EFFECT OF FINANCIAL RISK MANAGEMENT ON FINANCIAL PERFORMANCE OF STATE OWNED COMMERCIAL BANKS IN KENYA

BY

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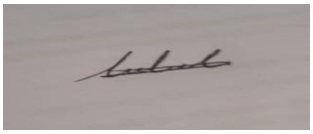
DECLARATION

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

Signature  Date 3/12/2020

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

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DEDICATION

To friends for their support.

ACKNOWLEDGEMENT

To Allah for giving me grace to clear this project. To my supervisor, I appreciate the dedication and guidance that enabled me to clear this project.

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ABBREVIATIONS AND ACRONYMS

BCG	Boston Consulting Group
CBK	Central Bank of Kenya
CBKL	Consolidated Bank
CMA	Capital Market Authority
DBK	Development Bank of Kenya
FP	Financial Performance
FR	Financial Risk
FRM	Financial Risk Management
KCB	Kenya Commercial Bank
MPT	Modern Portfolio Theory
NBK	National Bank of Kenya
PPP	Purchasing Power Parity
ROA	Return on Assets
ROE	Return on Equity
ROI	Return on Investment

ABSTRACT

The link between financial risk management and thedegree which Kenyan government owned bankuing entities performned in monetary terms was explorted in this investigation. The adopted design was descriptive survey with focus on 6 firms. The raw statistics was obtained from auxiliary sources covering a time frame as from 2010 all through to 2019. The processing of the gathered views was descriptively and inferentially done. It was shown that on controlling for firm size, foreign exchange risk had the largest negative but insignificant effect on financial performance followed by liquidity risk that also had a negative but significant effect and lastly interest rate risk that had a positive but insignificant effect on financial performance. The study concluded that financial risk management had mixed relationship with financial performance. The study recommended that risk managers of the government owned commercial banks in Kenya should adopt hedging, currency swaps, future contracts and forward contracts among other strategies so as to minimize their exposure on financial risks. The relatively larger government owned commercial banks in Kenya should leverage on their strong liquidity position to support the relatively smaller and struggling banks like Development Bank of Kenya and the Consolidated Bank. The credit managers and analysts of the government owned commercial banks should be careful when evaluating the credit worthiness of the customers so as to reduce on credit risk exposure. The policy makers including the National Parliament should expedite on the proposed merger of the struggling government owned commercial banks like Consolidated Bank and Development Bank to establish one larger institution that would command a relatively larger market share. The Central Bank of Kenya should regulate the fluctuation in interest rates as this would signify interest rate risk that may have an influence on financial performance of the government owned commercial banks in Kenya. The study was limited by a relatively smaller sample size that may affect how the findings of the study are generalized and thus a limitation. Future studies should also focus on other financial institutions like Microfinance Institutions or deposit taking Savings and Credit Cooperatives or simply the listed commercial banks or the foreign owned commercial banks.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

As unforeseen event, risk affects almost all the operations of the firm and thus requires attention from the management. In particular, financial risk occurs from changes in items like the exchange rates, the interest rates and the credit risk among other items. Financial risks require that the organization formulates effective practices as this has an influence on the revenues generated thus financial performance of the firm. Survival of firms in environment that is constantly changing environment requires considerable efforts to management financial risks (Erdoğan, 2017).

The study was guided by the modern portfolio theory (MPT) and the purchasing power parity (PPP) theory. The MPT was formulated by Markowitz (1952) and it argues that investors are faced with risks as they strive to hold on their portfolio. Thus, in order to minimize the risks and maximize on returns, investors are advised to diversify their investments. Thus, this theory suggests that firms can minimize financial risk through diversification of the assets within the portfolio. According to the PPP theory, goods with homogenous value would be same in various countries on the basis of the specific currency of the country. The theory argues that similarity in purchasing power is same in various countries makes exchange rates between countries to be stable (Menon & Viswanathan, 2005).

The operations of the banking industry in Kenya are governed and regulated by the CBK. It is the responsibility of CBK to ensure that sound regulations and prudential guidelines have been passed as far as sustainability and financial performance of commercial banks is concerned (Wanjiru, 2013). There are currently 6 commercial banks in Kenya where the government has participation in terms of ownership of shares (National Treasury, 2019). However, majority of these state owned

commercial banks are currently facing financial challenges which have largely been attributed to poor financial risk management mechanisms. For instance, National Bank of Kenya (NBK) is currently planning to merge the operations with Kenya Commercial Bank (KCB) due to consistent loss records. Other commercial banks like CBKL and the DBK have been stuck in negative liquidity positions (Muhindi & Ngaba, 2018).

1.1.1 Financial Risk Management

There is no consensus on what financial risk management (FRM) entails as there exists varying definitions (Yakup & Asli, 2010). According to the Boston Consulting Group (BCG) (2001), FRM is a multi-dimensional construct that cover four key activities identification, assessment, monitoring and reporting and finally control. During identification, various events are brought out from their different categories for instance operational, credit or market risks. Assessment of these identified risk activities can be done using reliable data. An organization should strive to ensure that monitoring and reporting of the asses risk is done on time (Muriithi, 2016).

Therefore, FRM can be seen as a various activities that act to maximize the revenue generated by the banking entity through reduction of costs linked with variability in cash flows. There are various categories of risks and financial risk (FR) is one of them (Mwaurah, 2019). There are three broad classes of financial risks which include market, credit and liquidity risk. This market risk can be classified further into equity, foreign currency, interest rate and commodity risk. Financial managers can have various behavior and attitudes towards risk (aversion or risk appetite) and this may have an effect on decisions made under FRM (Ng'aari, 2016).

Iqbal and Mirakhor (2007) shared that an entity with sound framework for managing risk helps in reduction of risk exposure while giving a firm an advantage to compete in the market. Presently,

the concept of FRM has gained relevance in the banking environment as it helps to reduce exposure to risks. Al-Tamimi and Al-Mazrooei (2007) shared that due to the dynamic nature of the environment, commercial banks are presently being exposed to various components of risks for instance interest rate risk, credit risk, foreign exchange, liquidity and market risks. These risks may threaten the survival and viability of the business in the environment. In order to manage financial risk properly, an institution should establish a clear environment for risk, establish and measure the degree of risk exposure, propose ways of mitigating the exposure to risk, monitoring and controlling of risks (Noor & Abdalla, 2014). Thus, the present study focused on interest rate risk, liquidity risk and foreign exchange risk as dimensions of FRM.

1.1.2 Financial Performance

Performance is a broad term that covers the financial and the non-financial aspect. The key emphasis of this study will be on the financial dimension of performance. Lymon and Carles (1978) regarded financial performance (FP) in terms of profitability of an entity. However, a comprehensive understanding of profitability requires the concept of analysis of the ratios.

There are several proxies that can be used to gauge FP of the entity for instance returns generated on assets (ROA, equities (ROE) as well as on investments (ROI). In this study, ROA was used as a proxy of financial performance of the entity. Information for determining ROA required collection of figures of net income and the overall asset of the firms.

1.1.3 Commercial Banks in Kenya

Commercial banks play an intermediation role by mobilizing deposits and savings from the customers and creating liquidity and credit in the economy (Juma & Atheru, 2018). This is an

important role as far as the overall growth of the economy is concerned. The Kenyan banking sector is largely regulated by the Central Bank of Kenya (CBK).

There are currently 43 commercial banks and one mortgage finance firm (Housing Finance Corporation) in Kenya. These commercial banks fall into private and public entities. The private commercial banks are further classified into those whose ownership is locally or those that are owned by foreigners. The public commercial banking entities are specifically those where the government takes part in their affairs (CBK, 2019).

1.1.4 State Owned Commercial Banks

State owned banks are financial institutions where the government has a controlling percentage of shares. There are 6 commercial banks in Kenya where the government has some form of participation (CBK, 2017). However, in the recent past, most of these state owned commercial banks have consistently posted poor records of financial performance. These include NBK, CBKL and DBK.

Because of the financial challenges, NBK was bought by KCB in the year 2019. This was meant to enhance its financial pertformance. The other strguggling banks like CBKL have been forced to close donw their branches in order to stay afloat. Much of the woes of these entities has been blamed on their risk management frameworks. It is anticipated that existance of a sound framnework of managing risks would cushion the firm against any eventualities likely to adversely impact on performance in monetary terms (Pradhan & Shrestha, 2017), and thus the motivation for the present investigation.

1.2 Research Problem

Financial risk management is one way of minimizing risk exposure and maximizing on returns generated. Financial risk management aims at ensuring that effectively responds to changes in interest and exchange rates as well as inflationary pressure. This way, the firm is able to enhance the revenues generated and thus profitability (Tamimi & Al-Mazrooei, 2007). Financial risk management helps an organization to effectively maximize on performance by lowering the costs linked with volatility in cash flows. Effective financial risk management require an organization to put in place sound risk environment, identify and measure the degree of exposure of the bank to the financial risk and putting in place controls for the same. All these activities are expected to positively contribute towards financial performance of the firm (Yakup & Asli, 2010).

Commercial banks operate in the volatile environment that is characterized by stiff regulations by the CBK. Despite this regulation, most state owned commercial banks have been facing challenges as far as their financial performance is concerned. For instance, the NBK Ltd, CBKL and DBK Ltd all are facing issues with their financial performance (CBK, 2018). Most of these banks have a huge built up of non-performing loans which point out the weaknesses in their ability to manage risks (CBK, 2019). The operations of commercial banks expose them to interest rate risk, credit risk, liquidity risks and foreign exchange risk which are key components of the larger financial risk and which should be effectively managed for these institutions to remain profitable.

In Malaysia, Tafri *et al.* (2009) used evidence from banking entities noting that financial risk has insignificant influence on profitability. With respect to SMEs in India, Gill, Dana and Obradovich (2018) noted that financial risk management has significant influence on firm performance. However, these studies were conducted in other countries away from Kenya and thus creating

contextual gap. Akong'a (2014) looked at FRM and the ability of Kenyan banking entities to perform financially, arguing that most Kenyan banks were embracing risk management. Lelgo and Obwogi (2018) looked at FR and its interaction with the ability of Kenya microfinance entities to perform financially.

However, from the above mentioned studies, most of them were conducted in different contexts including among the micro finance institutions and listed commercial banks as well as the oil marketing firms. Other studies were conducted in other countries like India away from Kenya. This created research gaps which the current study sought to fill seeking answers to the following research question: what is the effect of financial risk management on financial performance of state owned commercial banks in Kenya?

1.3 Research Objective

To establish the effect of financial risk management on financial performance of state owned commercial banks in Kenya

1.4 Value of the Study

The study may add knowledge to the existing one as it regards the FRM and FP. Scholars may rely on the study to conduct literature review. The study may recommend areas that require further studies which may be important as far as advancement of the theories on financial risk management is concerned.

Policy makers like the Capital Market Authority (CMA) and CBK may be better placed to come up with relevant policies that would drive the overall resilience of the financial sector in Kenya.

Policy makers in respective banking entities may have a privilege to strengthen and improve on their financial risk management mechanisms. Policy makers in the overall banking industry may have a chance to come up with regulations guiding the entire sector. The FRM practitioners, shareholders, directors and corporate managers who are responsible for drafting strategies of firms to improve on financial performance will have their role enhanced by this study.

CHAPTER TWO: LITERATUERE REVIEW

2.1 Introduction

The relevant theories informing the inquiry are reviewed in thuis chapter. Past empirical investigations are considered also. The conceptyual framework givbing an overview of the study variables is also shown with arising gaps to be bridged. .

2.2 Theoretical Review

The theories guiding the inquiry are as indicated

2.2.1 Modern Portfolio Theory

The theory was put forward by Markowit (1952). The theory introduces the concept of risk and return and how to achieve a balance between them. The theory argues that risk in an investment can be minimized through portfolio selection. A portfolio is group of related investments that investors hold so as to maximize on returns and minimize risk exposure.

By holding a portfolio of investments, an investor will have diversified the assets and thus minimizing risk hence increasing chances of more returns. The ability to maximize returns of the investors relies on how well an investor selects and combines the assets in the portfolio. This theory is informs how managers in an organization can balance between risk and returns in their financial risk management decisions and thus maximizing the wealth of their shareholders.

2.2.2 Purchasing Power Parity Theory

The purchasing power parity (PPP) theory was formulated by Menon and Viswanathan (2005) and it argues that goods with homogenous value would be same in various countries on the basis of

the specific currency of the country. The theory argues that similarity in purchasing power is same in various countries makes exchange rates between countries to be stable. The ratio of price levels of commodities should be equivalent to the currency of a given country (Jiang, Bahmani-Oskooee & Chang, 2015).

When money does not have purchasing power against the commodity level of the country, the currency of the country may be deemed to have been valued incorrectly. The theory is premised on perfect world where there are no costs of transaction, the barriers to trade do not exist and the goods in exchange process is of a homogenous attribute (Bahmani-Oskooee, Chang, Chen & Tzeng, 2017). The theory indicates the need to leverage on price indices in determination of prices of goods having commodities that are homogenous. The two common classes of PPP; absolute as well as relative (Menon & Viswanathan, 2005).

The absolute PPP indicates that irrespective of currencies, same commodities need to have same costs. The relative PPP argues that attention and consideration should be given to imperfections that exist in the market (Ross, 2008). The theory is used to explain one country's currency in relation to the other. The theory argues that exchange rates at equilibrium ensure that the exchanged value can be used to purchase goods of same values from more than one country involved. Thus, the theory will be used to underpin the interaction between foreign exchange risk and financial performance.

2.3 Determinants of Financial Performance of State-Owned Commercial Banks

This section shall provide literature on factors determining how banking entities perform in monetary terms.

2.3.1 Financial Risk Management

Financial risk management entails various components including credit risk, liquidity risk, foreign exchange risk and interest rate risk as well as market risk (Akong'a, 2014). It is important for an organization to effectively management its exposure on changes in foreign exchange risk particularly for firms with foreign operations. Credit risk is important to lending institutions since it determines the credit worthiness of the customers.

Credit risk goes a long way to reducing the number of Nonperforming loans (NPLs) of the firm (Noor & Abdalla, 2014). NPLs are simply the credit facilities that had been extended to customers which are not likely to be recovered. NPLs are undesirable since they eat into the revenues that are generated by the institution.

2.3.2 Size of the Firm

Studies on size of firms have used the log of asset base as the proxy. Small firms have limited market coverage and ability to access qualified team of professional who can drive performance (Angote, Malenya & Musiega, 2015). Thus, it is expected that the larger the size of the firm, the greater the chances of financial performance (Nurullah & Kengatharan, 2015).

Due to their ability to enjoy to economies of scale that arise from their size, larger firms are deemed to perform better than the smaller ones. Smaller firms face different constraints that limit their ability to perform financially.

2.4 Empirical Literature Review

In Malaysia, Tafri, Hamid, Meera and Omar (2009) covered time duration from 1996 all through to 2005. Returns generated on the values of assets and equities that is ROE as well as ROA were

proxies of financial performance (FP) and the panel data methodologies were adopted. The study did a comparison between conventional as well as Islamic banking entities. It was shown that financial risk has insignificant influence on profitability. With respect to SMEs in India, Gill, Dana and Obradovich (2018) looked at the influence of financial risk management (FRM) and FP. The firms covered were the ones operating in the manufacturing as well as service segments. It was shown that FRM and FP are linked with each other in significant terms.

Erdoğan (2017) in another study looked at FRM and its influence on the value of the firm using evidence from firms listed in Istanbul. Information was gathered over a time frame from 2008 all through to 2015. The findings indicated that financial risk management has no influence in the value generated by the firm to shareholders. Haque and Wani (2015) focused on FRM and the ability of the firm to be profitable enough. The study was done in the Indian context specifically among the commercial banks. The study variables included liquidity as well as interest rate risk and capital and solvency risks. It was shown that proper financial risk management mitigates financial risk exposure and thus better performance of the firm.

Ahmed, Mukhongo and Datche (2019) focused on SMEs in the context of Somalia to determine the interaction between financial risk management and their ability to perform in financial terms. The study variables included identification, analysis and monitoring and evaluation of risk. A total of 2,657 SMEs were targeted and surveyed. From these, 348 respondents were targeted and information was obtained using questionnaires. FRM was seen to have a direct interlink with performance in monetary terms.

Mwaurah (2019) focused on the interaction between financial risk and returns from stock. The focus of the study was on listed banking entities in Kenyan context. Annual data was utilized that

covered the period from 2006 all through top 2015. A total of 9 banking entities listed were covered. Among the variables of interest included credit, market, liquidity and capital risk with the control variable being bank size and stock returns was the dependent variable. It was shown that financial risk management and share returns are related with each other in significant terms. Mudanya and Muturi (2018) were keen to verify the link between financial risk (FR) on ability of listed banks in Kenyan context to generate profits. The design used in the study was quantitative. Information was gathered from secondary sources of 11 banking entities. The time horizon of the study was 2007 all through to 2016. It was shown that credit risk and ability of banking entities to generate profits are positively related with each other.

Obwogi (2018) looked at financial risk and its influence on ability of micro finances to shape their pertformance in monetary terms. The design used in the study was quantitative and a total of 13 MFIs were targeted. Data covered a period of 2013-2017. A postive interaction was identified between financial risk and ability of the firm to enhance financial performance. Juma and Atheru (2018) looked at financial risk analysis and performance of banking entities. The variables covered in this study included interest rate risk, foreign exchange risk, credit as well as liquidity risk. A total of 42 banking entities were covered. The period of consideration was 2010 to 2015 and a postive link was noted.

Joseph (2016) focused on Kenyan life insurance entities to determine the interaction between FRM and ability to generate profits. Survey design was adopted and information was gathered with aid of questionnaires. A total of 30 respondents formed the study population. It was shown that the significant growth and improvement in performance of the insurance entities is attributed to increased recognition of financial risk management. Lelgo and It was shown that FRM has significant influence on FP. Kambi and Ali (2016) used hedging practices, liquidity management

and employee risk management training. The study gathered secondary data and the findings indicated that financial risk management is done to improve on performance.

2.5 Conceptual Framework

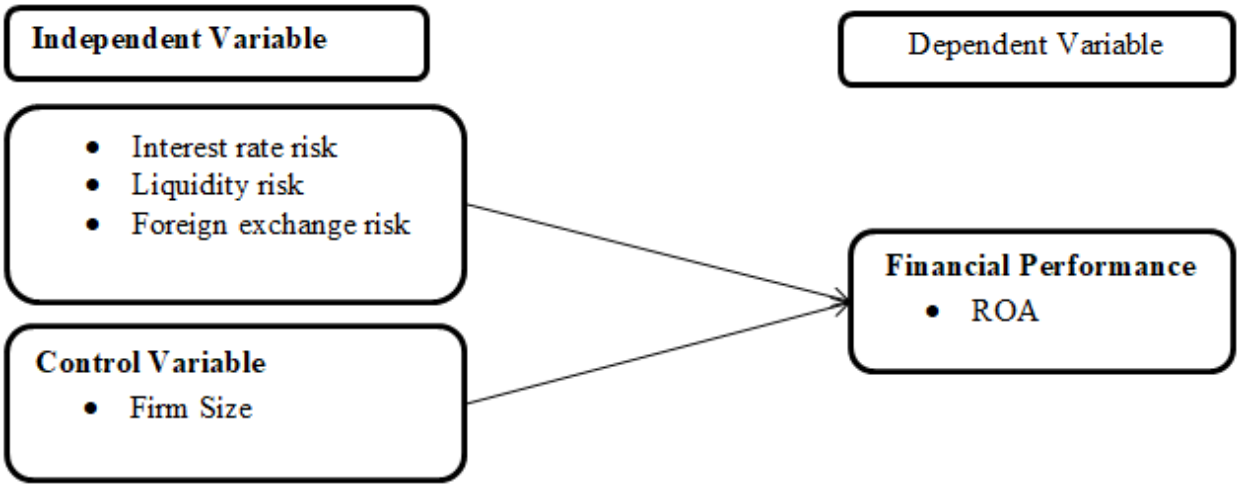

Figure 2.1: Conceptual Framework

2.6 Summary of Literature and Research Gaps

The gaps of the reviewed studies are indicated in Table 2.1

Table 2. 1: Summary of Literature and Research Gaps

Author	Study	Findings	Gap
Mudanya and Muturi (2018)	influence of financial risk on ability of listed banks in Kenyan context to generate profits	credit risk and ability of banking entities to generate profits are positively related with each other	The study only covered banks that are listed; the present study covered both listed and no listed state owned banks
Lelgo and Obwogi (2018)	Financial risk and its influence on ability of micro finances to enhance their financial performance.	financial risk management has significant influence on financial performance	The study covered Kenyan MFIs and not the commercial banks; the present study covered commercial banks
Erdoğan (2017)	financial risk management and its influence on the value of the firm using evidence from firms listed in Istanbul	financial risk management has no influence in the value generated by the firm to shareholders	The study covered listed in Istanbul; the present study will be done in Kenya
Ahmed, Mukhongo	determine the interaction between financial risk	A postive interaction was established between financial	The study was conducted in Somalia and not in Kenya.

and Datche (2019)	management and their ability to perform in financial terms	risk management and financial performance.	
Gill, Dana and Obradovich (2018)	the influence of financial risk management and financial performance	financial risk management has significant influence on firm performance	The study was done in India and not in Kenya

Source; Author (2020)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The chapter details the kind of design the study will adopt. It also covers the respondents to be targeted, how information was sought and the steps to be followed in processing the sought information.

3.2 Research Design

The design embraced was descriptive where the collected data from the field was quantitative in nature. The use of the descriptive design in the study was justified on ground that it helped in determining the interaction between FRM and FP. Some similar past studies also used descriptive designs for instance Mudanya and Muturi (2018) who looked at FR and its link with the ability of Kenyan listed commercial banks to generate profits where quantitative design was used.

3.3 Population

The 6 commercial banks with participation of the government (appendix I) were targeted. As the population of the study was relatively small, census was used. Thus, all the 6 firms were included in the study.

3.4 Data Collection

Information was collected from auxiliary sources with the aid of data collection sheet. The horizon of consideration was 10-years (2010-2019). The sources of the raw statistics entailed the Bank Supervisory Annual Reports, the published financial reports of respective commercial banks and the publications by the national treasury.

3.5 Data Analysis

The analysis started by coding data into SPSS. Descriptive statistics were computed whereby means and standard deviations were clearly shown in form of both tables and figures. The link between FRM and FP was modeled regresionally as shown below:

3.5.1 Model Specification

The study model is shown below;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \mu$$

Where Y is = Financial Performance (ROA=Net Income/Total assets)

X_1 = Interest Rate Risk (Annual Interest rate on deposits)

X_2 = Liquidity Risk (Current Assets/Current Liabilities)

X_3= Foreign Exchange Risk (Change in Kshs/USD)

X_4= Firm Size (Natural Logarithm of Total Assets)

β_0= Constant and μ it is the error term

3.5.2 Diagnostic Tests

Normality tests, autocorrelation test, multicollinearity test and heteroskedasticity tests were done. Normality test was carried out using Kolmogorov-Smirnova and Shapiro-Wilk. Multicollinearity test was done using Variance of Inflation Factor (VIF) while Scatter plots were used to determine the presence of heteroskedasticity.

3.5.3 Significance Tests

The study used the p-values of the individual variables to determine significance. In this regard, a comparison of the p-values against 5% or 0.05 was conducted. The interpretation of the p-values was also accompanied by the t-test, where t-values will be compared with 1.96. In the event that $p<0.05$, it followed that $t>1.96$ hence the inference drawn was that there was significant effect.

CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

The chapter covers the processing of the raw statistics as obtained from the field. The processing of these raw facts was done supported by SPSS tool. The details of the descriptive and inferential results are thus covered in this chapter. This was done so as to actualize the stated objectives of the investigation.

4.2 Response Rate

Six government owned commercial banks were targeted for a ten year period (2010-2019). From these, complete data was available from 5 commercial banks representing a response rate of 83.3% which was consistent with Babbie (2010).

4.3 Descriptive Statistics

Table 4.1. details the descriptive statistics evidence

Table 4.1: Descriptive Statistics

	N	Min	Max	Mean	Std. Dev
Financial Performance (%)	50	-.03	.05	.01	.017
Interest Rate Risk (%)	50	.62	.90	.81	.098
Liquidity Risk (%)	50	.08	.96	.26	.220
Foreign Exchange Risk (Change in USD/Kshs.)	50	1.90	2.01	1.96	.039
Firm Size (Kshs) Billion	50	4.01	8.80	5.73	1.782

Source: Research Data (2020)

On average, the studied commercial banks had ROA of 0.01, which means that at least 1.0% of their net profits are generated from their ability to utilize the assets in place. This could be attributed to the fact that there is some of the government owned commercial banks that were posting losses (-.03). It can also be shown that the highest ROA generated by the studied banks was 0.05. The implication of this finding is that majority of the studied banks are facing challenges

with regard to their financial performance which provided the need of conducting the present study.

Interest rate risk is considered as the change in the underlying value of the assets arising from variability in the rate of interest. The average volatility in interest rate among the studied banks was equivalent to 0.81 or 81.0%, with the highest volatility being 90% while the lowest value standing at 62.0%. Liquidity risk is the ease and degree which the marketable securities can be converted into cash. From the results, it was shown that the degree which the studied banks could convert their marketable securities into cash was 0.26 or 26.0%, with 8% and 96.0% being the lowest and highest degree respectively. Foreign exchange risk is largely influenced by variability in foreign exchange rates. From the findings, the average fluctuation in interest rate was represented by 1.96 with 1.90 and 2.01 being the lowest and the highest values. The results on firm size indicated that on average, the studied commercial banks had asset base of Kshs. 5.73 billion with the allowable minimum and maximum values being Kshs. 4.01 and Kshs. 8.80 billion respectively.

4.4 Correlation Results

Consider Table 4.2 for correlational evidence

Table 4.2: Correlation Results

		financial Performance	Interest Rate Risk	Liquidity Risk	Foreign Exchange Risk	Firm Size
financial Performance	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	50				
Interest Rate Risk	Pearson Correlation	.317*	1			
	Sig. (2-tailed)	.025				
	N	50	50			
Liquidity Risk	Pearson Correlation	-.640**	.049	1		
	Sig. (2-tailed)	.000	.736			
	N	50	50	50		
Foreign Exchange Risk	Pearson Correlation	-.484**	-.267	.454**	1	
	Sig. (2-tailed)	.000	.061	.001		
	N	50	50	50	50	
Firm Size	Pearson Correlation	.662**	.524**	-.106	-.236	1
	Sig. (2-tailed)	.000	.000	.462	.099	
	N	50	50	50	50	50

Source: Research Data (2020)

From Table 4.2, interest rate risk (r=.317) is moderately and directly connected with performance in monetary dimensions while liquidity risk (r=-.640) has a strong and inverse linkl and foreign exchange risk (r=0.484) was moderaley but inverasely libnked with performance. The entirty size (r=.662) had a direct link. Thus, FRM and performance in monetary dimensions are linked with each other in mixed terms.

4.5 Diagnostic Tests

The section details the diagnostic tests performed in the inquiry.

4.5.1 Normality Test

Since the sample size of the study is above 30, Kolmogorov-Smirnov was used to test for presence of normality in the data as illustrated in Table 4.3.

Table 4.3: Normality Test

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Interest Rate Risk	.225	5	.200*	.911	5	.473
Liquidity Risk	.281	5	.200*	.846	5	.182
Foreign Exchange Risk	.246	5	.200*	.854	5	.207
Firm Size	.168	5	.200*	.979	5	.928

Source: Research Data (2020)

From the results in Table 4.3, all the p-values under Kolmogorov-Smirnov were above 0.05 ($p>0.05$). The inference drawn from this finding was that the data was normally distributed.

4.5.2 Autocorrelation Test

Durbin Watson Statistic was used to test for presence of serial correlation in the data as illustrated in Table 4.4.

Table 4.4: Autocorrelation Test

Model	Durbin-Watson (d)
2	1.940[a]

Source: Research Data (2020)

With d value as 1.940, which is closer to 2, this means no serial correlation was evidence in the investigation.

4.5.3 Multicollinearity Test

The VIF values are indicated in Table 4.5.

Table 4.5: Multicollinearity Test

Model		Collinearity Statistics	
		Tolerance	VIF
1	Interest Rate Risk	.893	1.120
	Liquidity Risk	.763	1.310
	Foreign Exchange Risk	.711	1.407
2	Interest Rate Risk	.667	1.498
	Liquidity Risk	.753	1.328
	Foreign Exchange Risk	.709	1.411
	Firm Size	.706	1.416

a. Dependent Variable: Financial Performance

Source: Research Data (2020)

From the results in Table 4.5, both model 1 and model 2 had values of VIF of less than 1.5. In most cases, the VIF values between 1-10 hence the variables had no multicollinearity in themselves. Thus, it can be shown that the data of the study did not have the symptoms of multicollinearity and thus its suitability for use in regression analysis.

4.5.4 Heteroskedasticity Test

Scatter plots were used to determine the presence of heteroskedasticity with the results as indicated in Figure 4.1.

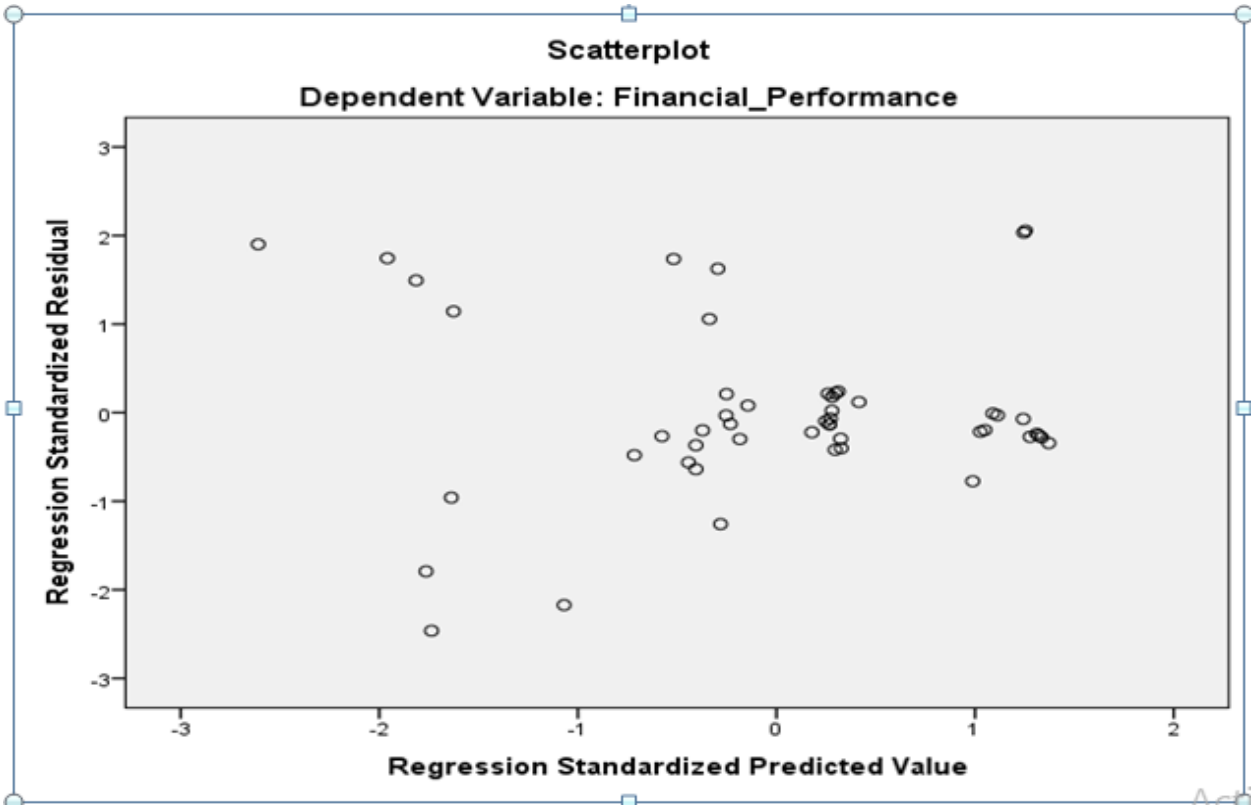

Figure 4.1: Heteroskedasticity Test

Source: Research Data (2020)

From the results in Figure 4.1, the spread of the data points is a pointer that there was no heteroskedasticity and thus homoscedasticity was assumed.

4.6 Regression Results

The regression analysis evidence are documented in subsequent sections.

4.6.1 Regression Model Summary

Table 4.6 details the model summary of the inquiry

Table 4.6: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.737[a]	.543	.514	.01213	.543	18.254	3	46	.000
2	.881[b]	.776	.756	.00860	.232	46.577	1	45	.000

a. Predictors: (Constant), Foreign Exchange Risk, Interest Rate Risk, Liquidity Risk
b. Predictors: (Constant), Foreign Exchange Risk, Interest Rate Risk, Liquidity Risk, Firm Size

Source: Research Data (2020)

From Table 4.6, the results of the first model indicate the value of R as 0.737; this means that financial risk management has far reaching influence on FP of the entity. The R^2 was 0.543, which was interpreted to mean that 54.3% variability in ability of the entity to financially perform is significantly connected with FRM.

Model 2 was generated after controlling for the size of the respective government owned commercial banks. From the results, there was a change in R square of .232 or 23.2% which was represented by the controlling effect of firm size.

4.6.2 Analysis of Variance

The results of the ANOVA findings are as indicated in Table 4.7.

Table 4.7: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.008	3	.003	18.254	.000[b]
	Residual	.007	46	.000		
	Total	**.015**	**49**			
2	Regression	.012	4	.003	38.900	.000[c]
	Residual	.003	45	.000		
	Total	**.015**	**49**			

a. Dependent Variable: Financial Performance
b. Predictors: (Constant), Foreign Exchange Risk, Interest Rate Risk, Liquidity Risk
c. Predictors: (Constant), Foreign Exchange Risk, Interest Rate Risk, Liquidity Risk, Firm Size

Source: Research Data (2020)

Table 4.7 is that the overall models of the inquiry was significant ($p<0.05$).

4.6.3 Regression Beta Coefficients and Significance

Consider Table 4.8 for beta coeffecients

Table 4.8: Regression Beta Coefficients and Significance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.095	.106		.897	.374
	Interest Rate Risk	.055	.019	.311	2.953	.005
	Liquidity Risk	-.047	.009	-.596	-5.227	.000
	Foreign Exchange Risk	-.057	.051	-.130	-1.104	.275
2	(Constant)	.080	.075		1.069	.291
	Interest Rate Risk	.003	.015	.015	.174	.863
	Liquidity Risk	-.042	.006	-.533	-6.554	.000
	Foreign Exchange Risk	-.045	.037	-.103	-1.227	.226
	Firm Size	.006	.001	.573	6.825	.000

a. Dependent Variable: Financial Performance

Source: Research Data (2020)

In Model 1 of Table 4.8, raising interest rik by a single unit would see a rise in performance in monetary dimensions by 0.055, an improvement in liquidity risk by a unit would lead to 0.047 drop in financial performance and that improving fioreign exchange risk by a unit would see a rise in ability of the entity to perform financially by 0.057 units. Therefore, before controlling for firm size, foreign exchange risk showed largest link thereafter, the interest rate risk and then liquidity risk. However, before controlling for firm size, only interest rate risk and liquidity risk

were significant ($p<0.05$) while foreign exchange risk ($p>0.05$) was not significant. The results indicate that on controlling for firm size in model 2, foreign exchange risk ($\beta=-.045$) had the largest negative interlink followed by liquidity risk ($\beta=-.042$) that also had a negative effect and lastly interest rate risk ($\beta=.003$) that had direct interconnection. However, liquidity risk ($p<0.05$) was the only variable that was significant after controlling for size of the respective banks while interest rate risk and foreign exchange risk were not significant.

4.7 Discussion and Interpretation of the Findings

From correlation results, the study noted that interest rate risk (r=.317) is moderately and directly connected with performance in monetary dimensions while liquidity risk (r=-.640) has a strong and inverse linkl and foreign exchange risk (r=0.484) was moderaley but inverasely libnked with performance. The entirty size (r=.662) had a direct link. Thus, FRM and performance in monetary dimensions are linked with each other in mixed terms. Tafri *et al.* (2009) shared that financial risk has insignificant influence on profitability. With respect to SMEs in India, Gill, Dana and Obradovich (2018) revealed that financial risk management has significant influence on firm performance. Akong'a (2014) looked at FRM and the ability of Kenyan banking entities to perform financially, arguing that most Kenyan banks were embracing risk management. Lelgo and Obwogi (2018) looked at FR and its interaction with the ability of Kenya microfinance entities to perform financially, indicating that exchange rate is directly linked with degree which the entity performs.

From the model summary, the results mean that financial risk management has far reaching influence on financial performance of the firm. Tafri *et al.* (2009) shared that financial risk has insignificant influence on profitability. Gill, Dana and Obradovich (2018) noted a significant interlink between FRM and performance in monetary dimensions. Ndung'u, (2013) also noted a significant interlink between FRM and performance in monetary dimensions. Lelgo and Obwogi

(2018) looked at FR and its interaction with the ability of Kenya microfinance entities to perform financially, indicating that exchange rate is directly connected with performance in monetary dimensions. The value of R square was given as 0.543, which was interpreted to mean that 54.3% variability in performance in monetary dimensions of the entity is explained by financial risk management in place. Model 2 was generated after controlling for the size of the respective government owned commercial banks. From the results, there was a change in R square of .232 or 23.2% which was represented by the controlling effect of firm size.

The ANOVA results indicated the p-value $p<0.05$, which was interpreted to mean that on overall, financial risk management and performance in monetary dimensions of the entities were significantly connected with each other. Ndung'u, (2013) noted a direct link between FRM and performance in monetary dimensions. Lelgo and Obwogi (2018) looked at FR and its interaction with the ability of Kenya microfinance entities to perform financially, indicating that exchange rate is luinked with performance of the entity in monetary dimensions.

The results of the regression beta coefficients indicated that before controlling for firm size, foreign exchange risk had the largest interlink followed by interest rate risk and liquidity risk. However, before controlling for firm size, only interest rate risk and liquidity risk were significant ($p<0.05$) while foreign exchange risk ($p>0.05$) was not significant. Mwaurah (2019) focused on the interaction between financial risk and returns from stock and shared that financial risk management and share returns are related with each other in significant terms. Mudanya and Muturi (2018) were keen to verify the link between financial risk (FR) on ability of listed banks in Kenyan context to generate profits where it was shown that credit risk and ability of banking entities to generate profits are positively related with each other. Obwogi (2018) looked at financial risk and its influence on ability of micro finances to enhance their financial performance where a positive

interaction was identified between financial risk and ability of the firm to enhance financial performance. Juma and Atheru (2018) identified a positive link between financial risk analysis and performance of banking entities. Joseph (2016) noted that the significant growth and improvement in performance of the insurance entities is attributed to increased recognition of financial risk management. Kambi and Ali (2016) indicated that financial risk management is done to improve on performance.

On controlling for firm size in model 2, foreign exchange risk (β=-.045) had the largest imnverse connection followed by liquidity risk (β=-.042) that also had a negative effect and lastly interest rate risk (β=.003) that had a direct interlink. However, liquidity risk ($p<0.05$) was the only variable that was significant after controlling for size of the respective banks while interest rate risk and foreign exchange risk were not significant. Tafri *et al.* (2009) showed that financial risk has insignificant influence on profitability. Gill, Dana and Obradovich (2018) noted that FRM and the degree which entity performs in monetary dimensions are significantly connected. Erdoğan (2017) indicated that financial risk management has no influence in the value generated by the firm to shareholders. Haque and Wani (2015) indicated that proper financial risk management mitigates financial risk exposure and thus better performance of the firm. Ahmed, Mukhongo and Datche (2019) noted a direct link between risk and performance of the enterprise in monetary dimensions.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The analyzed statistics are summarized in this chapter. The recap of the key issues noted is also indicated in this chapter. Recommendations for policy are also indicated in this chapter. The constraining factors and the areas calling for further inquiries are also pointed out in this chapter.

5.2 Summary of the Findings

The correlation evidence sought by the investigation were mixed, while regression evidence were that financial risk management is signuificantly connected with the need which Kenyan government banking entities perform in monetary dimensions. From the model summary, the results of the first model indicate the value of R that was interpreted to mean that financial risk management has far reaching link with performance of the entity in monetary dimensions. After controlling for the size of the respective government owned commercial banks, there was a change in R square which was represented by the controlling effect of firm size. The ANOVA results were that financial risk and the performance of the in monetary dimensions were significantly linked with each other. The results of the regression beta coefficients indicated that before controlling for firm size, foreign exchange risk had the large but insignificant link followed by interest and liquidity risks that bothhad significant connection with performance of erntity in monetary dimensions. On controlling for firm size, foreign exchange risk had the largest negative link followed by liquidity risk that also had a negative effect and lastly interest rate risk that had a positive interaction. However, liquidity risk was the only variable that was significant after controlling for size of the respective banks while interest rate risk and foreign exchange risk were not significant.

5.3 Conclusion

Mixed evidence was sought from correlation analysis, such that while liquidity risk and foreign exchange risk had an inverse link, interest rate risk had a direct link. Similarly, size had a direct link, implying that government owned commercial banks with large branch networks and asset base will performance better as opposed to those with smaller asset base. Larger government owned commercial banks like KCB for instance have relatively larger asset base, with a high customer base and market share and thus perform better compared to the relatively smaller banks like Consolidated Bank and Development Bank of Kenya that have limited branch network and asset base hence limiting their financial performance.

The results of the regression model summary implied that financial risk management play an integral role on performs in monetary dimensions of the entity. The link of financial risk management and the performance in monetary dimensions is pegged on size of the entity. This means that relatively larger government owned commercial banks standard to gain more from financial risk management as manifested through improved financial performance. This conclusion is informed by the modern portfolio theory that outlines the role played by diversification in reduction of financial risks and thus enhancing on financial performance. Thus, in light of the portfolio theory, government owned commercial banks can diversify their portfolio to minimize exposure to financial risks and thus maximizing on their financial performance.

The findings indicated that before controlling for firm size, foreign exchange risk had the largest but insignificant link followed by interest rate risk and liquidity risk that were significant respectively. This finding is informed by the purchasing power parity theory arguing that exchange rates at equilibrium ensure that the exchanged value can be used to purchase goods of same values from more than one country involved. On controlling for firm size, foreign exchange risk still had

the largest negative link followed by liquidity risk that also had a negative effect and lastly interest rate risk that had a positive effect on financial performance. However, liquidity risk was the only variable that was significant after controlling for size of the respective banks while interest rate risk and foreign exchange risk were not significant. This means that relatively larger commercial banks owned by the government in Kenya are able to leverage on their liquidity position to enhance their financial performance more than the smaller ones. This is particular true since larger government owned commercial banks have a large customer base with more deposits that increase their liquidity and thus performs in monetary dimensions.

5.4 Recommendations for Policy and Practice

Financial risk management shapes the extent which an entity performs in monetary dimensions. Thus, in order to enhance on their financial performance, risk managers and internal auditors of the respective government owned commercial banks in Kenya should embrace diversification of their portfolio to minimize risk exposure and thus maximize on the returns generated hence better financial performance. The risk managers of the government owned commercial banks in Kenya should adopt hedging, currency swaps, future contracts and forward contracts among other strategies so as to minimize their exposure on financial risks.

The study recommends that relatively larger government owned commercial banks in Kenya should leverage on their strong liquidity position to support the relatively smaller and struggling banks like Development Bank of Kenya and the Consolidated Bank. Although this has been demonstrated in the recent takeover of National Bank of Kenya by the Kenya Commercial Bank, more should be done to the smaller banks that are currently struggling. The credit managers and analysts of the government owned commercial banks should be careful when evaluating the credit worthiness of the customers so as to reduce on credit risk exposure.

The policy makers including the National Parliament should expedite on the proposed merger of the struggling Kenyan banking entities to establish one larger institution that would command a relatively larger market share. The National Treasury is the major shareholder among this government owned commercial banks in Kenya and thus it should establish clear guidelines to govern risk management so as to maximize on the returns generated. The highly affected banking entities like Consolidated that have persistently posted financial losses should be privatized to enhance their financial risk management which would automatically enhance their financial performance.

CBK needs to strengthen the regulations in place that would safeguard and guide financial risk management among the government owned commercial banks in Kenya. The CBK should be also come up with monitoring mechanisms to ensure that the established guidelines of risk management have been implemented among the government owned commercial banks. This will force them to improve on their financial performance. The CBK should regulate the fluctuation in interest rates as this would signify interest rate risk which may shape the performance in monetary terms of the entity.

5.5 Limitations of the Study

The study was limited to commercial banks that are owned by the government in Kenya. More specifically, the study covered 6 commercial banks with government participation. However, information was available from 5 commercial banks over a ten year period thus representing 50 data points. This was a relatively smaller sample size that may affect how the findings of the study are generalized and thus a limitation.

The analysis was supported by the statistics as gathered from auxiliary sourceas. The constrain of such statuistics is that they are second hand and may have been wrongly captured at the source which affect the evidence sought. The statistics for analysis were sought from the publications that were relevant to the investifation.

5.6 Suggestions for Further Research

In order to enhance generalization of the findings, the focus of future inquiries should be on a relatively larger sample size. For instance, future studies should focus on the entire Kenyan banking entities. The emphasis of other future inquiries should be on other financial institutions like Microfinance Institutions or deposit taking Savings and Credit Cooperatives or simply the listed commercial banks or the foreign owned commercial banks.

The study recommends that future studies should relate financial risk management with other constructs like profitability or financial inclusion or even financial deepening. Future studies should be conducted covering a relatively longer period of time say 30 years. This will require adoption of more complicated methodologies including the use of panel data. With panel data, future studies will be able to decide on whether to adopt the fixed effect or the random effect models after carrying out appropriate specification tests like Hausman test.

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APPENDICES

Appendix I: List of State-Owned Commercial Banks

Bank Name	Percentage of Ownership
Consolidated Bank of Kenya Ltd.	85.8%
Development Bank of Kenya Ltd.	89.3%
Housing Finance Ltd.	2.41 %
KCB Group	23.6%
National Bank of Kenya Ltd.	22.5% Ord. share & 79.3% Pref. share
Stanbic Bank Kenya Limited.	4.3 million shares

Source; CBK (2019)

Appendix II: Data Collection Sheet

Year	Net Income	Total assets	Annual interest rate on deposits	Current Assets	Current Liabilities	USD
2010						
2011						
2012						
2013						
2014						
2015						
2016						
2017						
2018						
2019						

Appendix III: Raw Data

Bank	Year	Financial Performance	Interest Rate Risk	Liquidity Risk	Foreign Exchange Risk	Firm Size
Consolidated	2010	0.02462	0.61962	0.15819	1.90020	4.02032
Development Bank of Kenya	2010	0.02216	0.61962	0.18911	1.90020	4.02735
Housing Finance Corporation	2010	0.01910	0.61962	0.11958	1.90020	4.46725
KCB	2010	0.05173	0.61962	0.19289	1.90020	5.34835
Stanbic Bank	2010	0.01964	0.61962	0.08209	1.90020	5.02995
Consolidated	2011	0.01609	0.62562	0.14131	1.94806	4.18520
Development Bank of Kenya	2011	0.01366	0.62562	0.15620	1.94806	4.06157
Housing Finance Corporation	2011	0.05207	0.62562	0.13484	1.94806	7.50339
KCB	2011	0.03320	0.62562	0.20010	1.94806	5.51946
Stanbic Bank	2011	0.01312	0.62562	0.09997	1.94806	5.14640
Consolidated	2012	0.00978	0.89801	0.14773	1.92765	4.25530
Development Bank of Kenya	2012	0.00775	0.89801	0.20730	1.92765	4.12766
Housing Finance Corporation	2012	0.01814	0.89801	0.17300	1.92765	4.61232

KCB	2012	0.03322	0.89801	0.17379	1.92765	5.56511
Stanbic Bank	2012	0.02257	0.89801	0.12240	1.92765	5.12508
Consolidated	2013	-0.00846	0.81345	0.18929	1.93551	4.22477
Development Bank of Kenya	2013	0.01759	0.81345	0.18536	1.93551	4.19260
Housing Finance Corporation	2013	0.02100	0.81345	0.18873	1.93551	4.67568
KCB	2013	0.03320	0.81345	0.16024	1.93551	8.51946
Stanbic Bank	2013	0.02905	0.81345	0.13931	1.93551	5.23230
Consolidated	2014	-0.01817	0.81895	0.18890	1.94486	4.17831
Development Bank of Kenya	2014	0.01876	0.81895	0.17160	1.94486	4.22927
Housing Finance Corporation	2014	0.01815	0.81895	0.19645	1.94486	7.61232
KCB	2014	0.03322	0.81895	0.16996	1.94486	8.56511
Stanbic Bank	2014	0.03198	0.81895	0.16299	1.94486	5.23388
Consolidated	2015	0.00347	0.84092	0.13057	1.99430	4.15033
Development Bank of Kenya	2015	0.01051	0.84092	0.15494	1.99430	4.22899
Housing Finance Corporation	2015	0.02100	0.84092	0.18664	1.99430	7.67568
KCB	2015	0.03179	0.84092	0.17094	1.99430	8.59201
Stanbic Bank	2015	0.02365	0.84092	0.17147	1.99430	5.29793

Consolidated	2016	-0.01990	0.85095	0.16976	2.00654	4.14358
Development Bank of Kenya	2016	0.00579	0.85095	0.14508	2.00654	4.21532
Housing Finance Corporation	2016	0.01600	0.85095	0.20792	2.00654	7.78506
KCB	2016	0.03238	0.85095	0.16473	2.00654	8.69050
Stanbic Bank	2016	0.02160	0.85095	0.16823	2.00654	5.31153
Consolidated	2017	-0.03262	0.87610	0.14042	2.01462	4.12892
Development Bank of Kenya	2017	0.00355	0.87610	0.15232	2.01462	4.21272
Housing Finance Corporation	2017	0.01670	0.87610	0.21171	2.01462	7.85527
KCB	2017	0.02956	0.87610	0.16171	2.01462	8.74671
Stanbic Bank	2017	0.01812	0.87610	0.14815	2.01462	5.37914
Consolidated	2018	-0.02728	0.89834	0.95858	2.00574	4.11016
Development Bank of Kenya	2018	0.01102	0.89834	0.60117	2.00574	4.18535
Housing Finance Corporation	2018	0.00405	0.89834	0.41130	2.00574	4.00565
KCB	2018	0.03359	0.89834	0.66218	2.00574	5.85389
Stanbic Bank	2018	0.02198	0.89834	0.65195	2.00574	5.44863
Consolidated	2019	0.00009	0.85932	0.60365	2.00879	8.79556

Development Bank of Kenya	2019	0.00015	0.85932	0.71823	2.00879	8.71033
Housing Finance Corporation	2019	0.00020	0.85932	0.65835	2.00879	8.41558
KCB	2019	0.00008	0.85932	0.85372	2.00879	8.48554
Stanbic Bank	2019	0.00003	0.85932	0.69740	2.00879	8.49632