THE EFFECT OF REAL ESTATE FINANCE PORTFOLIO SIZE ON THE STOCK PERFORMANCE OF COMMERCIAL BANKS LISTED AT THE NAIROBI SECURITIES EXCHANGE

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Declaration

This is my original work and has not been submitted for any degree or diploma in any other Institution.

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This research project report has been submitted for examination with my approval as the candidate's supervisor.

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Dedication

This work is dedicated to my loving wife Mrs Bancy Omollo and our son Nicholas Rabuogi Omollo.

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Abstract

According to Central Banks of Kenya (CBK) 2010, The Kenyan real estate finance has grown rapidly over recent years in both value of loans and number of loans. The study is set out with the objective of establishing the relationship between the real estate finance portfolio size (Mortgage) and the stock performance (return) of commercial banks listed at the Nairobi Securities Exchange in Kenya. To achieve the objectives of the study, a regression model was developed using the stock performance, measured by return, as the dependent variable and the size of the real estate finance portfolio as the independent variable as well as the return on equity of the banks as the controlling variable.

The secondary data was collected from published reports by the Nairobi Securities Exchange (NSE) and the Capital Markets Authority (CMA) and the Central Banks of Kenya (CBK) reports for a period of five years between 2006 and 2010. The researcher adopted a survey research design on a target population of all commercial banks, within the study period, which were 10.

The data collected was analyzed using linear regression analysis conducted at 95% confidence level. The study used the regression analysis to establish the relationship between the real estate finance portfolio size and stock return. The results obtained from the regression model shows that a unit increase in real estate finance size will result in 0.000415 increase in stock returns, all factors remaining constant. Therefore to enhance shareholder value, the banks should manage the real estate finance as a product and also use it to improve the banks revenues.

The study concludes and recommends that in view of the findings of other studies that the amount of mortgage advanced by the listed commercial banks would lead to a high financial performance and the findings of this study that an increase in mortgage size causes and increase in stock return, then it would be beneficial for both management of banks and investors to properly manage the banks' mortgage portfolio size, all other factors remaining constant.

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List of Abbreviations and Acronyms

ANOVA:		Analysis of Variance
CMA	:	Capital Markets Authority
CBK	:	Central Bank of Kenya
EBIT	:	Earnings before Interest and Tax
EPS	:	Earnings per Share
GDP	:	Gross Domestic Product
KNBS	:	Kenya National Bureau of Statistics
NSE	:	Nairobi Securities Exchange
ROE	:	Return on Equity
SPSS	:	Statistical Package for Social Sciences

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

In his study Okinyi (2012) asserts that commercial banks play an important role to the economy of a country as it serves as an intermediation between the households and the economy sector. Banks are important to an economy because they transfer risk, provide liquidity and support commercial and non commercial transactions. At the same time, investors expect the listed banks that they invest in, at Nairobi Securities Exchange (NSE), to be profitable. Hence bank managers must come up with strategies that maximize the wealth of the shareholders. This requires that the managers understand factors that drive the stock value, such as the real estate finance portfolio size.

In Kenya, the CBK has since allowed commercial banks to enter the mortgage market and provide for both long and short term real estate financing.

Real estate finance in the form of the long-term mortgages and the short term construction finance is one of the products offered by commercial banks that earn interest income that subsequently grow the returns of the bank as a business. In the view of a shareholder any effort towards growing the listed bank's business, thus increasing the chances of increasing his shareholder wealth, is always welcome. The shareholder wealth in this case, being measured by the annual stock returns. Considering the risk associated with real estate finance and other factors, banks have a real estate finance portfolio that forms part of its assets. Proving an existence of a relationship between the portfolio size and the shareholder wealth would provide a major insight for both the investor and the listed bank to determine their optimum levels.

It is with this backdrop that by using secondary data collected over a 5 year period from 2006 to 2010, this study attempted to determine the effect of real estate finance portfolio size on the stock performance of commercial banks listed at the NSE.

1.1.1 Real Estate Finance Portfolio Size

The size of this category of loan portfolio was extracted from publications by the CBK and World Bank, with particular reference to *Mortgage Finance in Kenya: A Survey Analysis*, specifically the listed banks. It was measured in terms of monetary value of this particular class of asset over the 5 year period between 2006 and 2010.

1.1.2 Measuring Stock Performance

According to Sharpe, Alexander and Bailey (2010) security analysis may fall into two broad classifications. The first is technical analysis, which involves the study of stock market prices in an attempt to predict future price movements for the common stock of a particular firm. Initially, past price are examined in order o identify recurring trends or patterns in price movements. Then most recent stock prices are analyzed in order to identify emerging trends or patterns that are similar to past one. This analysis was done in the belief that these trends and patterns repeat themselves. Thus by indentifying an emerging trend or pattern, an analyst hopes to predict accurately future price movements for that particular stock.

On the other hand, fundamental analysis begins with the assertion that the "true" (or "intrinsic") value of any financial asset equals the present value of all cash flows that the owner of the asset expects to receive. Accordingly, the fundamental stock analyst attempts to forecast the timing and the size of these cash flows and then converts them to their equivalent present value by using an appropriate discount rate.

For the purposes of this study, the researcher used the technical analysis, in determining the stock performance of the commercial banks listed at the NSE over the 5 year period from 2006 to 20010. In particular, as suggested by Sharpe, Alexander and Bailey (2010), the researcher used year-by-year annual returns of the stock prices of the banks by using the following formula:

Return= End-of-period wealth – Beginning-of-period wealth

Beginning-of-period wealth

1.1.3 The Effect of Real Estate Portfolio Size on Stock Performance

From the forgoing, it is the opinion of the researcher that there should be an expectation of influence of the size of the real estate portfolio on the stock performance other factors remaining constant.

1.1.4 Real Estate Finance in Kenya

The Kenyan real estate finance has grown rapidly over recent years in both value of loans and number of loans. The market has now gone through the initial 'germination' stage and is preparing to enter its next development phase. The mortgage market is the third most developed in Sub-Saharan Africa with mortgage assets equivalent to 2.5 percent of Kenya's GDP. Only Namibia and South Africa rank higher, with Botswana just slightly smaller, (Word Bank 2011)

According to the Kenya National Bureau of Statistics (KNBS) 2013, the total commercial banks loans advanced to the real sector amounted to Kenya Shillings 69.2 billion in 2012, compared to Kenya Shillings 50.8 billion in 2011. It also grew by 7.3 % from Kenya Shilling 30.4 billion in 2009 to Kenya Shilling 32.6 billion in 2010. This shows that commercial banks have increased their real estate finance portfolio size, sending a growth signal in the market.

1.1.4.1 Mortgages

Mortgage is a term that has drawn various definitions from various scholars. Mortgage loan or mortgage financing could as well be defined in slight variation from the term mortgage. The definitions below offer some insight to the above claim.

According to Abbot (2004), a mortgage is the grant of an interest in real estate as a security for a debt, with a provision for the release of that property upon the full

repayment of the debt in full. Mortgage financing refers to a loan secured by collateral or some piece of some specified real estate property that the borrower is obliged to pay back with pre-determined set of installments.

All the above definitions suit the explanation of a mortgage or mortgage loan however some exceptions have to be noted in interpretation. The nature of the security i.e. real property is constant but the time required to pay back the mortgage loan is not a necessity in definition. This stand may also be held by some who only assert a mortgage has been created when the loan acquired is specifically for real estate development. This however, is not the case but has widely been accepted as the norm in Kenya as banks in an effort to distinguish between loans modeled for trade financing and those for real estate development have generally referred to the latter as mortgage loans. The equity release mortgage, a facility extended against equity in a property for various purposes like purchasing of other assets, building a country home, working capital among other personal objectives also supports this notion in interpretation of a mortgage.

By providing a guarantee that the loan will be paid back, a mortgage can enable a person to buy property without having the funds to pay for it outright. The land and buildings purchased may also serve as the collateral for the loan. If the borrower fails to repay the loan, the lender may sell off the property to recover the amount of the loan.

The mortgage lending process has two instruments, a note and a mortgage. The note specifies the financial terms of a loan agreement. The mortgage contains a legal description of the property and a statement that pledges the property as security for the loan. However, the word mortgage commonly refers to both parts of the loan agreement as a whole.

1.1.4.2 Construction Finance

Abbot (2004) defines construction finance as a loan that is made to provide funds to enable an owner of land to construct improvements thereon. It is a short-term or interim finance granted for the period and for the purpose of financing development or

construction work. It is granted on the basis that it will be replaced by more permanent finance on, or soon after completion of the construction work. Generally construction finance in advanced as building work progresses and is limited to a percentage of the total expenditure incurred by the borrower at any stage of the building work. He further asserts that interest is charged, usually at a variable or floating rate, upon the outstanding principal and may be payable at regular fixed intervals. The loan is normally secured by the mortgage on the land and the building construction thereon.

Commercial banks in Kenya typically advance construction finance for a period of between 2 to 5 years. Thereafter the outstanding amount is fully repaid or is converted into a long term loan to be repaid over an agreed period of time.

1.1.5 Commercial Banks in Kenya

The Kenyan banking sector is governed by the Companies Act cap 486, the Banking Act cap 488, the Central Bank Act cap 491 and the set guidelines issued by the CBK. The listed commercial banks are further subject to the provisions of the Capital Markets Act cap 485a, where the prudential oversight is primarily conducted by the Capital Markets Authority (CMA) and the NSE.

1.2 Research Problem

Loans form a larger portion of assets of a bank; this implies that interest and fees on loans are more important sources of bank income. Various studies have been specifically done on real estate finance and interest rates vis-à-vis commercial bank performance in Kenya.

Kipngetich (2011) studied on the relationship between interest rates and financial performance of commercial banks in Kenya, while Ngumo (2012) researched on the effect of interest rates on the financial performance of firms offering mortgages in Kenya. In both studies the researchers generally found that the amount of mortgage and the interest rate thereof has a direct relationship to the performance of the banks.

Adongo (2012) studied the relationship between mortgage financing and financial performance of commercial banks in Kenya, whose findings showed that that there is a strong and positive relationship between mortgage financing and financial performance of the commercial banks. Over the years, the commercial banks that provide mortgage financing have had improved profitability and financial performance mainly due to the high interest from mortgages.

Further studies were done by Aguko (2012) who analyzed the factors influencing mortgage financing in Kenya, by studying Housing Finance and found that interest rate setting on mortgage debt; government instruments and fiscal measures are the major policies that govern mortgage financing. While Muguchia (2012) researched on the effect of flexible interest rates on the growth of mortgage financing in Kenya during the financial period 2007 – 2011 .The study found out that the flexible interest rates have a negative effect on mortgage financing in Kenya.

While the above research findings provide valuable insights into this particular topic of real estate finance, interest rates and performance of banks, none of them establishes the relationship between the real estate finance portfolio size and the stock performance of the listed commercial banks in Kenya. Therefore, a gap exists for further research in this area. It is against this setting that the researcher attempted to determine the effect of real estate finance portfolio size on the stock performance of the commercial banks.

1.3 Research Objective

The objective of the study was to establish the effect of real estate finance portfolio size on the stock performance (return) of commercial banks listed at the NSE.

1.4 Value of the Study

The study should form a basis for future researchers and academicians who may be conducting research on real estate finance and stock performance of banks. It should also be helpful for prospective investors to make informed decisions regarding investment in listed commercial banks with regard to its real estate finance portfolio. In addition, the

findings of the study should inform banks in developing mechanisms for attaining optimal real estate finance portfolio size with due consideration to its stock performance, all other factors remaining constant. Hence improving the attractiveness of its stocks at the NSE.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of the related literature on the subject under study presented by various researchers, scholars, analysts and authors. The researcher derived materials from several sources which are closely related to the theme and the objectives of the study.

2.2 Review of Theories

This section discusses and articulates the relevant theories and concepts relating to real estate finance and stock performance in particular. It builds a case to justify the study.

2.2.1 The Theory of Liquidity and Regulation of Financial Intermediation

The theory recognizes the role of financial intermediaries in providing liquidity is one of the central features of a modern financial system, Farhi, Golosov, & Tsyvinski (2007). They assert that the optimal liquidity adequacy requirement implements a constrained efficient allocation subject to unobservable types and trades. As providers of real estate finance, commercial banks are subject to liquidity position of a statutory minimum level of 20 per cent.

2.2.2 The Efficient Market Hypothesis

Sharpe, Alexander, & Bailey (2010) say this theory states that an efficient market for securities in which every security's price equals its investment value at all times, implying that a specified set of information is fully and immediately reflected in the market prices. That is, in an efficient market investors should expect to make only normal profits by earning a normal rate of return on their investments.

For example, a market would be described as being **weak-form efficient** if it is impossible to make abnormal profits (other than by chance) by using past prices to formulate buying and selling decisions. Similarly a market would be described as being **semistrong-form efficient** if it is possible to make abnormal profits by using publicly available information to formulate buying and selling decisions. Last, a market would be described as being **strong-form efficient** if it is possible to make abnormal profits by using any information whatsoever to formulate buying and selling decisions.

With regards to the subject matter, the information about the real estate finance portfolio size is public information especially given that listed commercial banks are being considered. The stock prices in this case would be taken to have a reflection of the information regarding the real estate portfolio sizes, thereby ruling out the chances of making abnormal profits.

2.2.3 Title and Lien Theory of Mortgages

According to Werner & Kratovil, (1981), there are the "title theory" and "lien theory". The lien theory states that a mortgage or a deed of trust will create a mortgage lien upon the title to the real property being mortgaged, while the mortgagor still holds both legal and equitable title. The title theory states that a mortgage is a transfer of legal title to secure a debt, while the mortgagor still retains equitable title.

In Kenya, the Land Act No. 6 of 2012 Section 95 to 104 deals with charges touching on: the power to create a charge; the fact that a charge shall act only as security and not transfer of ownership. Within this new land law term mortgage has been collapsed in the definition of a charge. Hence the law is leaning towards lien theory.

2.3 Review of Empirical Studies

Ndirangu (2003) examined the proportion of mortgages issued to total assets held by mortgage companies in Kenya as well as the relationship between the types of mortgage held and the financial performance of the mortgage companies using data for the period 1993-2002. Having identified and determined the mortgage types, the results obtained

showed that there indeed exists a significant relationship between the types of mortgage and earnings of the individual institutions. In addition, the study findings revealed that earnings were greatly influenced by fixed rate mortgage, income property mortgage and interest only mortgage.

Similarly Wahome (2010) concluded that mortgage firms in Kenya emphasize on mortgage financing to improve firm performance. The study concluded that mortgage financing is influenced by market and financial factors which includes increase investment and Improve Profitability of the firm, improvement of risk management, attraction of more customers, promotion of innovations, market penetration, diversification of investment and encountering competitions in the market lowering of interest on Treasury bond. Kenya financial laws require bank to have less cash in reserve and high interest from mortgage, creating of wealth and improving savings.

Murira (2010) studied the Relationship between loan portfolio composition and financial performance of commercial banks in Kenya and found that there exists a relationship between loan portfolio and financial performance of commercial banks in Kenya as loan portfolios are the major asset of banks and other lending institutions. The study also concludes that every bank should strive to have the best loans mix as it was found that some types of loans (mortgage loans, business loans, government loans) have greater effects on financial performance of commercial banks. Therefore commercial banks should have a large percentage of mortgage loans, business loans and government loans compared to personal loans and educational loans to have the best loan portfolio mix for greater financial performance. The study further recommends that for commercial banks to remain profitable they should have good portfolio management which will help in making decisions about investment mix and policy, matching investments to objectives, asset allocation for individuals and institutions, and balancing risk against performance.

In his research about the supply of real estate finance, Muthungu (2012) found that there were revelations about the situation in the supply of housing finance in Kenya. In lending, financial institutions give out loans in consideration of interest to be charged on

the loans and the riskiness of the loan. The ability of financial institutions to lend for housing (supply of housing finance) determines the quantity of housing finance that could be supplied for house acquisitions. The research identified these factors; value of property, government regulation, income level, interest rates and loan security do affect the availability and supply of housing finance will be reduced. The study recommended that government should streamline the various real estate policies in different ministries into a single guide and to set up a separate real estate division within the ministry with the objective of running a single window clearance of all required paper work and clearances. Also the government should establish a housing loan guarantee scheme run by existing government housing corporations to assess risks in some real estate development and the applicant's credit scores then giving guarantees to the developers and financiers so as to encourage financiers to lend more and at affordable interest rates.

In her study, Adongo (2012) found that other reasons why commercial banks offer mortgage financing are increased market penetration, enhanced cross-selling potential, high profitability and as a competitive strategy. Based on the findings, the study recommended policies that would encourage commercial banks to adopt mortgage financing to enhance their profitability, market penetration and as a competitive strategy. The improved profitability of commercial banks is driven by the high interest rates pegged on mortgages.

Ngumo (2012) in her study sought to determine the effect of interest rates on financial performance of firms offering mortgages in Kenya. The study established positive relationships between financial performance and the amount of mortgage loans advanced. The study concluded that the amount of mortgage advanced by mortgage firms would lead to a high financial performance (EBIT) as it raises the revenue thereof. On the other hand, interest rate would positively relate with financial performance till it starts discouraging borrowings owing to increase in the cost of mortgage. The study recommended that mortgage firms in Kenya charge interest rates on the mortgage appropriately as ineffective interest rate policy raises the cost of mortgage borrowing, negate its demand thus lowers financial performance.

Lastly, Aguko (2012) analyzed the factors influencing mortgage financing in Kenya, by studying Housing Finance and found that interest rate setting on mortgage debt; government instruments and fiscal measures are the major policies that govern mortgage financing.

2.4 Summary from Literature Review

From the forgoing, it can be anticipated that there might be a relationship between the real estate finance portfolio size and the stock performance of the listed commercial banks. This assumption arises partly from the fact that banks are frequently viewed as institutions that provide this sort of financing as one of their key products. It is therefore the opinion of the researcher that being a key product, the real estate finance portfolio should have an effect of the stock prices of the listed banks. The chapter covered approaches that are used to estimate the performance of stock, where equations 1 and 2 have been presented.

The review covered the relevant theories to stock performance and real estate finance as well as the market interpretation of the publicly available information in the stock prices. In addition, the general concept of real estate finance was also reviewed.

The empirical studies that have been reviewed formed the main body of this section, by highlighting the various studies that have been carried out in the recent past. It clearly shows that that none of these studies touch on the aforementioned relationship, but touches on other aspects such as real estate finance rates and the performance of the commercial banks, without making any reference to the stock performance in relation to the real estate portfolio size. Hence providing the researcher an opportunity to cover the two and address this existing gap.

This study will seek to contribute to the existing literature by establishing the extent of the relationship, if it exists, between the size of the real estate finance portfolio and the stock performance of the listed banks.

CHAPTER THREE:

RESEARCH METHODOLOGY

3.1 Introduction

This chapter details how the research was carried out. It discusses the research design, research methods, data collection tools and procedures, data analysis and census survey methods that the researcher used in collecting the relevant data.

3.2 Research Design

Kothari (2004) citing Selltiz, et al. (1962) defines research design as the arrangement of conditions for collection and analysis of data; in a manner that aims to combine relevance to the research purpose with economy in procedure. It is the conceptual structure in which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data.

The research adopted causal study as its research design with the major emphasis placed on determining a cause-and-effect relationship between the size of real estate finance and the stock performance of listed commercial banks in Kenya.

3.3 Population

According to the NSE, there are 11 commercial banks currently listed under its Banking Segment. Since the researcher intended to analyze the historical data relating to the stock prices and real estate finance portfolio size, I & M Bank Ltd, which got listed in 2013, was excluded from this analysis. Therefore the target population for this study was all the 10 listed commercial banks operating in Kenya as at the end of 2010. CBK and World Bank (2010) classify banks based on assets size. For example large banks are those with assets above 15 billion Kenya Shillings. The population comprised of large banks.

3.4 Data Collection

Data on the real estate finance portfolio size was obtained from publications by the CBK and World Bank, with particular reference to *Mortgage Finance in Kenya: A Survey Analysis.* This data reading included the annual real estate finance portfolio size of the listed banks in term of value at the beginning and the end of every year within the 5 year period between 2006 and 2010. This period was selected because it is when the data is available from CBK and World Bank.

On the other hand, data on the stock prices of the commercial banks was obtained from the NSE and CMA. The readings of the stock prices were done at the beginning and the end of every year.

3.5 Data Analysis

The data collected was checked for completeness and analyzed using the Statistical Package for Social Sciences (SPSS version 17) package and Microsoft Office Excel computer packages to generate quantitative reports, which were presented in the form of tabulations, mean and standard deviation.

As suggested by Sharpe, Alexander and Bailey (2010), the shares price and dividends of the banks was used to compute the annual stock returns for the individual banks. Equation (1) was applied in computing stock returns;

$$R_{it} = \frac{P_{it} - P_{it-1}}{P_{it-1}} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(1)}$$

Where;

R_{it} = Stock return of bank *i* at time *t*

P_{it} = Stock closing price of bank *i* at time *t*

P_{it-1}= Stock opening price of bank *i* at time *t*

The analysis was both qualitative and descriptive, where the qualitative analysis was carried out using simple linear regressions. Regression analysis is used in finding out whether the independent variable changes with changes in the dependent variable Mugenda & Mugenda (2003). The study used regression analysis to establish the relationship between the size of the real estate finance portfolio as the independent variable and the stock performance of the listed commercial banks as the dependent variable. In addition the researcher will use the Return of Equity (ROE) as the control variable. The population regression model is in the form of equation 2:

$R_{it} = \alpha_0 + \beta_1 REF_{it} + \beta_2 ROE_{it} + \varepsilon_{it}$……………………………….. (2)

Where;

α_0 = *R*egression constant

REF*it* = Size of real estate finance portfolio of bank *i* at time *t*

R_{it} = Stock return of the bank *i* at time *t*

$\beta_{1}, \beta_{2},$ = Regression coefficients

ROE_{it} = Return on Equity of bank *i* at time *t*

ε_{it} = a random error term

The control variable in this model is the ROE, which reflects the financial performance of the commercial banks with regards to the shareholders equity. Further, these banks are considered as large banks by the CBK and World Bank, because their asset sizes are than Kenya Shillings 15 billion over the survey period. It should be noted that the equation 2 is a population regression function, since the researcher carried out a census survey.

CHAPTER FOUR:

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the data analysis, interpretation, and discussion of the research findings. The study used the correlation analysis, data regression analysis and the t-test statistics for inferential analysis. The data was collected on all the 10 listed commercial banks.

4.2 Data Presentation

Table 13 as shown in the appendix presents the descriptive statics and the distribution of the data of the size of mortgage in billions of Kenya shillings, stock return, and return on equity over the 5 year period (2006 – 2010). The Table shows that the financial institution with highest size of mortgage within the 5 year period was Housing Finance with a mean of Ksh12.12 billion followed by KCB (Ksh10.73 billion), CFC Stanbic Bank (Ksh4.27 billion) and Standard Chartered Bank at Ksh4.17 billion. Cooperative Bank of Kenya had the least amount of average mortgage within the period (Ksh 0.16 billion).

On stock return, Barclays Bank of Kenya had the highest returns at 0.85, followed by Cooperative Bank of Kenya 0.54 and Housing Finance Company of Kenya 0.44. NIC Bank had the least stock returns -0.15 followed by National Bank of Kenya (-0.043).

4.2.1 Regression Analysis for Individual Banks

Multiple linear regression analysis was used to measure the relationship between individual mortgage size and stock returns and moderated by ROE. The regression analysis was of the form of equation 2:

$$R_{it} = \alpha_0 + \beta_1 REF_{it} + \beta_2 ROE_{it} + \varepsilon_{it}$$

Table 1 presents the summary parameters of the regression analysis using the coefficient between the mortgage size and stock returns as moderated by ROE and the coefficient of determination from the same. The Table 2 shows that the linear relationship between mortgage and stock returns for the period was high in NIC Bank (R = .991), Diamond Trust Bank (R = .920); Equity Bank (R = .901); and, Barclays Bank (R = .817).

Table 1: Summary Parameters of Individual Banks

	R	R Square	Adjusted R Square	Std. Error of the Estimate
Barclays Bank	.817a	.668	.336	1.6127
CFC Stanbic	.411a	.169	-.663	.5813
Cooperative Bank	1.000a	1.000	.	.
Diamond Trust Bank	.920a	.847	.542	.3522
Equity Bank	.901a	.811	.434	.5755
HFCK	.885a	.784	.567	.7736
KCB	.890a	.791	.583	.4605
National Bank of Kenya	1.000a	1.000	.	.
NIC Bank	.991a	.981	.944	.0936
Standard Chartered	.380a	.144	-.712	.4489

Analysis of Variance (ANOVA) was used to make simultaneous comparisons between two or more means; thus, testing whether a significant relation exists between variables (dependent and independent variables). This helps in bringing out the significance of the regression model. The ANOVA results presented in Table 14 in the appendix shows that individual banks regression model were not significant at 95% confidence level.

Further the multiple regression analysis models of the individual banks were presented in Table 2. The regression coefficient of mortgage size was negative in two of the banks (Equity Bank, and NIC Bank).

Table 2: Regression Analysis for Individual Banks

		Unstandardized Coefficients		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
Barclays Bank	(Constant)	-.075	6.140		-.012	.991
	Mortgage Size	-1.807	.935	-.795	-1.932	.193
	ROE	15.719	19.368	.334	.812	.502
CFC Stanbic	(Constant)	-.267	1.223		-.218	.848
	Mortgage Size	.025	.182	.138	.137	.904
	ROE	3.850	7.659	.507	.503	.665
Diamond Trust Bank	(Constant)	-2.207	1.288		-1.713	.336
	Mortgage Size	1.557	2.614	-.554	-.596	.658
	ROE	13.970	9.321	1.393	1.499	.375
Equity Bank	(Constant)	-4.705	2.344		-2.007	.294
	Mortgage Size	-1.527	1.457	-.563	-1.048	.485
	ROE	22.927	11.115	1.108	2.063	.287
HFCK	(Constant)	-1.120	1.765		-.634	.591
	Mortgage Size	.224	.112	-.719	-2.002	.183
	ROE	62.976	25.696	.880	2.451	.134
KCB	(Constant)	14.470	5.318		2.721	.113
	Mortgage Size	.215	.081	-1.796	-2.662	.117
	ROE	-60.740	22.684	-1.807	-2.678	.116
NIC Bank	(Constant)	-2.586	.364		-7.105	.089
	Mortgage Size	-.521	.338	.237	1.540	.367
	ROE	10.945	1.957	.859	5.593	.113
Standard Chartered	(Constant)	1.191	1.843		.646	.584
	Mortgage Size	.055	.315	.141	.174	.878
	ROE	-3.962	7.188	-.444	-.551	.637

4.2.2 Regression Analysis Model for all Banks Combined

In order to achieve the desired results, the researcher used the combined regression analysis model to determine how mortgage size influences stock returns in all the banks. Table 6 shows that, in all the banks when combined, there was a good linear relationship between mortgage size and stock returns as moderated by ROE given R value of 0.765. Coefficient of determination depicted a moderately strong relationship between the two variables (adjusted $R^2 = 0.423$).

As shown in Table 3, Durbin Watson (DW) was used to check that the residuals of the models were not autocorrelated since independence of the residuals is one of the basic hypotheses of regression analysis. Being that the DW statistics were close to the prescribed value of 2.0 (DW = 2.105) for residual independence, it can be concluded that there was no autocorrelation.

Table 3: Model Summary for all Banks Combined

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.765[a]	.585	.423	.89058	2.105

a. Predictors: (Constant), ROE, Mortgage Size (Billion)
b. Dependent Variable: Stock Return

The ANOVA results presented in Table 4 shows an F test value of 0.547 at 95% confidence level (p = .043). This shows that the model is significant and only has a probability of 4.3% of giving false prediction.

Table 4: ANOVA for all Banks Combined

	Sum of Squares	df	Mean Square	F	Sig.
Regression	.868	2	.434	.547	.043a
Residual	30.932	39	.793		
Total	31.801	41			

a. Predictors: (Constant), ROE, Mortgage Size (Billion)
b. Dependent Variable: Stock Return

The output of the regression coefficients as shown in Table 5 completes the study's model as follows:

Stock Return = 0.079 +.000415*Mortgage Size + 1.543*ROE (p = .043)

From the finding in the above table, the study found that when mortgage size and return on equity is zero, stock returns would be 0.079. The study found that a unit increase in mortgage size while ROE is constant will result in 0.000415 increase in stock returns (p. = .047). In addition, a unit increase in ROE will result in 1.543 increase in stock returns (p = .041).

Table 5: Regression Coefficients of all Banks Combined

	Unstandardized Coefficients		**Standardized Coefficients**	**t**	**Sig.**	**Collinearity Statistics**	
	B	**Std. Error**	**Beta**			**Tolerance**	**VIF**
(Constant)	.079	.422		.188	.852		
Mortgage Size Ksh (Billion)	4.15E-4	.031	.002	.014	.047	.824	1.214
ROE	1.543	1.635	.164	.944	.041	.824	1.214

4.3 Summary and Interpretation of the Findings

The researcher noted that while the above research findings of previous studies provide valuable insights into the topic of real estate finance, interest rates and performance of banks, none of them examines real estate finance and stock performance. Therefore, this provided a gap for the researcher for further research in this area.

The objective of the study was to establish the effect of real estate finance portfolio size on the stock performance (return) of commercial banks listed at the NSE. For the purposes of this study, the researcher used the technical analysis, in determining the stock performance of the commercial banks listed at the NSE over the 5 year period from 2006 to 2010. Historical data of stock prices and real estate finance portfolio size of the banks was collected over the study period to assist the researcher project a pattern of

relationship. The data was then analyzed using SPSS for individual banks and a combination of all the banks to reveal whether there was indeed a relationship.

The key tests were applied revealed that the individual banks model was not significant to all the 10 banks in establishing the relationship of their mortgage size and their performance (stock returns), as opposed to the combination model. The tests were performed at the 5-percent level of significance, after which it the data could be pooled and a single regression equation estimated. Durbin Watson (DW) was used to check that the residuals of the models were not autocorrelated since independence of the residuals is one of the basic hypotheses of regression analysis.

The ANOVA results presented in Table 14 in the appendix shows that individual banks regression model were not significant at 95% confidence level. On the other hand, the ANOVA results presented for a combination of all the listed commercial banks shows an F test value of 0.547 at 95% confidence level (p = .043). This showed that the model was significant and only has a probability of 4.3% of giving false prediction

The study found that when mortgage size and return on equity is zero, stock returns would be 0.079. The study found that a unit increase in mortgage size while ROE is constant will result in 0.000415 increase in stock returns (p. = .047). In addition, a unit increase in ROE will result in 1.543 increase in stock returns (p = .041). The constant term basically shows that other factors also influence the stock performance of commercial banks. The high ROE coefficient is higher than the mortgage coefficient to mean that in as much as the mortgage size has an effect on the stock performance (returns), the ROE has a bigger multiplier effect.

These results clearly show that the real estate finance portfolio size (mortgage size) has an effect on the stock return, all other factors remaining constant. This can be interpreted to mean that the listed commercial banks can leverage on increasing the mortgage portfolio in order to attract an increase in their share price.

In summary the major finding of the study shows that an increase in the mortgage size will increase the stock returns of the commercial banks. This is concurrence with Adongo (2012) and Ngumo (2012), whose studies concluded that there exists a relationship between loan portfolio and financial performance of commercial banks in Kenya as loan portfolios are the major asset of banks and other lending institutions. In addition Ndirangu 2003 found that earnings of commercial banks were greatly influenced by fixed rate mortgage, income property mortgage and interest only mortgages.

The classical Efficient Market Hypothesis states that the price and earnings of a particular stock or portfolio are equal to the optimal forecast of the future cash flows and investment risks based on all the information that is currently available (Shiller, 1992). Investors behave in a rational manner, taking into account all relevant information that is available to them in the decision-making process. When new information becomes available about a particular stock, rational investors will swiftly respond, adjusting the stock price to match the new risk that is attached to it.

In the case of this research, the research is of the opinion that the information relating to the real estate finance portfolio size should be made available annually by CBK in order for the investing public to understand the level of the commercial banks investment in real estate. As this information trickles down, it should be reflected in the share prices, to ultimately determine the stock returns of the banks.

CHAPTER FIVE:

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The study is set out with the objective of establishing the relationship between the real estate finance portfolio size (Mortgage) and the stock return of commercial banks listed at the Nairobi Securities Exchange in Kenya. To achieve the objective of the study, regression models were developed using the stock return as the dependent variable and the size of the real estate finance portfolio as the independent variable as well as the ROE of the banks as the controlling variable.

After subjecting the data to analysis and tests by SPSS the subsequent output revealed that indeed an increase in the mortgage size of the commercial banks caused an increase in their stock returns. It was found that an increase in the mortgage size will lead to a marginal increase in the stock performance of the listed commercial banks. Therefore, defining a causal relationship between these variables, all other factors remaining constant.

It is the opinion of the researcher that the real estate market is growing at a significant pace, as documented by economic surveys conducted by the KNBS, as well as common observation. Therefore the fact that banks are giving mortgages on real estate will increase their earnings in terms of interest. This would subsequently benefit the shareholders in terms of capital gains and dividends. It would then make sense for the demand of the stocks of the listed commercial banks to rise, thereby increasing their prices.

5.2 Conclusion

If the findings of this study and the findings of previous studies clearly show that the people who invest in commercial banks' stock will gain from higher stock return and that the banks will increase their performance respectively, then the researcher concludes that the real estate finance portfolio size management is indeed significant for the financial well being of the banks.

With regards to the subject matter, the information about the real estate finance portfolio size is public information especially given that listed commercial banks are being considered. The stock prices in this case would be taken to have a reflection of the information regarding the real estate portfolio sizes, thereby ruling out the chances of making abnormal profits.

It is therefore in the interest of the listed commercial banks to increase their mortgage portfolio, not only to increase their performance, but also the increase the wealth of the shareholder. This study believes that subject to the statutory liquidity ratios as provided by CBK, the listed commercial banks should leverage of real estate finance a line of business to boost the attractiveness of the bank at the NSE.

The researcher believes that any means to improve the shareholders wealth, for instance by increasing the mortgage portfolio size, will also go a long way in improving the standing of the NSE as an investment destination. It will allow shareholders to participate and benefit from the growing real estate market and share into the earnings through

5.3 Policy Recommendation

The study recommends that banks and their management as well as board of directors can increase the attractiveness of their banks to the investing population and increase their existing shareholders wealth. It would therefore be of utmost importance to factor in the mortgage finance portfolio size when assessing the pull factor in the banking category at the NSE.

Hence bank managers must come up with strategies that maximize the wealth of the shareholders. This requires that the managers understand factors that drive the stock value, such as the real estate finance portfolio size.

In the view of a shareholder any effort towards growing the listed bank's business, thus increasing the chances of increasing his shareholder wealth, is always welcome. The shareholder wealth in this case, being measured by the annual stock returns. Considering the risk associated with real estate finance and other factors, banks have a real estate finance portfolio that forms part of its assets. Proving an existence of a relationship between the portfolio size and the shareholder wealth would provide a major insight for both the investor and the listed bank to determine their optimum levels.

Banks are important to an economy because they transfer risk, provide liquidity and support commercial and non commercial transactions. At the same time, investors expect the listed banks that they invest in, at the NSE, to be profitable.

The role played by the CBK in regulating the banking sector is critical if the sector is to perform up to its potential. The CBK has the responsibility of supervising, regulating and inspecting all commercial banks licensed in Kenya. CBK is responsible for enforcing statutory requirements, such as minimum capital, liquidity ratios and cash ratios, and can establish additional rules and regulations that are consistent with those statutory requirements. These previous studies assert that the optimal liquidity adequacy requirement implements a constrained efficient allocation subject to unobservable types and trades. As providers of real estate finance, commercial banks are subject to liquidity

position of a statutory minimum level of 20 per cent. It is the researcher's suggestion that this minimum level be increased to say 30% to also cater for the business interest of the commercial banks.

5.4 Limitations of the Study

The researcher encountered various limitations that may have affected the findings of this study. For instance, the study relied on secondary data sources. Secondary data can, however, be unreliable as they are intended for other purposes. This could include convincing external stakeholders that the business performs well when it does not. To curb this, the study sought audited financial results of the banks to collect data on ROE and used it as a controlling variable.

The sample for this study might have been small and could have the drop-back of not being representative of the population reality. However, the researcher carried the study on all the commercial banks listed at the NSE and was fully inclusive of the banks that had traded consistently for five years.

Due to limited dataset, a cross sectional data analysis was done giving a generalized view of the relation. In addition, not all banks were examined as intended due to non-availability of relevant information like Cooperative Bank and some did not trade continuously in all the years of the study period. For example I & M Bank, this was listed after the study period.

Further, the research did not isolate other factors influencing stock returns except the ROE, which was used as a controlling variable. For instance, corporate action undertaken by the banks such as rights and bonus issue, and stocks splits during the study period could have affected the stock returns. However, using the diagnostics available in SPSS, the researcher tested the significance of the established relationship to mitigate this phenomenon.

5.5 Suggestions for Further Research

The study suggests that further studies should be conducted on other factors that would determine the stock returns of banks like rights and bonus issue, and stocks splits, but using the mortgage size as the controlling factor. This would help isolate these factors so as to establish how mortgage and stock returns behave.

Another study should be done that isolate each credit item in a mortgage to separate the short-term construction finance and the long term real estate mortgage. This would help with comparison basis on how mortgage vis a vis construction finance influence the stock performance of banks. The study also suggests that a study can be conducted exclusively on determinants of stock return in commercial banks that are not necessarily listed at the NSE.

The researcher suggests that a study should be done on all listed commercial banks to determine whether there is also a relationship between the mortgage size and the dividend distribution policy. This would be informative for the prospective shareholders to decide which companies to invest in within the banking sector.

This study applied in the period between 2006 and 2010 because it is within this period that the mortgage size data of the commercial banks was available. CBK in the near future release the data to include subsequent years up to 2013 and it would be interesting to do another research to cover eight years. This will help in determining whether the findings would still remain the same or would change.

REFERENCES

Abbot, D. (2004). *The shorter encyclopedia of real estate terms*. London: Delta Alpha Publishing Limited.

Adongo, D.M. (2012). *The relationship between mortgage financing and financial performance of commercial banks in Kenya*; Unpublished MBA Project, School of Business, University of Nairobi.

Aguko, J. (2012). *Analysis of the factors influencing mortgage financing in Kenya: A case of Housing Finance Company of Kenya*; Unpublished MBA Project, School of Business, University of Nairobi.

Berges, S. (2004). *The complete guide to real estate finance for investment properties.* New Jersey: John Wiley & Sons, Inc.

Central Bank of Kenya, & World Bank (2010). *Mortgage finance in Kenya: Survey analysis*. Nairobi, Kenya: Central Bank of Kenya

Farhi, Emmanuel, Mikhail Golosov, and Aleh Tsyvinski. (2009). *A theory of liquidity and regulation of financial intermediation*. Review of Economic Studies 76, no. 3: 973-992.

Government of Kenya (2008-2013). *Economic survey*. Nairobi, Kenya: Kenya National Bureau of Statistics.

Kipngetich, K.M. (2011). *The relationship between interest rates and financial performance of commercial banks in Kenya*; Unpublished MBA Project, School of Business, University of Nairobi.

Kothari, C.R (2004) *Research methodology: Methods and techniques, 2nd edition.* New Delhi, New Age International Publishers.

Mugenda, O.M., & Mugenda, A.G. (1999, Revised 2003). *Research methods: Quantitative and qualitative approaches.* Nairobi, Kenya: Acts Press.

Khamis Said Mata (2007). *Commercial banks exposure to interest rate risk: A study of commercial banks listed at the Nairobi Securities Exchange:* Unpublished MBA Project, School of Business, University of Nairobi.

Murira M.M. (2010). *The Relationship between loan portfolio composition and financial performance of commercial banks in Kenya*; Unpublished MBA Project, School of Business, University of Nairobi.

Muthungu P.M. (2012). *Determinants of supply of real estate finance in Kenya*; Unpublished MBA Project, School of Business, University of Nairobi.

Mugichia L. (2012). *Effect of flexible interest rates on the growth of mortgage financing in Kenya*; Unpublished MBA Project, School of Business, University of Nairobi.

Mwangi G.N. (2010). *Factors leading to adoption of mortgage financing by commercial banks in Kenya: a case study of Kenya Commercial Bank in Nairobi*; Unpublished MBA Project, School of Business, University of Nairobi.

Ndirangu J.G. (2003). *Effect of types of mortgages on financial performance of mortgage Institutions in Kenya*; Unpublished MBA Project, School of Business, University of Nairobi.

Ngumo L.W. (2012). *The effect of interest rates on the financial performance of firms offering mortgages in Kenya*; Unpublished MBA Project, School of Business, University of Nairobi.

Njiru, J.G. (2003). *The performance of the real estate market - the case of CBD of Nairobi.* Nairobi, Kenya: Unpublished Research Project for Award of Masters

Degree In Business Administration from the Department of Accounting, Faculty of Commerce, University of Nairobi.

Okinyi N.J. (2012). *Performance and financial ratios of commercial banks in Kenya from 2006-2010*; Unpublished MBA Project, School of Business, University of Nairobi.

World Bank (2011). *Developing Kenya's mortgage market*. Washington, DC: World Bank

Werner, R.J., & Kratovil, R., (1981) *Modern Mortgage law and practice*. New York: Prentice Hall PTR

Sharpe, W.F., Alexander, G.J., & Bailey, J.V. (1999, Revised 2010). *Investments, 6th edition*. New Delhi, India: PHI Learning Private Limited

Shiller, R. J. (1992). *Market Volatility*. Boston: MIT Press.

Scanlon, K., & Whitehead, C., (2008). *International trends in housing tenure and mortgage finance*. The Council of Mortgage Lenders

United Kingdom Construction Group (2009). *Construction stimulating*. Retrieved on June 28, 2013, from http://www.ukcg.org.uk/fileadmin/documents/UKCG/Key_facts/Fact_sheet_Constructionstimulating_economy.pdf

Wahome M.W. (2010). *A survey of factors influencing mortgage financing in Kenya*; Unpublished MBA Project, School of Business, University of Nairobi.

Wikipedia – The Free Encyclopedia (2013) *Mortgage insurance*. Retrieved on June 28, 2013, from http://en.wikipedia.org/wiki/Mortgage_insurance

Wikipedia – The Free Encyclopedia (2013) *Mortgage.* Retrieved on June 28, 2013, from http://en.wikipedia.org/wiki/Mortgage

APPENDICES

Table 6: Population: Listed Commercial Banks in Kenya

1	Barclays Bank Ltd
2	CFC Stanbic Holdings Ltd
3	Diamond Trust Bank Kenya Ltd
4	Housing Finance Co Ltd
5	Kenya Commercial Bank Ltd
6	National Bank of Kenya Ltd
7	NIC Bank Ltd
8	Standard Chartered Bank Ltd
9	Equity Bank Ltd
10	The Co-operative Bank of Kenya Ltd

Source: NSE 2012

Table 7: The Stock Return, Mortgage Size and Return on Equity_2006

	2006			
	Bank Name	**Mortgage Size Ksh (Billion)**	**Stock Return**	**Return on Equity**
1	KCB	4.08	1.11	0.21
2	Housing Finance	8.33	2.44	0.08
3	CFC Stanbic	0.65	0.19	0.16
4	Standard Chartered	2.91	0.47	0.27
5	Barclays Bank	0.97	4.36	0.32
6	Equity Bank	N/A	N/A	N/A
7	National Bank of Kenya	N/A	N/A	N/A
8	Diamond Trust Bank	N/A	N/A	N/A
9	NIC Bank	N/A	N/A	N/A
10	Cooperative Bank	N/A	N/A	N/A

Table 8: The Stock Return, Mortgage Size and Return on Equity_2007

2007			
Bank Name	**Mortgage Size Ksh (Billion)**	**Stock Return**	**Return on Equity**
KCB	6.26	- 0.88	0.23
HFCK	8.96	- 0.06	0.05
CFC Stanbic	2.73	0.44	0.05
Standard Chartered	3.65	- 0.02	0.33
Barclays Bank	1.70	- 0.05	0.30
Equity Bank	0.03	0.06	0.22
National Bank of Kenya	N/A	N/A	N/A
Diamond Trust Bank	0.13	0.28	0.18
NIC Bank	0.12	- 0.42	0.19
Cooperative Bank	N/A	N/A	N/A

Table 9: The Stock Return, Mortgage Size and Return on Equity_2008

2008			
Bank Name	**Mortgage Size Ksh (Billion)**	**Stock Return**	**Return on Equity**
KCB	9.70	- 0.09	0.20
Housing Finance	11.30	- 0.58	0.06
CFC Stanbic	5.35	- 0.51	0.04
Standard Chartered	4.42	- 0.18	0.29
Barclays Bank	2.37	- 0.33	0.29
Equity Bank	0.30	0.36	0.22
National Bank of Kenya	0.27	- 0.04	0.22
Diamond Trust Bank	0.23	- 0.20	0.19
NIC Bank	0.38	- 0.28	0.20
Cooperative Bank	N/A	N/A	N/A

Table 10: The Stock Return, Mortgage Size and Return on Equity_2009

2009			
Bank Name	**Mortgage Size Ksh (Billion)**	**Stock Return**	**Return on Equity**
KCB	15.64	- 0.13	0.18
Housing Finance	15.10	- 0.05	0.06
CFC Stanbic	6.14	- 0.24	0.00
Standard Chartered	4.90	0.00	0.37
Barclays Bank	2.91	- 0.11	0.27
Equity Bank	0.54	- 0.93	0.21
National Bank of Kenya	0.45	- 0.09	0.21
Diamond Trust Bank	0.35	0.00	0.19
NIC Bank	0.48	- 0.33	0.18
Cooperative Bank	0.06	- 0.05	0.18

Table 11: The Stock Return, Mortgage Size and Return on Equity_2010

2010			
Bank Name	**Mortgage Size Ksh (Billion)**	**Stock Return**	**Return on Equity**
KCB	17.97	0.06	0.18
Housing Finance	16.90	0.47	0.09
CFC Stanbic	6.50	0.55	0.07
Standard Chartered	4.96	0.61	0.31
Barclays Bank	3.06	0.38	0.38
Equity Bank	0.67	0.89	0.29
National Bank of Kenya	0.57	0.00	0.23
Diamond Trust Bank	0.56	0.99	0.29
NIC Bank	0.52	0.44	0.25
Cooperative Bank	0.25	1.12	0.22

Table 12: The Mean of Mortgage Size, Stock Return and ROE

Bank	**Year**	**Mortgage Size Ksh (Billion)**	**Stock Return**	**ROE**
Barclays Bank	2006	0.97	4.36	0.32
	2007	1.7	-0.05	0.3
	2008	2.37	-0.33	0.29
	2009	2.91	-0.11	0.27
	2010	3.06	0.38	0.38
	Mean	**2.20**	**0.85**	**0.31**
CFC Stanbic	2006	0.65	0.19	0.16
	2007	2.73	0.44	0.05
	2008	5.35	-0.51	0.04
	2009	6.14	-0.24	0
	2010	6.5	0.55	0.07
	Mean	**4.27**	**0.09**	**0.06**
Cooperative Bank	2006			
	2007			
	2008			
	2009	0.06	-0.05	0.18
	2010	0.25	1.12	0.22
	Mean	**0.16**	**0.54**	**0.20**
Diamond Trust Bank	2006			
	2007	0.13	0.28	0.18
	2008	0.23	-0.2	0.19
	2009	0.35	0	0.19
	2010	0.56	0.99	0.29

Bank	Year	Mortgage Size Ksh (Billion)	Stock Return	ROE
	Mean	**0.32**	**0.27**	**0.21**
Equity Bank	2006			
	2007	0.03	0.06	0.22
	2008	0.3	0.36	0.22
	2009	0.54	-0.93	0.21
	2010	0.67	0.89	0.29
	Mean	**0.39**	**0.10**	**0.24**
HFCK	2006	8.33	2.44	0.08
	2007	8.96	-0.06	0.05
	2008	11.3	-0.58	0.06
	2009	15.1	-0.05	0.06
	2010	16.9	0.47	0.09
	Mean	**12.12**	**0.44**	**0.07**
KCB	2006	4.08	1.11	0.21
	2007	6.26	-0.88	0.23
	2008	9.7	-0.09	0.2
	2009	15.64	-0.13	0.18
	2010	17.97	0.06	0.18
	Mean	**10.73**	**0.014**	**0.2**
National Bank of Kenya	2006			
	2007			
	2008	0.27	-0.04	0.22
	2009	0.45	-0.09	0.21
	2010	0.57	0	0.23
	Mean	**0.43**	**-0.043**	**0.22**
NIC Bank	2006			
	2007	0.12	-0.42	0.19
	2008	0.38	-0.28	0.2
	2009	0.48	-0.33	0.18
	2010	0.52	0.44	0.25
	Mean	**0.38**	**-0.15**	**0.21**
Standard Chartered	2006	2.91	0.47	0.27
	2007	3.65	-0.02	0.33
	2008	4.42	-0.18	0.29
	2009	4.9	0	0.37
	2010	4.96	0.61	0.31
	Mean	**4.17**	**0.18**	**0.31**

Source: CMA Publications and bank's financial statements

Table 13: ANOVA for Individual Banks

		Sum of Squares	df	Mean Square	F	Sig.
Barclays Bank	Regression	10.463	2	5.232	2.012	.332a
	Residual	5.202	2	2.601		
	Total	15.665	4			
CFC Stanbic	Regression	.137	2	.069	.203	.831a
	Residual	.676	2	.338		
	Total	.813	4			
Cooperative Bank	Regression	.684	1	.684	.	.a
	Residual	.000	0	.		
	Total	.684	1			
Diamond Trust Bank	Regression	.688	2	.344	2.774	.391a
	Residual	.124	1	.124		
	Total	.812	3			
Equity Bank	Regression	1.423	2	.711	2.148	.434a
	Residual	.331	1	.331		
	Total	1.754	3			
HFCK	Regression	4.334	2	2.167	3.622	.216a
	Residual	1.197	2	.598		
	Total	5.531	4			
KCB	Regression	1.610	2	.805	3.796	.209a
	Residual	.424	2	.212		
	Total	2.034	4			
National Bank of Kenya	Regression	.004	2	.002	.	.a
	Residual	.000	0	.		
	Total	.004	2			
NIC Bank	Regression	.462	2	.231	26.322	.137a
	Residual	.009	1	.009		
	Total	.470	3			
Standard Chartered	Regression	.068	2	.034	.168	.856a
	Residual	.403	2	.202		
	Total	.471	4			