

**THE EFFECT OF MARKET RISK ON THE FINANCIAL PERFORMANCE OF
COMMERCIAL BANKS IN KENYA**

**BY
NAMASAKE WAFULAH KELVIN
REG NO: D61/77387/2015**

**A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF BUSINESS IN
PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF
MASTERS DEGREE IN BUSINESS ADMINISTRATION (MBA) IN FINANCE,
SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI.**

OCTOBER 2016

DECLARATION

This research project is my own work and has never been presented for a degree in this or any other university.

Signature Date.....
Namasake Wafulah Kelvin
D61/77387/2015

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

Signature Date.....
James Karanja
School of Business
Department of Finance and Accounting,
University of Nairobi.

ACKNOWLEDGMENTS

First and foremost, I am indebted to the all-powerful God for the many blessings that he has bestowed upon my life and through his grace have been able to study and complete this course successfully.

My special appreciation goes to my supervisor of University of Nairobi, Department of Finance and Accounting, school of Business without whose exemplary guidance and support, this work would not have been successfully accomplished. He demand excellence at every stage of this study and without him the concept would not have grown to become a project. Your approach to the teaching greatly inspired me.

Immense gratitude to my loving parents Hon. Gerishom Namasake and Mrs. Rosemary Namasake-you taught me from an early age the virtues of honesty, hard work, diligence, sacrifice and perseverance. My gratitude also goes to my siblings who have also shown great support.

Last but not least my appreciation also goes to my friends, colleagues and respondents for being a constant source of motivation and their immeasurable support that greatly influenced the completion of the project.

May the Almighty God bless you all.

To God be all the Glory.

DEDICATION

I would like to dedicate this research work to the Almighty God, My parents Dad and Mum who are my pillars and source of great inspiration. This research project is a reflection of their support towards my education and general success in life. My friends Ritah ndetei, Pauline Agutu, Everton Namasake, Mirriam Kundu, Edwin Kamanda, Nick Tembur, Steven mutiso, Ruth kimani, Sylvia Monthe, Joel Kieno and Juliet for tremendous support during the programme God bless you all.

TABLE OF CONTENTS

Declaration	ii
Acknowledgments.....	iii
Dedication	iv
List of Tables	viii
List of Figures	ix
Abbreviations	x
Abstract	xi
CHAPTER ONE: INTRODUCTION.....	1
1.1 Background of the Study	1
1.1.1 Market Risk	2
1.1.2 Financial Performance.....	4
1.1.3 Market Risk and Financial Performance	5
1.1.4 Commercial Banks in Kenya.....	7
1.2 Research Problem	8
1.3 Research Objective	11
1.4 Value of the Study	11
CHAPTER TWO: LITERATURE REVIEW	13
2.1 Introduction.....	13
2.2 Theoretical Review	13
2.2.1 Purchasing Power Parity Theory.....	13
2.2.2 International Fisher Effect Theory	14

2.2.3 Asset Pricing Theory	16
2.3 Determinants of Financial Performance of Banks	17
2.3.1 Capital Adequacy	18
2.3.2 Market Power	19
2.3.3 Macro-Economic Factors	19
2.3.4 Bank size	20
2.4 Empirical Review.....	20
2.5 Summary of Literature Review.....	23
2.6 Conceptual Framework.....	24
CHAPTER THREE: RESEARCH METHODOLOGY	25
3.1 Introduction.....	25
3.2 Research Design.....	25
3.3 Population of the study	26
3.4 Data Collection	26
3.5 Data Analysis	27
3.5.1 Test of significance	28
CHAPTER FOUR:DATA ANALYSIS RESULTS AND INTERPRETATION	29
4.1 Introduction.....	29
4.2 Descriptive Statistics.....	29
4.3 Inferential statistics	31
4.3.1 Correlation Analysis.....	31

4.3.2 Regression Analysis	32
4.3.3 Analysis of variance	34
4.3.4 Model Coefficient	35
4.4 Summary and Discussions of the Findings.....	37
CHAPTER FIVE:SUMMARY, CONCLUSION AND RECOMMENDATIONS ...	39
5.1 Introduction.....	39
5.2 Summary of Findings.....	39
5.3 Conclusion	40
5.4 Recommendations for Policy and Practice	41
5.5 Limitations of the Study.....	41
5.6 Suggestions for Further Research	42
REFERENCES.....	44
APPENDICES	47
Appendix 1: Letter of Introduction	47
Appendix II: Commercial Banks In Kenya	48

LIST OF TABLES

Table 4.1: Descriptive Statistics	30
Table 4.2: Correlation between Market Risk Components and Return on Equity	31
Table 4.3: Regression Analysis.....	33
Table 4.4: Model Coefficient.....	35

LIST OF FIGURES

Figure 2.1: Conceptual Framework**Error! Bookmark not defined.**

ABBREVIATIONS

ANOVA	Analysis of Variance Technique
CBK	Central Bank of Kenya
CMA	Capital Market Authority
DFL	Degree of financial leverage
FEE	Foreign exchange exposure
FSA	Financial Statement Analysis
NIM	Net interest margin
RNDA	Return on Net Operating Assets
ROA	Return of Assets
ROE	Return on Equity
ROI	Return on Investment
SPSS	Statistical Package for the Social Sciences

ABSTRACT

Despite the growth in the Kenyan banking sector, market risk still remains a major challenge. The objective of study was to assess the effect of market risk on financial performance of commercial banks in Kenya. The study covered the period between year 2010 and 2015. Market risk was measured by degree of financial leverage, interest rate risk and foreign exchange exposure while financial performance was measured by return on equity. The study used the balance sheets components and financial ratios for 42 registered commercial banks in Kenya. The pairwise correlations between the variables were carried out. F-test was used to determine how much variation in dependent variable is explained by independent variables. From the results financial leverage, interest rate and foreign exchange exposure have negative and significant relationships with bank profitability. Based on the study findings, it is recommended that commercial banks especially locally owned and required to consider findings was of mitigating the market risks by use of financial instruments such as financial derivatives and be active in derivatives markets. These may reduce their interest rate risk and foreign currency risk exposure. The commercial banks are also required to monitor the financial leverage so as to reduce financial risk.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Banking system happens be the backbone among the Kenyan economy hence it's the critical vehicle which links Kenyan economy to the rest of the world. In the process of providing financial services, banks may be affected by various kinds of financial risks among them being market risk. Market risk can cause very severe losses within a short period of time among volatile market conditions hence contribute to collapse among institutions in harsh situations. It is a peril within the organization occurring out of activities within market prices; for instance variations originate from interest rates, foreign exchange rates and product prices. Form of market threat will also occur in situations where banks accept financial instruments bare among prices volatility within the market as collateral for most of the loans.

Intensity and variety of the risks most players in the industry are exposed to will definitely continue to grow at a higher level in random because the banking sector will continue to embrace creativity and innovations. Risk management will help assist and also ensure that the expansion in the banking sector will not jeopardize steady growth. A 1995 survey, major financial firms in United States of America (USA) discovered that 90% of majority organizations were using various variety of financial engineering to help manage market risks when are interest rates, foreign exchange or commodity prices risks. Bodnar, G. & Marston.R (1996). Banks, There may be a large commonality within the underlying rationale principle which states the use of derivatives and also financial

engineering methods that are mostly applied although there are various set of risks which managers face are different across industries and sectors.

Commercial banks do contribute and also perform a major critical function in financial Intermediation hence financial growth of the market. As financial intermediaries, they facilitate mobilization of savings, resource allocation and diversification and pooling of risk. In developing economies commercial banks are the most import source of credit as majority of households have no access to capital market. Ngugi, (2001). To this and development of commercial banking in developing countries is critical for maturity of the financial systems and overall development of the economy.

1.1.1 Market Risk

Commercial banks are generally faced with various risks in their day to day business which they cannot avoid but have to learn to live with. The only way for banks to live with these risks is by making sure their effects are minimized through managing the risks. These risks include the market risk, operating risk, liquidity risks, credit risk and also risk associated with finance

Most commercial banks are exposed to variations in market worth of their savings because they frequently seize asset securities on their balance sheet which makes them exposed a lot. A sudden market decline in the securities of most commercial banks could force most of the banks to raise capital as most of those financial institution in for instance commercial banks seize important percentages of assets in debt investments extensively considered of as “safe” (as well as U.S government bonds) hence peel

backside on lending, to say nothing of the failure in shareholder's equity from the investment losses.

Another definition for this peril (Market threat) might be defined as the loss which occurs on the balance sheet position which leads to unfavorable movements in market price. It might also arise from positions that might include banks trading books, product and foreign exchange threat positions in the entire balance sheet as this is according to the regulation perspective. Trading books portfolios will involve liquidity positions which are very easy to trade on hedge. Thus, rise in existence of credit risk and illiquid positions that aren't suitable for unique market money structure are as a result of banks' portfolios growth.

Exchange rate, inflation and interest rate risks are form of market risk which has an impact on performance of banks across the entire industry. It is determined by different factors which affect the whole economy hence this makes it to be outside the control of most commercial banks. Degree of financial leverage, foreign exchange rate exposure and interest rate risk are used as indicators of market risk. Degree of financial leverage (DFL) is best used to help a company determine financial leverage risk. Most changes which might happen within the economic environment or among the interest rate will definitely have an extremely negative impact on how the business will evolve hence the higher the ratio is the more risky the firm is considered to be as it relies too much on debts. This is a measure of the degree of financial leverage.

Money-related gains and losses may have distinctive effects on reported income that is very crucial to markets belief among particular organization. The sensitivity of cash flows to changes in the foreign exchange rates is the foreign exchange rate disclosure of an organization. Most of the studies enclose examined disclosure as a result of looking at how an entities market worth and the current value of its projected cash flows will respond to variations in exchange rate because cash flows are very complex to evaluate. The extent to which an organization is affected by exchange rate changes is referred to as foreign exchange exposure. The Magnitude of the gain or loss which results from a fastidious exchange rate is the transaction exposure which is the foreign exchange loss or gain on transaction already entered into and denominated in a foreign currency.

1.1.2 Financial Performance

An organizations financial performance is a function for its profitability. Profitability of any company is determined by both internal as well as external factors. According to Duttweiler, (2009) internal factors of a bank that influence its level of profitability will include capital adequacy, decision management of the bank, liquidity level, and policy provision. Other variables outside the control of the bank which have influence on the banks profitability include legal, economic, technological, political, social, ethical and other macroeconomic factors. The extent to which financial goal is being or has been accomplished within a particular firm, this refers to financial performance. Another way to look at it might be the process of measuring results for a company's policies and operations in monetary terms. This will be able to measure an organization's overall financial health over a particular given duration of time. According to (Ismail 2011)

financial performance is determined by evaluating profitability, solvency and liquidity of firms. Productivity is the capacity of the business to earn revenue.

Profitability ratio that evaluates the capability of an organization to produce returns from its shareholders investment in the firm is referred to as return on equity or ROE. Officers in charge of return on equity are mostly encouraged to attain a suitable level of this rate by retaining their positions hence attain a better position since return on equity points out the effectiveness of using the own initial investment of the firm; that is why the level is primarily important for the shareholders, who can decide whether remuneration they receive rewards the menace assumed.

1.1.3 Market Risk and Financial Performance

In the world a dominant source of income fluctuations to the financial institutions is market risk. Over time dimension of market threat becomes a key apprehension to enforcers and to risk control internal measures hence most monetary organizations with essential amount of trading movement prove to be exposed to excessive market movement sand. Due to the conditions above, this invites for parameters showing risk disclosure for firms and impact of threat reducing procedures. According to Jorian, R. (1997), extreme value theory (EVT) is used as a typical implement along with financial institution to describe the downside risk of a market portfolio. It will measure the utmost loss of the portfolio worth that will take place over a given time at some explicit confidence level due to uncertain market factors.

According to Diebold, F.X, Schuermann, T, and Stroughair, J.D (2000), several alternative methods have been proposed for estimating VaR, one of which being the Extreme Value Theory (EVT). It makes VaR estimations based only on the data in the tails as opposed to fitting the entire distribution and can make separate estimations for left and right tails. Commercial banks with trade portfolio are subject matter to market risk necessities hence are supposed to seize capital aligned with defined market threat exposures.

Proper estimation of VaR is necessary in that it needs to accurately capture risk exposure which an organization can be exposed to, but if it overestimates the risk level, then the firm will set unnecessarily set aside excess capital to cover the risk, when that capital could have been better invested elsewhere Hull, J. (2012). Hence the banks need to determine the minimum and the maximum capital that should be set aside cover the market risks. To achieve this goal the banks need to manage the market risks using the financial ratios such as degree of financial leverage.

Market risk can be further measured using foreign exchange risk exposure, net interest margin and degree of financial leverage. According to Warzala, E. (1995), the risk can arise in situations financial institutions especially banks recognize financial instrument which are highly bare to market cost instability as guarantee for loans. Price fluctuations and instability will increase and decrease in the day-to-day market which is according to Cornelia, E T. (2012). These apply to stocks and options and tend to complete well in a bull (increasing) market and poorly in a bear (decreasing) market. The more

unpredictability inside the market, the more possibility there is that the savings will increase or decline.

1.1.4 Commercial Banks in Kenya

Central bank of defines a commercial bank as an organization which does and also intends on performing business which are related to banking and includes the Barclays Bank of Kenya Limited which excludes central Bank of Kenya (CBK).commercial Banking business involves accepting deposits, giving credit, money remittances and any other financial services. The industry performs one of the very important role in the financial sector with a lot of emphasizes on mobilizing of savings and credit provision in the economy. According to the Bank supervision yearly Report (2015), industry comprises of Central Bank as the regulatory authority. The industry also has 1 mortgage finance and 42 commercial banks. Among the 42 commercial banks in the country 30 are locally owned banks, 9 microfinance banks and 14 foreign owned.

Among the 42 commercial banks that we have in the Kenyan banking sector only 10 of the 42 are listed on the Nairobi securities exchange. This poses a great challenge among the sector since only a small fraction of the banks are listed.

According to Godana (2012), in any global economy or sector, financial institution in the form of a commercial bank serves as financial resource mobilization which facilitates growth and expansion in that particular industry since there is an avenue of mobilizing resource hence expansion. However, these resource mobilizing institutions are affected

by market risk which affects their financial performance in the economy. Usually, the resource mobilizing firms in this scenario banks, don't have the control over market risk since it is outside their control because the risk (market risk) is determined by factors which affect the entire industry. It only applies stocks and options which tend to perform fine in a bull (increasing) market and poorly in a bear (decreasing) market hence commercial banks are affected by market risk which affects their financial performance within an economy.

1.2 Research Problem

Banks operate in a rapidly changing environment which is highly competitive and affects most of their operations in a negative way hence interfering with their profits. Since commercial banks act as a source of resource mobilization, they will accept money as deposit which can be withdrawn on demand and also lend it to other players within the economy. Almost 90% of the bank's profits come from interest rate which is as a result of lending money at a higher interest rate.

According to Li, (2003) he found out an economic surrounding that an organization carries out its day to day activities, is highly volatile and unpredictable. The ever growing unpredictability, larger dependence and latest risks have made structure of risk disclosure of resource mobilizing institutions more complex. Volatility of foreign exchange rates and interest rates have been increasingly significantly thus the necessity to have action plans in place to hedge against risk.

Nimalathasan, B., and Pratheepkanth, P. (2012) found out systematic risk has an effect on the productivity of selected financial institutions Sri-Lanka year 2007 to 2011. In their research, they concentrated on secondary data their target population. According to their research findings they used the quantity of financial leverage and quantity of operating leverage to measure systematic risk. They come up with operational hypotheses and the outcome showed systematic risk to have a positive relationship ($r=0.755$; $P<0.05$) with productivity. In their study they also recommended systematic risk management can be improved by DFL and DOL in the preferred financial institutions where beneficial impacts are monitored on productivity

According to Ngalawa, J. and Ngare, P. (2013), structure of a balance sheet is determined by income gap and the institutions exposure to the interest risk. In their research findings they focused on the data between 2008-2012 and obtained fiscal reports for only 10 commercial banks and analyzed interest rate sensitivity gaps. In particular, they found out commercial banks usually hold a great disclosure to interest rates which are predicted by income gap. In their study, they also found out that treasury instruments (CBK) determines the sensitivity of profits gaps to market interest rates which is explained by a 200 basis spot change in the CBK rates would lead to change of net revenue which is equal to 0.4% of the whole assets of the depository. Ngalawa and Ngare (2013) in their recommendation they concluded that further research needs to be done on some of the large model of commercial banks for a longer phase of occasion in order to find out more complete impact of interest risk exposure to Kenyan financial performance.

According to Gachua, N.F. (2011), he carried out a research study on impact of foreign exchange exposure on the organizations financial performance a case revise of 32 selected institutions on Nairobi securities Exchange. The data analyzed was for the period between (2001 to 2010). From that research it was found out that majority of the organizations which are listed focuses on income report and shareholders equity bank account to note the foreign exchange difference. From their findings found out that net income or owner's equity is affected by changes from unrealized foreign exchange gains/losses. For comprehensive analysis of market threat, the interest rate peril needed to be incorporated in analysis. Adding to that, the current study also considered the degree of financial leverage which is applied to manage the systematic risk.

According to Singh (2013) he also did a research on impact of foreign exchange trading on financial performance of commercial banks. Aim of his research was to investigate if there was association among forex trading and financial bank performance. A survey study design was adopted where all commercial banks were the focus of the study. Data was collected from secondary sources. Commercial banks annual reports and derivatives data reported to CBK. Pearson correlation, descriptive statistics and multiple linear regression analysis were used. Thus, currency swaps, forwards and spots are significantly related with commercial banks financial performance.

Also according to Kipchirichir (2011), in his topic of study, relationship between financial performance of multinational firms and exchange rate. Kipchirichir noted the strong association between fiscal performance for international organizations and

exchange rate unpredictability. Studies done locally mainly focused on risk management practices in foreign owned banks, Omagwa (2005), foreign exchange risk management practices in forex Bureaus in Kenya, Ubindi, (2006) and insurers in Kenya Salesio (2006). These previous studies have not related the effect of market risk to Kenyan banks performance.

Thus, the researcher will sought to close the knowledge gap by seeking responses to the following query, what are effects of market risk on financial performance of commercial banks in Kenya?

1.3 Research Objective

The main purpose of the research was to find out impact of market risk on financial performance of commercial banks in the Kenyan economy.

1.4 Significance of the Study

This research finding is basically meant at finding out if market risk has a significant impact on performance of resource mobilizing institutions which in this case are commercial banks hence it will be useful to various players within the economy as a whole.

This research findings will be much helpful to commercial banks since they will find out what really affects their profitability hence castigate ways of how to minimize the various risk.

It will further assist regulatory organizations such as Capital Markets Authority and Kenya Revenue Authority in assessing the influence of their policies on performance of commercial and other financial institutions hence able to formulate policies which are able to assist growth of those institutions.

The research findings on this topic will help enlighten the public on how commercial banks create credit and the various channels and methods through which finances can be raised from them that is the public.

This study will further assist bank management in finding out some of the external factors which can influence their profits and operations both in a positive and negative way.

This will assist commercial banks in adapting to the ever changing dynamics of the new business and also the ever changing needs of customers and providers of different customers.

A successful completion of this study research work will be of help by adding to the existing body of knowledge and also serve as a reference material to other researchers.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The section involved systematic identification, location; analysis of documents containing data that were used to analyze the impact market threat has on financial performance of commercial banks. This chapter contained examinations among what other authors have said, written and done in this field. It aims at obtaining detailed knowledge of problems being investigated by providing the general guidelines and procedures followed to carryout and scrutinize the research.

2.2 Theoretical Review

Theoretical literature review starts by discussing the various theories that tend to shape the thinking of the societies towards particular needs, events in the near future.

2.2.1 Purchasing Power Parity Theory

This theory will try to elaborate and clearly explain the correlation that exists among comparative prices of products and exchange rates. This theory further suggests that any slight alteration into the purchasing power parity designed for any currency duo which is premeditated as cost ratio of traded commodities would definitely lead toward the change between two currencies which are under a floating exchange regime. Interest rate theory of exchange rate expectation helps in explaining the relation between foreign exchange rate and relative interest rates. According to Giddy (1997) concluded that interest rate

nominal differential among two nations have a tendency to replicate most exchange rate fluctuations.

Also according to Irving Fisher (1896) observed this as the international Fisher effect which states that if the interest rates within the appreciate currency tends to be small with a sufficient amount hence in depreciating bigger enough in order towards offsetting expected exchange gains and losses. Those two theorems will only hold if foreign exchange markets are efficient.

According to Shapiro and Rutenberg, 1976 in their research they concluded that foreign exchange rates only put keen on account anticipated purchasing power differentials plus all expected interest rate. Most of the critic of foreign prevalence management threat will squabble that there isn't exchange threat which can substantiate risk management movement. Other critic also factor in capital asset pricing technique in the further shore up and aid of the argument irrelevancy of foreign exchange risk management.

However, since foreign exchange pricing is in procession with the capital asset pricing model then an institution shouldn't enhance its worth through hedging because systematic risk from another perspective has already been discounted in asset pricing. According to Adler and Dumas, 2010 states that the movements of a price share should be a long security market line taking into account of systematic risk.

2.2.2 International Fisher Effect Theory

Irving Fisher (1930) in his book introduced the Theory of interest rates. Exchange rates change over time as a result of interest rates within the market and not the inflation rate this is in accordance with the theorem. This theorem also propounds that exchange rate changes are as a result of the balance out by interest changes. According to Irving Fisher, he has a more different opinion in which he states that actual interest rates across nations are as a result of possible arbitrage opportunity involving financial markets that occur in form of investment flow. A nation which preferably has slightly higher interest rate should in turn also have higher inflation rate that makes actual worth of the nation's currency decline over a length of occasion which is as an outcome of real interest equality. The Interest rate theory of exchange rate expectations explains an association among interest relative rates and foreign exchange risk hence actual interest rate differential among two nations have a propensity to replicate exchange rate fluctuations. According to Giddy (1997) he said that the theorem holds interest rates within appreciating currency which are likely to be stumpy sufficient and in the depreciating currencies high enough to compensate for anticipated currency gains and losses.

According to Madura (2010) he points out that foreign currency which has comparatively higher interest rate which intends to depreciate because high nominal interest rates replicate anticipated rate of inflation. According to (Hill, 2004) from his research finding concludes that in long-run, if there is an association among interest rate differentials and subsequent alterations in spot exchange rate seems to exist but with substantial deviation

in the short run. Also according to (Cumby and Obstfeld, 1981) he says the theorem is known not to be an excellent interpreter of short-run changes in spot exchange risks.

2.2.3 Asset Pricing Theory

Assets pricing theory was first started introduced by three scholars by the names, Sharpe (1964), Linter (1965) and Mossin (1966). Eventually they come up with the CAPM model. The three scholars suggest that the three variables which are systematic risk, risk free rate and anticipated risk market quality plays a much bigger role in determining the price or expected return of an asset. Commercial banks are believed to maintain combination of loans which have varying risk levels. One advantage of the bank loans is that the largely threat of most loans is diversified hence given convenience for the proceeds from every brace of loans which in turn is expected to be the correlation that is greatly nearer to zero than plus 1. According to (Fama and French 2004) for most commercial banks to fully reimburse themselves for extra menace for various loans, banks would allege premium equivalent to the variation among general risk premiums appropriate to the market for most of the loans. It further suggests that the expected rate of return which most commercial banks demand is equivalent to the risk free rate + a premium that is dogged in the market for the entire loan holding.

According to the research done by (Ahmad and Ariff 2007) they concluded that most commercial banks price their loans according to the risk the loan will attract. From the research they carried out, a low risk loan will draw a low value of lending hence high risk loan will draw a higher price for lending. Since commercial banks are very high levered institutions they need to incorporate in their loan pricing other costs that would help in

mitigating risk such as Tax, Bankruptcy costs, interest costs and operating costs. Other operating cost which commercial bank might encounter in terms of interest cost is involved when pricing the loan. According to this theory the major risk which might have a much more impact on the pricing of the loan is liquidity risk and credit risk. Asset pricing theory will clearly bring out connection among risk and interest rate which in turn will determine element of a risk faced by a resource mobilizing intuition is mostly considered when pricing the loan hence depends on the quantity of threat faced by a commercial bank on its portfolio of loans that is interest demanded will either be high or low.

2.3 Determinants of Financial Performance

Commercial banks performance across the whole industry or the economy is influenced by various factors which really has a great impact on their performance financial. These factors can either by external or internal factors. Many studies have been carried out hence each and every study brings out various variables which affect banks' performance as you can see the theories discussed above. According to (Koch 1995), from his research, he points out that most differences in the banks' performance across the industry is as an outcome of variations in the markets various banks operate in and also differences in various management philosophies different commercial banks are exposed too. According to (Althanasoglou 2006) from his research findings he argued and at the same time agreed with various authors that productivity is as the result of internal factors which are mostly prejudiced by policy objectives of different commercial banks and

bank's management decision which mostly depends on the bank's top management decisions.

2.3.1 Capital Adequacy

It refers to situation where resource mobilizing institution for instance in this case commercial banks hold amount of wealth as mandated by the central bank. In other words it can be defined as measure of the bank's capital. The ratio CAR can also be articulated in a different structure as the percentage of a bank's risk that is weighted credit exposures. Another major importance of capital adequacy is used to promote constancy and effectiveness of financial system across the world and take heed for depositors hence it is calculated for different fastidious reasons. According to Kosmidous 2009 in his research defines the ratio as any quantity of impartiality to take up any shock the financial institution such as commercial bank may experience. The ratio is used for two purpose which is absorb losses with no a bank being obligated to cease operation and absorb losses in the occasion of a winding up by providing slightly lesser quantity of safety to depositors. Beckmann 2007 in his research concludes that high investment ratio are risk averse that will definitely overlook saving opportunities hence as an outcome most investors will eventually ask for a low return on their investment capital in compensation for lower risk.(Baral 2005) says that value of possessions held by a commercial bank will eventually depend on the particular risk

2.3.2 Market Power

Market power refers to the ability of an organization or any firm to raise the market price profitably of any good or service over the original cost or marginal cost. Organizations or firms which have greater or overall market power which ability to increase prices with no loss of any of its clientele to competitor. Tregenna 2009 points out the more concerted a market is lower the measure of competition meaning competition is determined by the number of various firms within a certain economy hence the advantage goes to the customers since they will experience fair prices of both goods and services. (Nzongang and Atemnkeng 2006) they concluded that high degree of market focus will definitely lead to more levels of profits at the determinant of effectiveness and efficiency of financial system. Availability of bank credit to various firms within a given economy at very reasonable rates is very decisive to the stage of investment of firms because banks are major supplier of finances to companies. A company with market power has the ability to individually affect the prevailing price in the market.

2.3.3 Macro-Economic Factors

Macroeconomic policy, inflation, interest rate, gross domestic product and Political instability are macroeconomic factors which also affect performance of commercial banks. The GDP has an effect on demand for commercial bank asset. When Gross domestic product declines it leads to fall in demand for credit that negatively has a crucial impact on productivity of commercial banks. In most of the growing economies which can be expressed by positive GDP growth the demand for credit is high because of nature of business cycle. According to (Athanasoglou 2005) from his research study he

concluded that during boom season there is a high demand for credit compared to recession time. Most researchers argue that in relation to Greek situation, association among inflation and commercial banks productivity remains to be a debatable issue.

2.3.4 Bank size

Bank size plays a very critical function to its growth since the size of the bank is determined by various factors. Resource mobilizing institution for instance in this case a commercial bank, is a financial institution that accept deposit from the public and create credit for the public again. Banks which have a higher size are better compared to banks with a small size since are better compared to banks with a small size since increasing the bank's asset size can lead to reduction in the number of risks which affect the bank through diversification. According to (Mester 2010) bank size helps the bank in diversifying operations across product lines, sectors and regions. Size of the bank is an important determinant of bank profitability. The size of a bank is calculated as natural logarithm of total assets. Higher returns are associated with large banks, though increase in size does not necessarily cause increase in returns. According to (Flamini 2009) he found out that high returns are as a result of market power which implies inefficiencies in provision of financial services.

2.4 Empirical Review

According to economists Koch, t. and Mac Donald, S. 2014 market risk involves three important risks which are stock price risk, interest rate risk and foreign exchange risk. Also according to Worzala, E. 1995, in his study finding he concluded that uncertainty

within the market will come up when assets mobilizing institution will incorporate fiscal instruments bare to market price volatility as security for loans.

According to the research of Cornelia, E. T. (2012), he explained that changes in price on unpredictability will go high hence again decline depending in day-to-day marketplace. The hazard is mostly applied toward stock and an opportunity hence tend to execute better in bull rising) market and poorly in the bear (falling) marketplace hence additional unpredictability inside the market, the higher possibility at hand is that the investment will raise or diminish.

According to Wachiaya, J. (2011) carried a survey to identify the market hazard technique used by asset mobilizing institution within the industry and its appropriateness in the process of mitigating financial loss. The research design adopted in the study was a census survey. Population used consisted of 43 commercial banks licensed to operate in Kenya and listed by Central Bank of Kenya. Data collection through use of survey was used to gather information from the target population outlining issues useful to the study. Results of the study showed the main techniques used were scenario analysis and stress testing to a very large extent. The major finding was that limits ensured management of hazard disclosure is contained by the organizations hazard desire. Other reasons were limits ensured banks took acceptable limits as approved by the shareholders and there was prudent management of market risk. Other minor reasons were to ensure prudent management of the bank's assets and liabilities and for monitoring purposes.

Wachiaya, J. (2011), the study concluded that it is imperative that banks in Kenya pick out best practices from each in order to put market risk exposure under control to mitigate the effects of losses due to this risk. The current study is different from past studies as data obtained from banks end year financial reports was used in analysis.

Nimalathasan, B., and Pratheepkanth, P. 2012 in their topic impact of systematic risk on profitability of selected financial institutions in Sri-Lanka from year 2007 to 2011. In their research, systematic risk was measured. The research used derived statistics. Prepared hypothesis was conducted and the findings showed systematic hazard have optimistic relationship ($r=0.755$; $P<0.05$) among productivity. The study findings showed that systematic risk is improved by DFL and DOL in the preferred financial institutions where the beneficial impact is observed on productivity.

For comprehensive analysis of market threat, the interest rate risk needed to be incorporated in analysis. Additionally the current study also considered the degree of financial leverage which is applied to manage the systematic risk.

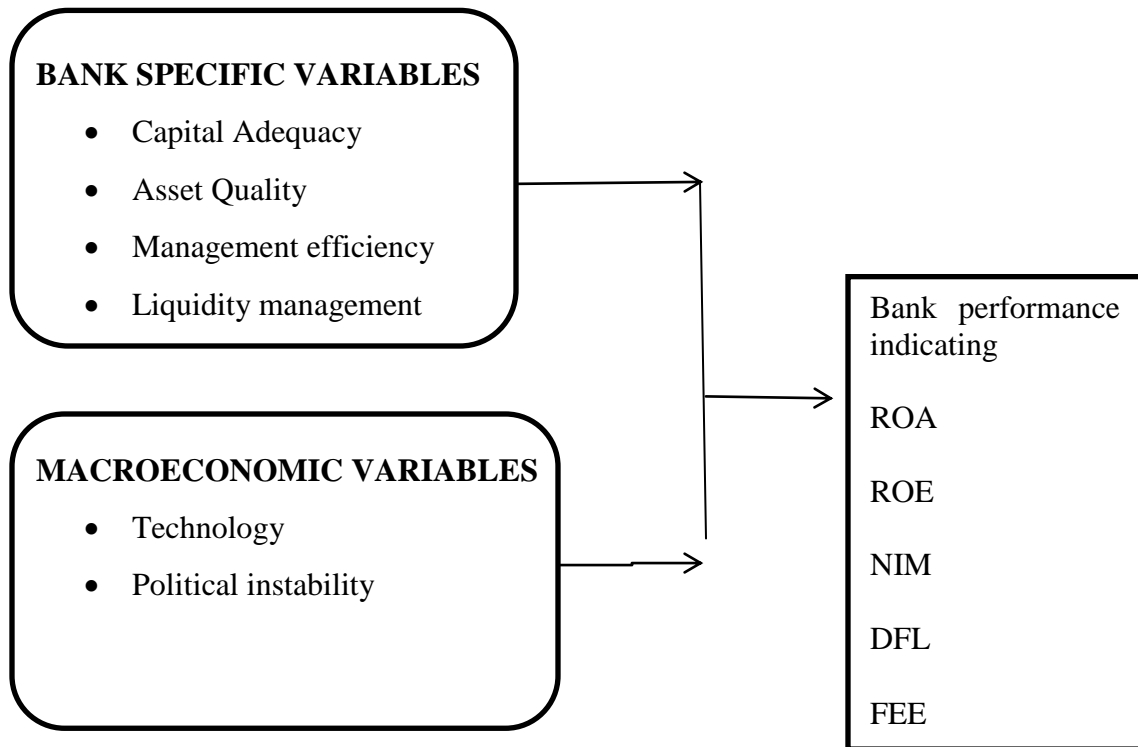
2.5 Summary of Literature Review

International Fisher effect theory argues that management of risk can smooth the variability in the firm value (Giddy, 1997). The notion which states that risks are redistributed to those who are better equipped in handling them is a norm used in the capital markets. Risk is normally reduced by hedging which in turn will involve buying and selling of derivatives and that can be able to decrease variance of expected value of the organization. According to Belk (2010) he argues with the aim that set savings guidelines within the market and with no resistance, in the scenario where the national investor has similar right of entry to market prices and information with no expenditure, organizations' financial guidelines will be immaterial. But if markets are ideal and inclusive, organization worth will be free from prevarication.

The investor will have the chance to do away with foreign exchange hazard from the portfolio through diversification, through removing profits of the lively prevarication guidelines by the organization. As discussed above management of risk yields a different result on the value of a firm. Most researchers show that it affects firm value while others will conclude that it does not have any significant effect on firm value. Other findings found out that managing risk using financial derivatives will have an effect on the firm value and it also depends on the form of derivative used.

2.6 Conceptual Framework

Conceptual Framework



Source: research findings

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The section reveals different stage and sections which are used in the final analysis of study findings; this chapter also entails a blueprint for data collection, measurement and how it will be analyzed. At this level, most decisions involves how the process will be carried out and how respondents will be handled, as well as when, where and how the findings will be finalized. In this section the study will identify measures and methods which are mostly applied in gathering, processing and data examination. Sections include; study design, object population, sample mean, statistics gathering instruments, information collection measures and finally analysis of statistics.

3.2 Research Design

According to (Orodho, 2005) study design is a theoretical arrangement with which investigation is conducted and it mostly involves the blueprint for data compilation, measurement and examination. Wyk (2012), it involves the overall arrangement designed for connecting the conceptual finding tribulations to the relevant (and attainable) experimental study. The study adopted a descriptive study design.

Also according to Cooper & Schindler, (2008), descriptive design ensures the entire explanation of the position by ensuring that there is least amount of bias within data compilation and allows data gathering from a very considerable population in the most cost-effective way.

Thus, this study used a descriptive design to describe the relationship between the study variables.

3.3 Population of the study

For the purposes of this research finding the researcher concentrated on the profit-making banks licensed and operating in country for the year 2010 to 2015. There are 42 commercial banks (CBK, 2015). The motive behind why this area was preferred is simply because of the accessibility and trustworthiness of financial statements that are subjected to compulsory audit through globally acknowledged audit firms with approval of Central Bank as the regulator. Adding to that all resource mobilizing institutions has their head office in Nairobi and its surroundings which made it suitable for the researcher in terms of time and convenience.

3.4 Data Collection

Researcher concentrated on the secondary statistics for the research finding. All the information for the study come from annual reports submitted to the CBK by the Banks from the CBK website and capital markets authority. End of year records for resource mobilizing institutions was analyzed between period between 2010 and 2015. All the banks under the study have been continually in business between 2010 and 2015. This was considered in order to provide absolute and up to date sample frame.

3.5 Data Analysis

Objective of the study was to find out whether market risk affects performance of commercial banks financially. The finding assumed that independent variables and dependent variables have a general multiplicative Cobb Douglas Functional relationship.

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5$$

Where

Y= is a measure of financial performance through return on assets.

b₀, b₁, b₂, b₃, b₄, b₅=are regression coefficients or parameters.

X₁, X₂, X₃, X₄, X₅ = are independent variables.

X₁= dividend payout ratio

X₂=firm size

X₃= total equity to total asset ratio

X₄=loan loss reserves ratio

X₅= Liquidity

Dividend payout ratio=common stock dividend + preferred stock

Liquidity = cash and due from banks/total assets

Loan loss reserve ratio=allowances for loan losses/gross loss

Total equity to total asset ratio= revenues/total assets.

Firm size= log of total assets.

Liquid assets to total assets = (cash in hand + balances with central bank + treasury bills and bonds + balances with other banks – balances due to other banks) / total Deposits.

Liquid assets consist of cash in hand, balances with central bank, treasury bills and bonds less balances due to banks. Short term funding consists of balances due to other banks.

3.5.1 Test of significance

It's used to test importance of the model at 95% confidence interval. It's a method designed for finding out discrepancy between various sets of facts for homogeneity. It also solves difficulties which arise with t-test when examining the difference amongst more than two samples at the same time. It assists in finding out the actual discrepancy among two or more means in relative to variation in data.

CHAPTER FOUR

DATA ANALYSIS RESULTS AND INTERPRETATION

4.1 Introduction

The particular section shows outcome for data analysis. Findings were guided by the objectives of the research which was to investigate if market risk has an impact on performance of banks. Secondly data in form of published financial reports of commercial banks was obtained from CBK. This data was then converted to the desired form and entered into SPSS version 22. Data analysis was then conducted to generate descriptive analysis, correlation analysis and regression analysis. These results are shown in the proceeding sections.

4.2 Descriptive Statistics

The descriptive statistics has been used in relation to the impact market risk has on performance of commercial banks financially in the whole industry by giving values of mean and standard deviations of variables in regression model. . The results are shown in Table 4.1.

Descriptive Statistics

Summary for the Data Set

Variables	N	Mean	Standard Deviation	Min	Max
DFL	43	3.042	4.700	2.340	54.854
NIM	43	0.520	6.678	0.224	127.02
Fx	43	6.446	0.768	5.314	11.400

Source: Research Findings

From the Table 4.1 the average DFL of Kenyan banks was 3.042 with standard deviation of 4.700. The maximum and minimum values were 2.340 and 54.854 respectively. There was high degree of financial level (DFL) during the study period which is allowing the commercial banks to greatly expand earnings per share as a result of a change in earnings before interest and taxes.

Further Table 4.1 shows that the mean net interest margin was 52.0 percent with a corresponding standards deviation of 6.678. Therefore this implies the disparity among interest income and interest expenses are high for banks and most of them are expected to be profitable. The mean of net foreign currency exposure was 6.446 percent with a corresponding standard deviation of 0.768. Therefore, there is risk of unexpected changes in foreign exchange currency rates on Kenyan commercial banks.

4.3 Inferential statistics

Inferential statistics refers to use of data from a population to get results beyond the population alone.

4.3.1 Correlation Analysis

The study conducted a correlation analysis among market hazard and performance of banks financially in Kenya to find out the strength of relationship among variables. Pearson's correlation analysis was applied in order to find out reality of multicollinearity among independent variables. Multicollinearity only exist where independent variables are extremely correlated hence tend to lead to a deprived regression replica. Results are shown below.

Table 4.2: Correlation between Market Risk Components and Return on Equity

	ROE	DFL	NIM	NFCE
ROE	1			
DFL	-0.764 (0.000)	1		
NIM	-0.597 (0.000)	0.253 (0.000)	1	
FXE	-0.421 (0.000)	0.213 (0.000)	0.671 (0.000)	1

Source: Research Findings

From the above results, all the dimensions of markets risk are significantly negatively correlated to return on equity. This implies that market risk is negatively associated with the research topic. It's expected since changes within lending and foreign exchange rates move in different directions with bank performance. The fact that dimensions of markets risk are negatively associated with return on equity means that the coefficients of the dimensions in the regression were expected to be negative. The correlation coefficient is negative 0.597. Increase in market interest rates causes the banks to increase their lending rates where the borrowers may default and hence low profits.

The correlations coefficient between foreign exchange exposures with net interest margin is significant and positive. The correlation coefficient 0.671 has 0.000 corresponding p-value. Therefore, it is one per cent level of significance from zero.

4.3.2 Regression Analysis

Below find summary of regression analysis conducted on the data gathered. The table shows the correlations coefficients, the statistic, interclass correlation and the p-values

Table 4.3 Regression Analysis

Dependent variables	ROE
Explanatory Variable	Coefficient
DFL	-0.626
NIM	- 0.174
FXE	-0.139
Constant	-0.886
Post estimation Diagnostics	
R Square	
Within	0.5951
Between	0.7860
Overall	0.7156
Rho	0.6084
F test (3, 322)	1.577.4
Chow test f (41, 322)	8.19

Source: Study Findings

Table 4.3 shows that the F statistic is 157.74 which is higher compared to critical value at one percent level of significance hence variables (market risk components) are jointly significant in explaining the variations in return on equity.

The interclass correlation (rho) is 60.84 per cent implying that 60.84 percent of the variations in return on Equity are due to differences across the banks. The within and between R-square is 59.51 percent and 78.60 percent respectively. Thus, 59.51 variations within return on equity will be because of the differences within individual banks and 78.60 per cent of the variations are due to the differences between the banks. The chow test statistic is 8.19 with higher critical value by one percent level of significance. Thus,

null hypothesis with fixed effects equal to zero will be rejected at one percent significance level.

4.3.3 Analysis of variance

This is one of the statistical procedures used for separating the total unpredictability of an erratic into mechanism which can be credited for the diverse sources. The researcher focused on ANOVA in the regression analysis, to find out helpfulness of independent variables in explaining variation in dependent variables.

4.3.4 Model Coefficient

Table 4.4: Model Coefficient

	Loan Run estimates			
Variables	Random Effects	Fixed Effects	Naive OLS	Fixed effects
ROE _{t-1}			0.278 (0.036)	
DFL	-0.643 (0.030)	-0.626 (0.031)	-0.572 (0.036)	0.665 (0.035)
NIM	-0.257 (0.050)	-0.174 (0.0575)	-0.368 (0.0471)	-0.198 (0.04)
FXE	-0.120 (0.042)	-0.139 (0.045)	-0.581 (0.198)	-0.429 (0.310)
Constant	1.361 (0.312)	0.886 (0.359)	2.778 (0.599)	1.030 (0.844)
Observations	367	367	325	325
R- Squared		0.595	0.795	0.622
HausmanChi (3)	15.95			
Wald Statistics	606.91			
F statistic		157.74	310.94	113.14

Source: Study Findings

Key: Standard errors in parentheses.

The table above presents long run and short run estimates on impact of market risk on performance of commercial banks. Estimates are comparable in terms of signage but differ on the magnitude of coefficients. The findings reveal that coefficient of degree of financial leverage is -0.626 with 0.01 P value. Coefficient is considerably diverse by zero at one per cent significance level. Therefore, null hypothesis that degree of financial leverage has significant negative effect on performance of commercial banks financially will not be rejected at one percent significance level. Magnitude coefficient is 0.626. Since the dependent variable, ROE, as well as degree of financial leverage enter model1 in log form, a one percent increases in degree of financial leverage decreases return on equity by 62.6 percentage points in the long run holding other factors constant.

In the short run the coefficient of degree of financial leverage is -0.646 with a p- value less than 0.01. Therefore, the coefficient is significant at one percent and negative. Thus in the short run the null hypothesis that degree of financial leverage is not rejected at one per centre significance level. The magnitude coefficient is 0.646. The fact that return on equity and degree of financial leverage enter the equation in log form implies that the coefficient is elasticity. Degree of financial leverage causes a 64.6 percentage points decreases holding other factors constant.

4.4 Summary and Discussions of the Findings

Degree of financial leverage measures proportion of income before interest and taxes against earnings before taxes which shows the debt amount that a business is obligated to pay back. Financial leverage will raise as interest increases hence interest. Since its fee of borrowed finances, it might also raise up with an increase in the proportion of debt used to finance the resources. The higher the degree of financial leverage an organization has, the better the sensitivity of the profits before tax to changes in profits before interest and tax. This result is different from findings of Nimalathasan, B. and pratheepkanth, P. (2012) that exist a moderate positive association between degree of financial leverage and return on equity. The divergence may be as a result of the scope and period of the study. Also Sri Lanka and Kenya operates in two different economies

Table 4.4 additionally reveals that the coefficient of net interest margin -0.174 by a p significance which is lower than 0.01 . Coefficient is different as of zero at one percent significance level. Therefore, null hypothesis that net interest margin has an effect on performance of commercial bank won't be rejected at one percent significance level. Magnitude coefficient is 0.174 . Since the dependent variable, return on equity, as well as net interest margin enter equation 2 in log form, one percent increase in net interest income decreases return on equity by 17.4 percentage points in the long run holding other factors constant.

In the short run the coefficient of log of net interest margin -0.447 with P -value higher than 0.01 . Therefore coefficient is significant at one percent. Therefore, the null

hypothesis net interest margin impact on performance of commercial bank is not rejected at one percent level of significance. Magnitude coefficient is 0.447. Since the dependent variable, return on equity, as well as net interest margin enter equation 3 in log form. One percent increase in net interest income decreases return on equity by 44.7 percentage points in the long run holding other factors constant. Hence research findings reveal negative association among interest rate risk and return on equity. This association is expected because fluctuations of interest rate led to fluctuations in net interest margins which may cause low bank profitability. The result is in line with results by Aruwa, (2014) that interest rate affects bank profitability negatively.

To jointly test whether the components of market risk influenced the performance of commercial banks financially F-test was applied in the research study. The results have a null hypothesis with all the coefficients of the components of markets risk are jointly equal to zero. Table 4.4 shows that in the long run the F Statistic is 157.74 with a higher critical rate of one percent significance level. Therefore, null hypothesis that market risk has an impact on commercial bank performance is not rejected at one percent significance level. In short run the F statistic is 110.73 and is greater than the critical f value of one percent level of significance.

Research findings concur with the findings of studies by Gachua N. F. 2011 and Ngalawa, J. and Ngare, P. (2013) that foreign exposure and interest rate risk have effect on net income.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The section discusses summary result discussions of this research. It covers recommendations which are used for further research on related issues of current findings as well as further recommendations on the topic on impact market risk has on financial performance of commercial banks. The research finally will address limitations of the study.

5.2 Summary Findings

Main purpose of the research was to investigate impact market threat has on financial performance of commercial banks in Kenya. Researcher adopted Descriptive research design which was used to attain the objective. All other factors held constant only 159.5% of the variation in profitability according to the research carried out can be found by the change in Market threat.

Research study shows market risk to possess a significant negative impact on financial performance of resource mobilizing institutions which in this case are banks. This implies the banks' increased exposure to market risk reduces banks' profits. From the results financial leverage, interest rates and foreign exchange exposure got a very negative significant relationship with profitability of the bank.

Market risk is an important aspect of commercial banks which influences how they do business. Management of market risk by commercial banks is a strong back bone to the industry but whether or not it influences the performance of commercial banks. Information was collected on market risk, degree of financial leverage, net interest margin and foreign exchange risk. This data was analyzed through descriptive analysis of market risk. Regression analysis of all the variables was also done to clarify the results from the descriptive analysis.

5.3 Conclusion

Market risk was found to be among variables which have an impact financial performance of banks in Kenya. Research study further shows market risk as one of the factors which has a very momentous negative effect on financial performance of most commercial banks within a given economy. The impact shows that bank increased exposure to market risk reduces bank's profits. From the result financial leverage, net interest margin and foreign exchange exposure have a significant relationship with bank profitability.

Market risk remains a major challenge. The study covered the period between 2010 and 2015. Markets risk was measured by degree of financial leverage, net interest margin and foreign exchange exposure while financial performance was found using return on equity. Research focused on balance sheets components and financial ratios for 42 registered commercial banks in Kenya. From the results financial leverage, net interest margin and

foreign exchange exposure have negative and significant relationship with bank profitability.

5.4 Recommendations, Policy and Practice

From the research findings, it recommends most Kenyan commercial banks especially locally owned are required to consider findings ways of mitigating the market risks such as use financial derivatives and assets securitization which will reduce their interest rate and foreign currency risk exposure. The commercial banks also are required to monitor the financial leverage so as to reduce the financial risk.

The study further recommends that Banks should enact polices that will lower market risk in Kenya as found out in the study that market risk affects profitability of most banks in the whole industry hence bank increased exposure to market risk reduces banks' profits.

5.5 Limitations for the Study

Research findings utilized secondary data, which had already been obtained and was in the public domain, unlike the primary data which is first-hand information. Possible errors in the process of measurement or /and recording may have been impounded into this research.

The study was based on 6 year period from 2010 to 2015. It was not known whether the results would hold for a period after the year 2015. The annually data used was also a limitation as compared to quarterly or monthly which could give more precise results.

There was a challenge in obtaining data for multinational commercial banks as some displayed their financials in other currencies such as Dubai Bank used rupees which called for conversion to Kenya shillings. This might have affected the results represented in this study to a small extent. This limitation was counteracted by comparing the data obtained by comparisons with other aspects of the banks documented by central Bank of Kenya.

Another limitation of this study was the time engaged was very limited. Voluminous data required plenty of time to collate and check for quality. This is especially so because the required data was not available in one file and had to be collected from several different sources.

5.6 Suggestions for Further Research

Stakeholders in the banking industry should carry out researches in this and other similar areas to be able to identify what other major variables have an impact on financial performance of commercial banks, for example examining effects and other variables different from those which have been used in this study such as Degree of financial leverage, net interest Margin and foreign exchange exposure.

From the research findings, it would be helpful to re replicate the study in another setting particularly taking a longer period than what was taken. For instance a ten year period under a different set of Economic circumstances could produce a surprising set of results

that could point to a totally new direction as far as market risk is and financial performance of commercial banks are concerned.

This study concentrated majorly on the impact market risk on financial performance of commercial banks which on its own cannot be the only variable affecting performance of commercial banks. More research needs to be done on each and every variable that affects banks performance financially hence aim at reducing their effects on bank performance.

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APPENDICES

APPENDIX 1: LETTER OF I NTRODUCTION

APPENDIX I: LIST OF COMMERCIAL BANKS IN KENYA

Classification	Description	Commercial Banks
Tier I	Banks with a balance sheet of more than Kenya Shillings 40 billion	<ol style="list-style-type: none"> 1. Citibank 2. Barclays bank of Kenya 3. Cooperative bank of Kenya 4. Kenya commercial bank 5. Standard chartered bank Ltd 6. Equity Bank Ltd
Tier II	Are banks who have balance sheet of less than Kenya Shillings 40 billion but more than Kenya Shillings 10 billion	<ol style="list-style-type: none"> 7. Bank of India 8. Bank of Baroda 9. Family Bank 10. Prime Bank 11. Commercial Bank of Africa 12. Bank of Africa 13. Consolidated Bank 14. Chase Bank 15. Fina Bank 16. EcoBank 17. HFCK 18. CFC Stanbic Bank Ltd 19. Diamond Trust Bank Ltd 20. I & M Bank Ltd 21. National Bank of Kenya 22. NIC Bank Ltd
Tier III	This constitutes of commercial banks with a balance sheet of less than Kenya Shillings 10 billion	<ol style="list-style-type: none"> 23. Habib A.G. Zurich 24. Victoria Commercial Bank 25. Credit Bank 26. Habib Bank (K) Ltd 27. Oriental Commercial Bank 28. K-Rep Bank 29. ABC Bank 30. Development Bank of Kenya 31. Middle East Bank 32. Equatorial Commercial Bank 33. Trans-National Bank 34. Dubai Bank 35. Fidelity Commercial Bank 36. City Finance Bank 37. Paramount Universal Bank 38. Giro Commercial Bank 39. Imperial Bank 40. Guardian Bank 41. Southern Credit Bank

42. Gulf African Bank
43. First Community Bank

Source: CBK 2015, pp. 191