful debts to cover for any eventual bad debts, which may have to be written off. The firms should adopt a proactive approach where debts are classified depending on probability of being impaired then adequate provision for impaired debts be set aside for the purpose.

5.4.2 Liquidity Risk Hedging

Secondly, given the conclusion that liquidity risk hedging has a significant effect on firm's value of listed commercial and service firms in Kenya, The current study wishes to recommend to the top management of listed commercial and service firms to take liquidity risk hedging seriously. The management through the finance manager must ensure the firms are liquid enough such that they do not run into financial distress a situation where they are not able to settle short-term obligations as they fall due. The finance managers should specifically ensure the firm has optimal liquid assets at its disposal.

5.4.3 Foreign Exchange Risk Hedging

Finally, given that the study concluded that forex risk hedging does not have a significant effect on firm's value of listed commercial and service firms in Kenya. The current wishes to recommend to the top management of listed commercial and service firms to control forex risk however since the effect of forex risk hedging was not

significant especially for firms with minimal currency exposers, The managers should not devote more resources to controlling the foreign exchange risks.

5.5 Recommendation for future Studies

The purpose of the study was to examine the effect of corporate risk hedging on firm's value of listed commercial and service companies in Kenya. The study was successfully carried out however, a number of gaps have been identified for future studies. The current study was based on the listed commercial and services firms in Kenya hence the findings may not be readily applicable to firms' not in this portfolio, the study therefore suggest that future studies should be carried out in all listed firms at the NSE to establish if the findings hold in other portfolios of the securities exchange market. Additionally, the current study was based on secondary data only; hence, the current study suggests that future studies should carried out using both primary and secondary data to examine if the findings are holding when both primary and secondary data is used in the study. Finally, the current study suggest that the studies should introduce other financial risk hedging practices not considered in the current study like price, equity, solvency and interest rate risk hedging practises.

REFERENCES

- Abel, A.B. and J.C. Eberly. 2002. "Investment and q with Fixed Costs: An Empirical Analysis." Working paper, The Wharton School, University of Pennsylvania, Northwestern University and N.B.E.R. (National Bureau of Economic Research).
- Adam, T.R. and C.S. Fernando. 2006. "Hedging, Speculation and Shareholder Value." *Journal of Financial Economics*, 81: 283-309.
- Adam, T.R., D. Dasgupta and S. Titman. 2007. "Financial Constraints, Competition, and Hedging in Industry Equilibrium." *Journal of Finance*, 62: 2445-2473.
- Allayannis, G., Lel, U. and D.P. Miller. 2012. "The Use of Foreign Currency Derivatives, Corporate Governance, and Firm Value around the World." *Journal of International Economics*, 87: 65-79.
- Armstrong, M., Galli, A., & Ndiaye, A. A. (2011, April). A case study on the impact of hedging against foreign exchange risk and energy price risk. In *Proceedings of the project evaluation conference organised by the AusIMM in Melbourne* (pp. 21-22).
- Askari, H., & Krichene, N. (2017). Oil price dynamics (2002–2006). *Energy Economics*, 30(5), 2134-2153.
- Alshatti, A. S. (2015). The effect of credit risk management on financial performance of the Jordanian commercial banks. *Investment Management and Financial Innovations*, 12(1), 338-345.

Berkman, H. and M.E. Bradbury. 1996. "Empirical Evidence on the Corporate Use of Derivatives." *Financial Management*, 25: 5-13.

Berrosipide, J.M., Purnanandam, A. and U. Rajan. 2010. "Corporate Hedging, Investment and Value." Working paper, Federal Reserve Board.

Baker, T.L. (1999). *Doing Social Research*, 3rd Edition, McGraw Hill: Boston.

Baker, M., Foley, C. & Wurgler, J. (2012). Multinationals as Arbitrageurs: The Effect of Stock Market Valuations on Foreign Direct Investment. *The Review of Financial Studies*, 22(1), 337-369.

Belk, P. A. (2002). The organization of foreign exchange risk management: A three-country study. *Managerial Finance*, 28(11), 43-52.

Beske, P., Land, A., & Seuring, S. (2014). Sustainable supply chain management practices and dynamic capabilities in the food industry: A critical analysis of the literature. *International Journal of Production Economics*, 152, 131-143.

Brigham, F. E. & Ehrhardt C. M. (2014). *Financial Management, Theory & Practice*, India, 158, 932.

Campbell, J. Y., Hilscher, J., & Szilagyi, J. (2008). In search of distress risk. *The Journal of Finance*, 63(6), 2899-2939.

Clark, E., and A. Judge. "The Determinants of Foreign Currency Hedging: Does Foreign Currency Debt Induce A Bias?." *European Financial Management*, 14 (2008), 445-469.

Clark, E., Judge, A. & Mefteh, S. (2006). *Corporate Hedging with Foreign Currency Derivatives and Firm Value*. London: SAGE Publishers.

Cohen J, Cohen P (1975). *Applied Multiple Regression/Correlation Analysis for the Behavioural Sciences*. Hillsdale, NJ: Lawrence Erlbaum.

Dare, F. D, and Sola, O. (2010). "Capital Structure and Corporate Performance in Nigerian Petroleum Industry: Panel Data Analysis." *Journal of Mathematics and Statistics*, Science Publications.

Datta, Deepak K., Nandini Rajagopalan, and Abdul M. A. Rasheed, 1991, "Diversification and Performance: Critical Review and Future Directions," *Journal of Management*

Studies 28: 529-558.

Dionne., G. (2013). Risk Management: History, Definition and Critique. Cahiers De Recherche 1302, CIRPEE.

Economic Survey. (2010). Kenya National Bureau of statistics. Nairobi.

Eiteman, M., Moffett, A., Stonheill, D. (2014). Fundamentals of international finance. Edinburgh, Prentice Hall.

Ennouri,W. (2013) Risks management: New literature review. Polish journal of Management Studies, 8(5), 223-236

Erkki, K., (2004) Cash Management Behavior of Firms and its Structural Change in an Emerging Money Market. Faculty of Economics and Business Administration, Department of Accounting and Finance, University of Oulu

Finne, S., & Sivonen, H. (2008). *The retail value chain: How to gain competitive advantage through Efficient Consumer Response (ECR) strategies*. Kogan Page Publishers.

Fredrick, O. (2013). The impact of credit risk management on financial performance of commercial banks in Kenya. *DBA Africa Management Review*, 3(1).

Gongera, E., G., Ouma, B., O. &Were, J.,N. (2013).The Effects of Financial Risks on Profitability of Sugar Firms in Kenya. *European Journal of Business and Management*.5 (3), 124-135.

Gibbs,P. (1993).Determinants of Corporate Restructuring: The Relative importance of Corporate Governance, Takeover threat, and Free Cash Flow. *Strategic Management Journal*,14,Special Issue; Corporate Restructuring, pp.51-68.

Githire, C., & Muturi, W. (2015). Effects of capital structure on financial performance of firms in Kenya: evidence from firms listed at the Nairobi Securities Exchange. *International Journal of Economics, Commerce and Management*, 3(4), 1-10.

Guay, W. & Kothari, S. (2013). How much do firms hedge with derivatives? *Journal of Financial Economics*, 7(2), 423-461.

Hagelin, N., & Pramborg, B. (2004). Hedging Foreign Exchange Exposure: Risk Reduction from Transaction and Translation Hedging. *Journal of Financial Management and Accounting*, 15(1), 1-20.

Hagelin N. (2003). Why firms hedge with currency derivatives: an examination of transaction and translation exposure, *Applied Financial Economics*, 13(1):55-58.

Hansen, M.A (2015). *An Empirical Study of Strategic Approaches to Foreign Exchange Risk Management Used By Danish Medium-Sized Non-Financial Companies*. Unpublished Master of Science Thesis. Aarhus School of Business, University of Aarhus.

Hansen, L. P., & Singleton, K. J. (2015). Stochastic consumption, risk aversion, and the temporal behavior of asset returns. *Journal of political economy*, 91(2), 249-265.

Horne, J. C., & Wachowicz, J. M. (2012). *Fundamentals of Financial Management* (Thirteenth ed.). New York: Prentice Hall Inc.

Hoyt R., & Liebenberg A., (2011). The value of enterprise risk management. *Journal of Risk and Insurance*, 78(4), 795-822.

Jin, Y. & Jorion, P. (2004). Firm Value and hedging: Evidence from U.S. Oil and Gas Producers. *The Journal of Finance*, 61 (2):893-919.

Karimi, B. (2014). *The effect of enterprise risk management on financial performance of pension fund management firms in Kenya*. Unpublished thesis from university of Nairobi.

Kasanen, E., Kinnunen, J., & Niskanen, J. (2016). Dividend-based earnings management: Empirical evidence from Finland. *Journal of Accounting and Economics*, 22(1-3), 283-312.

Kashif, M. & Woon, F. (2015) Enterprise Risk Management and Firm Performance Validated Through Economic Value Added Factors. *International journal of economics and statistics*. 3(1) 148-154

Keynes, J. M. (1935). The Future of the Foreign Exchange. *Lloyds Bank Limited Monthly Review*, 6(68).

Kibet, C. (2015) *Effect of enterprise risk management determinants on financial performance of listed firms in Kenya*. Unpublished thesis from Jomo Kenyatta University of Agriculture and Technology

Kithinji A. M (2010). *Credit Risk Management and Profitability of Commercial Banks in Kenya*. An Unpublished MBA Project, School of Business, University of Nairobi,

Kenya.

Kituku, B. U. (2014). The effect of foreign exchange rate fluctuation on the financial performance of motor vehicle firms in Kenya. *Unpublished MBA Project*.

Kommunuri, J., Narayan, A., Wheaton, M. & Jandug, I. (2011) Enterprise Risk Management and Firm Performance. *Empirical evidence from Vietnam*. Retrieved from <https://cdn.auckland.ac>

Kothari, C. (2003). *Research Methodology: Methods and Techniques*, (2nd ed). Chicago: University of Chicago Press

Kothari, C.R (2006), *Research Methodology: Methods and Techniques*, India: New Age Publications.

Ledenyov, D. O., & Ledenyov, V. O. (2012). On the risk management with application of econophysics analysis in central banks and financial institutions. *arXiv preprint arXiv:1211.4108*.

Leland and Pyle [1977]. Informational Asymmetries, Financial Structure, and Financial Intermediation, *Journal of Finance*, Vol. 32, No. 2, Papers and Proceedings of the Thirty Fifth Annual Meeting of the American Finance Association, Atlantic City, New Jersey, September 16-18, 1976 (May, 1977), pp. 371-387

Lloyd, P. W., & Jahera, S. J. (1994). Firm-Diversification Effects on Performance as Measured by Tobin's q. *Journal of Managerial and Decision Economics*, 15, 259-266.

Li, J. S. H., & Hardy, M. R. (2011). Measuring basis risk in longevity hedges. *North American Actuarial Journal*, 15(2), 177-200.

Liu, J., Zou, P., & Gong, W., (2013). Managing Project Risk at Enterprise Level: Exploratory Case Studies in China. *J. Constr. Eng. Manag.* 139, 1268–1274.

Lukorito, S. N., Muturi, W., Nyang'au, A. S., & Nyamasege, D. (2014). Assessing the effect of liquidity on profitability of commercial banks in Kenya. *Research Journal of Finance and Accounting*, 5(19), 145-152.

Macharia, J. K. (2012). Factors influencing growth of social enterprises in Kenya: A survey of social enterprises in Nairobi. Nairobi, Kenya.

Mackay, P. and Moeller, S., (2007), "The Value of Corporate Risk Management", *Journal*

of *Finance*, 62: 1379-1419.

Maina, J. (2011). Relationship between the Liquidity and Profitability of Oil Companies in Kenya. MBA Unpublished Research Project of the University of Nairobi.

Maiywa, E. C. (2013). The impact of green marketing on consumer buying behaviour in major supermarkets in Nairobi County (Unpublished Doctoral dissertation). University of Nairobi, Kenya.

Mayers, D. & Smith, C. (1982). On the corporate demand for insurance, *Journal of Business* 55, 281–296.

Mayers, D., & Smith, C. W. (1982). On the corporate demand for insurance. In *Foundations of Insurance Economics* (pp. 190-205). Springer, Dordrecht.

Mauro, M. P., Joly, M. H., Aisen, M. A., Alper, M. E., Boutin-Dufresne, M. F., Dridi, M. J., ... & Mira, M. C. (2015). *Monitoring and managing fiscal risks in the East African community*. International Monetary Fund.

Mburugu, J. N. (2014). *The Effects Of Hedging Strategies On Financial Performance Of Total Plc* (Doctoral Dissertation, School Of Business, University Of Nairobi).

Merton, R. C., 1974, On the Pricing of Corporate Debt: The Risk Structure of Interest Rates, *Journal of Finance*, 29 (2) :449–70.

Modigliani, F. and Miller, M. (1958) "The cost of capital, corporate finance and the theory of investment", *American Economic Review*, Vol. 48, pp. 261-97.

Modigliani, F. and Miller, M. (1963) "Corporate income taxes and the cost of capital: a correction", *American Economic Review*, Vol. 53, pp. 443-53.

Murungi, C. M., Murage, K., & Wanjau, K. (2014). Challenges facing nonfinancial firms in hedging financial risks using derivatives. *International Journal of Social Sciences and Entrepreneurship*, 1(10), 361-374.

Mutuku, D. (2014). *Supply chain risk management and performance of hotels in Kenya*. Unpublished thesis from University of Nairobi.

Ndung'u, A. W. (2013). Effect of Financial Risk Management on Financial Performance of Oil Companies in Kenya. *Unpublished MBA Thesis, University of Nairobi*.

Ngira, A. R., Oluoch, O. J., & Kalui, M. F. (2015). *Effects of Liquidity Management on the*

Security Market Performance of Companies Listed at the Nairobi Securities' Exchange(Doctoral dissertation).

Nyagah, B. K. (2014). The effect of enterprise risk management on financial performance of pension fund management firms in Kenya.

Nyakundi, D. O., Nyamita, M. O. & Tinega, T. M. (2014). Effect of internal control systems on financial performance of small and medium scale business enterprises in Kisumu City, Kenya. *International Journal of Social Sciences and Entrepreneurship*, 1 (11), 719-734.

Ogol, G.O. (2011). Liquidity Risk Management practices in Microfinance Institutions in Kenya.
Unpublished research paper.

Okochi, J. (2008) Commodity hedging: Best practices for modelling commodity exposures, *Journal of Corporate Treasury Management* 2, 42-46

Olayinka, E., Olumakinwa, O. & Olaoy, G. (2013). Business risk management and organisational performance: *Empirical evidence from small and medium enterprises (SMEs) in Nigeria*. Retrieved from https://www.unob.cz/eam/Documents/Archiv/EaM_1_2016/Fisayo_Nwankwo.pdf

Opiyo, J. (2012). *The relationship between enterprise risk management practices and financial performance of non-financial firms listed in NSE*. Unpublished thesis from university of Nairobi.

Osoro, E. M., & Muturi, W. (2015). Effects of liquidity-risk management practices on the financial performance of savings and credit co-operative societies in Kisii County, Kenya. *International Academic Journal of Information Sciences and Project Management*, 1(4), 68-85.

Pandey, I. M. (2008). *Financial Management*: Vikas Publishing House PVT Limited, New Delhi.

Pandey, I. M. (2005). *Financial Management*: Vikas Publishing House PVT Limited, New Delhi.

Pandey, M. (2010). *Financial Management (7ed.)*. New Delhi. Vikas Publishing Company.

- Pandya, M. A., & Rao, V. R. (1998). Diversification and Firm Performance: An Empirical Evaluation. *Journal of Financial and Strategic Decisions*, 11, 67-81
- Pagach, D. & Warr, R. (2010). The Effects of Enterprise Risk Management on Firm Performance. *SSRN Electronic Journal*· April 2010. Retrieved from <https://www.researchgate.net/publication/228230435>
- Pagach, D. P., & Warr, R. S. (2010). The effects of enterprise risk management on firm performance. Available at SSRN: <https://ssrn.com/abstract=1155218>
- Panos, K, Rong, L., & Qing, L. (2009) *Inventory Management and Financial Hedging of Storable Commodities*, Research Collection Lee Kong Chian School of Business
- Promborg, B. (2004). Derivatives hedging, geographical diversification and firm market value, *Journal of Multinational financial management*, 10(1): 161-162.
- Rumelt, P. R. (1974). Strategy, Structure and Economic Performance. *Division of Research Harvard Business School*.
- Rajan, R., H. Servaes, and L. Zingales, 2000, "The Cost of Diversity: The Diversification Discount and Inefficient Investment," *Journal of Finance* 55(1): 35-80.
- Rodrigues, J., Fernandes, A. & Chan, I. (2013) Enterprise risk management and firm performance: evidences from Brazil. Retrieved from <http://soac.unb.br/index.php/ccgunb/ccgunb2/paper/viewFile/5215/1441>
- Romzie, R. (2009). Risk Management Practices and Risk Management Processes of Islamic Banks: A Proposed Framework, *International Review of Business Research Papers* 5(1), 242-254.
- Rugendo, A. (2011). *A survey of critical success factors of enterprise risk management among commercial banks in Kenya*. Unpublished thesis from University of Nairobi
- Russo, H & Perini, B.J (2010). The Challenges of Risk Management in Diversified Financial Companies, *Economic Policy Review*, Federal Reserve Bank of New York.
- Salim, B. F., & Bilal, Z. O. The Impact Of Liquidity Management On Financial Performance In Omani Banking Sector.
- Shah, A. (2014). The Political Economy of Financial Risk. A Case Study of HBOS, University of Suffolk, forthcoming.

Shah, S., Z., A., Butt, S., A. & Saeed, M., M. (2011). Ownership Structure and Performance of Firms. Empirical Evidence from an Emerging Market. *African Journal of Business Management*, 5(2), 515-523.

Shafiq A. and Nasr M. (2010). Risk Management Practices Followed By the Commercial Banks in Pakistan. *International Review of Business Research Papers* 6(2), 308 –312.

Sharpe, W. F. (2012). Capital asset prices: A theory of market equilibrium under conditions of risk. *The journal of finance*, 19(3), 425-442.

Sharpe, William F & Alexander J. Gordon & Bailey V. Jeffery (2013). *Investments*, 6th ed., U.S.A., 40 41,654-655, 677-678.

Sheikhdon, A. A., & Kavale, S. (2016). Effect of Liquidity Management On financial Performance of Commercial Banks in Mogadishu, Somalia. *International Journal for Research in Business, Management and Accounting*, 2(5), 101-123.

Shyu, J., & Chen, L. Y. (2009). Diversification, Performance and the Corporate Life Cycle Stages. *Emerging Markets Finance and Trade*, 45, 57-68.

Sivakumar, A., & Sakar, R. (2011). *Corporate Hedging for Foreign Exchange Risk in India*. Kanpur: Indian Institute of Technology.

Smith A., Wayner R.E., & Yandle B.,(2011). *Journal of Banking and Finance*.

Smith, E., (2008), *Using secondary data in Education an Kingdom*, Open University Press.

Teoh, A.P. & Rajendran, M. (2015).The Impact of Enterprise Risk Management on Firm Performance: Evidence from Malaysia. *Asian Social Science*; 11(22) 149-159

Terzi (2010). *World Economic and Financial Survey Regional Outlook. Sub-Saharan Africa Fostering Durable and Inclusive Growth*. IMF Publication

Van Horne, J.C. (2002). *Financial Management and Policy*, Prentice Hall of India Private Limited, New Delhi.

Wahome, M. N., Memba, F., & Muturi, W. (2015). The effects of firm size and risk on Capital Structure decisions of Insurance Industry in Kenya. *International Journal of Scientific and Research Publications*, 5(8), 1-12.

Wambua, M. (2010) *Enterprise risks management strategies and practices as*

determinants of performance in commercial banks in Kenya. Unpublished thesis from University of Nairobi

Wanjohi, J. N., & Ombui, K. (2013). Effects of risk management practices on the performance of insurance firms in Kenya: A case of AIG Insurance Company Ltd.

Watenga, B. (2014). *Effectiveness of supermarkets as retail outlet of fast moving consumer goods in Nairobi County*. Unpublished thesis from university of Nairobi

Wernerfelt, B., & Montgomery, A. C. (1988). Tobin's q and the Importance of Focus in Firm Performance. *The American Economic Review*, 78, 246-250.

Yakup, S. & Asli, T. (2010), *Financial hedging practices and processes as a part of oil refining companies's supply chain*, Aalto University Apulensis Series Oeconomica 2, 663-671.

Titman, S., Keown, A. J., & Martin, J. D. (2011). *Financial management: Principles and applications* (Vol. 11). Boston: Prentice Hall.

APPENDICES

Appendix I: Data Collection Sheet

	provision of doubtful debts	net current assets	amount of General reserves	Hedging of forex	Market Value of Common Shares	Book Value of Common Shares	Total Assets
2011							
2012							
2013							
2014							
2015							
2016							
2017							

Appendix II: Listed Commercial and Service Firms in Kenya

1. Express Ltd Ord 5.00
2. Sameer Africa PLC Ord 5.00
3. Kenya Airways Ltd Ord 5.00
4. Nation Media Group Ord. 2.50
5. Standard Group Ltd Ord 5.00
6. TPS Eastern Africa (Serena) Ltd Ord 1.00
7. Scangroup Ltd Ord 1.00
8. Uchumi Supermarket Ltd Ord 5.00
9. Longhorn Publishers Ltd
10. Deacons (East Africa) Plc Ord 2.50

Appendix iii: Raw Data

ID	Year	prov of				RESERVES	forex		BV of shares
		doubtful debts	CL	CA	hedge		non CA		
1	2017	2163.9	2596.7	5199.4	104.7	0	4023.1	471.4	
1	2016	1852.4	2938.3	6381.1	121.5	0	4009	471.4	
1	2015	1645.1	2783.8	6475	124.7	0	4276.6	471.4	
				6151.2					
1	2014	1562.845	2644.61	5	118.465	0	4062.77	447.83	
			2406.59	5597.6			3697.12		
1	2013	1526.75	5	4	107.80315	0	1	447.83	
			1687.85	3379.6			2615.01		
1	2012	1406.535	5	1	68.055	0	5	447.83	
			1620.34	3244.4			2510.41		
1	2011	1350.2736	1	3	65.3328	0	4	447.83	
				1404.2			2250.78		
2	2017	474.905	88.592	2	0.102	0	2	408.654	
							2072.50		
2	2016	413.078	99.18	1709.3	0.102	0	1	408.654	
				1704.4			2651.16		
2	2015	525.947	21.37	5	0.102	0	8	408.654	
				1491.0					
2	2014	251.333	31.42	2	0.102	0	2610.73	408.654	
2	2013	238.76635	29.849	1416.4	0.0969	0	2480.19	388.22	

				7			4	
				1386.6			2427.97	
2	2012	233.73969	29.2206	5	0.09486	0	9	388.22
			26.8829	1275.7			2233.74	
2	2011	215.0405148	5	2	0.0872712	0	1	357.1624
			4787.86				2834.89	
3	2017	4.37	3	10924	1820.6	0	7	378.865
			4673.09	11112.			2374.23	
3	2016	4.37	7	2	1753.457	0	7	378.865
			3678.46	10136.			2331.57	
3	2015	4.1	3	9	1833.541	0	5	378.865
			4440.00	10923.			2360.94	
3	2014	3.8	9	2	975.468	0	5	378.865
3	2013	3.9	4259.75	10460	876.856	0	2284.63	378.865
			4174.55	10250.			2238.93	
3	2012	3.822	5	8	823.947	0	7	371.2877
			3965.82	9738.2			2126.99	
3	2011	3.6309	7	2	782.74965	0	1	371.2877
4	2017	2843	82292	35397	54455	1	118891	7482
4	2016	2380	82621	36889	45220	1	125493	7482
4	2015	2764	89859	46996	18655	1	140658	7482
4	2014	1825	70513	33970	6864	1	118705	7482
			69102.7	33290.			116330.	
4	2013	1788.5			6726.72	1		5237.4
			4	6			9	

				25822.				
4	2012	1666	57834.7	3	31654	1	87845.1	5237.4
			54942.9	24531.			83452.8	
4	2011	1582.7	7	2	30071.3	1	5	5237.4
				442.53			5072.12	
5	2017	37.825	4.209	4	871.849	0	7	182.174
				431.28			5072.12	
5	2016	98.035	2.077	6	862.733	0	7	182.174
				337.04			5072.12	
5	2015	152.249	2.315	5	786.471	0	7	182.174
				466.56			5072.12	
5	2014	27.962	5.962	7	711.955	0	7	182.174
			17317.6	11216.	6451.77780			1718.11046
5	2013	907.933658	3	7	1	0	27191.8	3
			30245.0	13098.	13958.7887		47037.7	
5	2012	935.7039032	2	1	4	0	2	2636.24524
				1404.2			2250.78	
5	2017	474.905	88.592	2	0.102	0	2	408.654
							2072.50	
6	2016	413.078	99.18	1709.3	0.102	0	1	408.654
				1704.4			2651.16	
6	2015	525.947	21.37	5	0.102	0	8	408.654
				1491.0				
6	2014	251.333	31.42		0.102	0	2610.73	408.654
				2				

				1416.4			2480.19	
6	2013	238.76635	29.849	7	0.0969	0	4	388.22
				1386.6			2427.97	
6	2012	233.73969	29.2206	5	0.09486	0	9	388.22
			26.8829	1275.7			2233.74	
6	2011	215.0405148	5	2	0.0872712	0	1	357.1624
			4787.86				2834.89	
7	2017	4.37	3	10924	1820.6	0	7	378.865
			4673.09	11112.			2374.23	
7	2016	4.37	7	2	1753.457	0	7	378.865
			3678.46	10136.			2331.57	
7	2015	4.1	3	9	1833.541	0	5	378.865
			4440.00	10923.			2360.94	
7	2014	3.8	9	2	975.468	0	5	378.865
7	2013	3.9	4259.75	10460	876.856	0	2284.63	378.865
			4174.55	10250.			2238.93	
7	2012	3.822	5	8	823.947	0	7	371.2877
			3965.82	9738.2			2126.99	
7	2011	3.6309	7	2	782.74965	0	1	371.2877
				1404.2			2250.78	
8	2017	474.905	88.592	2	0.102	0	2	408.654
							2072.50	
8	2016	413.078	99.18	1709.3	0.102	0	1	408.654
8	2015	525.947	21.37	1704.4	0.102	0	2651.16	408.654

				5			8	
				1491.0				
8	2014	251.333	31.42	2	0.102	0	2610.73	408.654
				1416.4			2480.19	
8	2013	238.76635	29.849	7	0.0969	0	4	388.2213
			28.6550	1359.8			2380.98	
8	2012	229.215696	4	1	0.093024	0	6	388.2213
			26.0760	1237.4			2166.69	
8	2011	208.5862834	9	3	0.08465184	0	7	388.2213
9	2017	564.23	22.46	1837.3	0.352	0	2445.34	456.452
							2072.50	
9	2016	413.078	99.18	1709.3	0.102	0	1	408.654
				1704.4			2651.16	
9	2015	525.947	21.37	5	0.102	0	8	408.654
				1491.0				
9	2014	251.333	31.42	2	0.102	0	2610.73	408.654
				1416.4			2480.19	
9	2013	238.76635	29.849	7	0.0969	0	4	388.22
				1386.6			2427.97	
9	2012	233.73969	29.2206	5	0.09486	0	9	388.22
			26.8829	1275.7			2233.74	
9	2011	215.0405148	5	2	0.0872712	0	1	357.1624
			4787.86				2834.89	
10	2017	4.37		10924	1820.6	1		378.865
			3				7	

			4673.09	11112.			2374.23	
10	2016	4.37	7	2	1753.457	1	7	378.865
			3678.46	10136.			2331.57	
10	2015	4.1	3	9	1833.541	1	5	378.865
			4440.00	10923.			2360.94	
10	2014	3.8	9	2	975.468	1	5	378.865
10	2013	3.9	4259.75	10460	876.856	1	2284.63	378.865
			4174.55	10250.			2238.93	
10	2012	3.822	5	8	823.947	1	7	371.2877
			3965.82	9738.2			2126.99	
10	2011	3.6309	7	2	782.74965	1	1	371.2877

Appendix iv: Variables

X1	X2	X3	Y	ID	Time
7.20806	7.3927		0	6.10441	1 2011
7.24889	7.43352		0	6.10441	1 2012
7.3309	8.0681		0	6.10441	1 2013
7.35426	8.16241		0	6.10441	1 2014
7.40556	8.21371		0	6.15571	1 2015
7.52424	8.14404		0	6.15571	1 2016
7.67967	7.8643		0	6.15571	1 2017
5.37083	7.12997		0	5.87819	2 2011
5.45421	7.21335		0	5.96157	2 2012
5.47548	7.23463		0	5.96157	2 2013
5.52678	7.28592		0	6.01287	2 2014
6.2652	7.42838		0	6.01287	2 2015
6.02364	7.38406		0	6.01287	2 2016
6.16312	7.18207		0	6.01287	2 2017
1.28948	8.66084		0	5.91698	3 2011
1.34077	8.71214		0	5.91698	3 2012
1.36098	8.73234		0	5.93718	3 2013
1.335	8.77697		0	5.93718	3 2014
1.41099	8.77314		0	5.93718	3 2015
1.47476	8.77014		0	5.93718	3 2016
1.47476	8.72195		0	5.93718	3 2017
7.36689	6.23463		1	8.56358	4 2011
7.41818	6.28592		1	8.56358	4 2012
7.48913	6.42838		1	8.56358	4 2013
7.50934	6.38406		1	8.92025	4 2014
7.92443	6.18207		1	8.92025	4 2015
7.77486	6.3927		1	8.92025	4 2016
7.95261	6.43352		1	8.92025	4 2017
6.16312	7.18207		0	6.01287	5 2011
6.8413	8.72195		0	7.87711	5 2012
6.81117	7.12997		0	7.44898	5 2013
3.33085	6.13254		0	5.20496	5 2014
5.02552	5.81332		0	5.20496	5 2015
4.58532	6.06194		0	5.20496	5 2016
3.63297	6.08296		0	5.20496	5 2017
1.47476	8.72195		0	5.93718	6 2011
5.37083	7.12997		0	5.87819	6 2012
5.45421	7.21335		0	5.96157	6 2013

5.47548	7.23463	0	5.96157	6	2014
5.52678	7.28592	0	6.01287	6	2015
6.2652	7.42838	0	6.01287	6	2016
6.02364	7.38406	0	6.01287	6	2017
6.16312	7.18207	0	6.01287	7	2011
1.28948	8.66084	0	5.91698	7	2012
1.34077	8.71214	0	5.91698	7	2013
1.36098	8.73234	0	5.93718	7	2014
1.335	8.77697	0	5.93718	7	2015
1.41099	8.77314	0	5.93718	7	2016
1.47476	8.77014	0	5.93718	7	2017
6.02364	7.38406	0	6.01287	8	2011
5.34035	7.09949	0	5.96158	8	2012
5.43466	7.1938	0	5.96158	8	2013
5.47548	7.23463	0	5.96158	8	2014
5.52678	7.28592	0	6.01287	8	2015
6.2652	7.42838	0	6.01287	8	2016
6.02364	7.38406	0	6.01287	8	2017
1.47476	8.77014	1	5.93718	9	2011
1.47476	8.72195	1	5.93718	9	2012
5.37083	7.12997	0	5.87819	9	2013
5.45421	7.21335	0	5.96157	9	2014
5.47548	7.23463	0	5.96157	9	2015
5.52678	7.28592	0	6.01287	9	2016
6.2652	7.42838	0	6.01287	9	2017
1.34077	8.71214	1	5.91698	10	2011
1.36098	8.73234	1	5.93718	10	2012
1.28948	8.66084	1	5.91698	10	2013
1.34077	8.71214	1	5.91698	10	2014
1.36098	8.73234	1	5.93718	10	2015
1.335	8.77697	1	5.93718	10	2016
1.41099	8.77314	1	5.93718	10	2017