

**EFFECT OF STOCK MARKET VOLATILITY ON PROFITABILITY OF
LISTED COMMERCIAL BANKS IN KENYA**

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DECLARATION AND APPROVAL

This research project is my own work and to the best of my knowledge it has not been presented for the award of a degree in any university or college.

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ABSTRACT

The banking system plays a crucial role for any economy and any form of disruption in its functioning would have negative effects on the whole economy. It is therefore important to know the factors that influence the performance of the banking sector since identifying these determinants of bank performance is an important predictor of unstable economic conditions that would have negative effects on the banking sector. The objectives of this study were to examine the effects of stock market volatility on bank profitability of NSE-listed commercial banks in Kenya. More specifically, the study sought to establish the extent to which stock market return volatility, stock market capitalization; stock market turnover and stock market trading volume affect the profitability of commercial banks. Quantitative research design was adopted for this study where all the ten commercial banks listed in the Nairobi Securities Exchange for the period 2004 to 2014 were targeted for study. Secondary Data was collected from the NSE and published financial statements from the companies' websites. Data collected was analyzed by use of descriptive and inferential statistics. The study applied generalized methods of moments (GMM) system estimator regression models to investigate the relationship between the independent variables and the dependent or variable. The research findings indicate that there is significant relationship between stock market volatility and stock market turnover, and bank profitability measured by ROAA. Stock market capitalization and stock market trading volume were found to insignificant in explaining the dependent variable ROAA. The implication of these findings is that variation in the stock market distorts the profitability of commercial banks significantly. However, a fundamental understanding of stock market volatility and its effect on bank performance is crucial for decision makers to undertake rational thinking before undertaking any financial decision. Appreciation of the economic conditions is paramount since it that can either initiate or truncate a company's growth. This study therefore recommends for similar studies to be carried out in Kenya so as to analyze the impact of the other specific factors that can influence profitability of commercial banks such the recent capping of interest rates by the government.

Keywords: *Stock Market volatility, Commercial Banks, Nairobi Securities Exchange, Profitability.*

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LIST OF ABBREVIATIONS

CIR-Cost Income Ratio

EROE-Excess Return on Equity

EVA-Economic Value Added

GDP-Gross Domestic Product

NIM-Net Interest Margin

RAROC-Risk-Adjusted Return on Capital

ROA-Return on Assets

ROAA-Return on Average Assets

ROE-Return on Equity

ROAE-Return on Average Equity

RORAA-Return on Risk Adjusted Assets

RORAC-Return on Risk Adjusted Capital

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The financial system plays a key role in an economy by channeling funds from savers to investors and provides risk-sharing, liquidity, and information services through two channels: financial markets and financial institutions (Hubbard, 2008). The financial system achieves the transfer of funds by creating vehicles known as financial assets/instruments. Some volatility in the prices of financial assets is a normal part of the process of allocating investable funds among competing uses. However, excessive or extreme volatility of stock prices, interest rates, and exchange rates may be detrimental because such volatility may impair the smooth functioning of the financial system and adversely affect economic performance (Beckett & Sellon Jr, 1989). A stable and sound financial system is therefore essential to a well-functioning and healthy economy as it allows for secure and efficient flow of funds.

If the financial system is stable and efficient, then it should show profitability improvements, increasing volume of funds flowing from savers to borrowers and better quality services for consumers (Sufian & Habibullah, 2009). However, this is not always the case. Activities in the financial markets have direct effects on personal wealth, the behavior of businesses and consumers, and the cyclical performance of the economy (Mishkin F. S., 2010). Directly exposed to the financial market volatility are financial institutions such as depository institutions (Beckett & Sellon Jr, 1989) and particularly banks, which are the largest financial institutions of the financial system in any economy playing the important economic role of providing financial intermediation and economic acceleration by converting deposits into productive investments (Diamond & Rajan, 2001).

Rapid development of the financial markets, particularly the stock markets, is a main feature of many developing countries. The stock market is therefore increasingly playing

an ever-growing important economic role in fostering macroeconomic performance by channeling funds from savers to investors (Ibrahim, 2011). In view of the rapidly increasing role of the stock market within the financial system, volatility in the stock market can have significant implications on the performance of the financial sector, particularly the banking system. This study therefore seeks to evaluate the effects of stock market volatility and bank financial performance in Kenya.

1.1.1 Bank Financial Performance

Banks are the main part of the financial sector in any economy performing valuable activities. They play the all-important economic role of financial intermediation. Banks also facilitate the payments and settlement systems and support the smooth transfer of goods and services. They ensure productive investment of capital to stimulate the economic growth. They help to develop new industries, thereby increasing the employment and facilitating the growth (Arif & Anees, 2012). The role played by the banking sector in the development of any country's economy is significant (Tan & Floros, 2012). In a bank-based financial system, the economy depends on the performance of its banking industry; thereby the soundness and stability of its banking system are crucial matters (Trehan, 2008). The strength of the banking system is thus an essential requirement to ensure the economic stability and growth in the economy of any country (Halling & Hayden, 2006).

In addition to the valuable services offer by banks, their financial performances can either have positive or negative effects on the economic growth of countries. Positive financial performance rewards the shareholders for their investment which in turn encourages additional investment and brings about increased economic growth. Poor banking performance may result to collapse of banks and crises that may result to negative repercussions on a country's economic growth (Ongore & Kusa, 2013). Thus, performance of the banking sector is a subject that has attracted a lot of attention and great interest to academic research plus other interested parties in recent years and since the Great Depression in the 1940's (Sufian & Habibullah, 2009).

1.1.2 Bank Financial Performance Measures

Allen and Rai (1996), defines financial performance as a measure of how well a business can utilize its assets from its primary business activities to generate revenues. It is used as a general measure of the overall financial health of a business over a given period of time, and can be used to compare similar firms across the same industry or to compare industries or sectors in aggregation. There are five aspects of the performance of banks that can be analyzed which are profitability, liquidity, efficiency, leverage and market value.

This study analyses bank performance in terms of the capacity to generate sustainable profitability. Profitability is essential for a bank to maintain ongoing activity and for its investors to obtain fair returns; but it is also crucial for supervisors, as it guarantees more resilient solvency ratios, even in the context of a riskier business environment. Profitability is a bank's first line of defense against unexpected losses, as it strengthens its capital position and improves future profitability through the investment of retained earnings. An institution that persistently makes a loss will ultimately deplete its capital base, which in turn puts equity and debt holders at risk. Indeed, retained earnings appear to be one of the most important drivers of Tier 1 ratios (European Central Bank, 2010).

1.1.3 Determinants of Bank performance

A review of literature provides many studies that examined the determinants of bank profits. In general, the literature on bank performance divides the profitability determinants into two categories namely the internal determinants and external determinants. Internal determinants, also referred to as bank-specific factor or microeconomic variables, are those factors that are influenced by the bank's management decisions and policy objectives and include liquidity, capitalization, bank size, operating efficiency, portfolio composition, credit risk, asset management, ownership and expenses management. External determinants also referred to macroeconomic variables reflect environmental variables influenced by economic and industry conditions and include GDP, inflation, central bank interest rates, money market rate, stock market volatility, stock market development, market concentration among others (Floros & Tan, 2012).

This study sought to investigate the effects of stock volatility on bank performance in Kenya.

1.1.4 Kenyan Banking System

The importance of banks has been more pronounced in the developing countries because financial markets are usually underdeveloped, and banks are typically the only major source of finance for a majority of firms and are usually the main depository of economic savings (Arun & Turner, 2004). The role of commercial banks has, therefore, remained central in financing economic activities in the various segments of the markets especially in sub-Saharan Africa (Munyambonera, 2013)

In Kenya, the banking system is a key engine of growth and main lender to public and private sectors. According to Central Bank of Kenya (2013) supervision report, as at 31st December 2013, the banking sector comprised of the Central Bank of Kenya, as the regulatory authority, 44 banking institutions (43 commercial banks and 1 mortgage finance company-MFC), 7 representative offices of foreign bank, 9 microfinance banks (MFBs), 2 credit reference bureaus (CRBs), 1 money remittance provider (MRP) and 101 forex bureaus. Out of the 44 banking institutions, 30 locally owned banks comprise 3 with public shareholding and 27 privately owned while 14 are foreign owned. The 9 MFBs, 2 CRBs and 101 forex bureaus are privately owned. The foreign owned financial institutions comprise of 10 locally incorporated foreign banks and 4 branches of foreign incorporated banks. The total net assets in the banking sector stood at Kshs. 2.7 trillion as at 31st December 2013. There were 26 locally owned commercial banks which accounted for 61.4 percent of the assets. A total of 14 commercial banks were foreign owned and accounted for 34.0 percent of the sector's net assets (Central Bank of Kenya, 2013).

Evidently, Kenya's financial sector is largely bank-based and as such the process of financial intermediation in the country depends heavily on commercial banks (Kamau, 2009). By African standards and in comparison with the other East African economies, Kenya's banking sector has for many years been credited for its size and diversification. Private credit to GDP-a standard indicator of financial development, was 23.7% in 2008, compared to a median of 12.8% for the Sub-Saharan Africa (Beck, et al., 2009).

1.1.5 Stock Market Volatility

The stock market is considered a significant fragment of the financial sector (Mala & White, 2006) with a general consensus among scholars that it plays an important role in the development of an economy (Hearn & Piesse, 2010; Adjasi & Biekpe, 2006). The stock market plays the vital role of economic growth by facilitating mobilization of domestic and foreign savings and channeling funds from savers to investors (Mala & Reddy, 2007). The stock market allows investors to allocate their resources or savings to productive investments (Greenwood & Smith, 1997) and reduce information and transaction costs (Levine, 1997) and, consequently, make more funds available for investments. It reduces reliance on bank finance which is susceptible to interest rate fluctuations as well as providing a channel for foreign capital inflows (Yartey, 2008). An active and well-organised stock market contributes to the economy by increasing the liquidity of financial assets, diversifying risk, promoting feasible investment decisions, and influencing corporate governance thereby ensuring investors receive interest, which ultimately leads to sustainable economic development (Victor, 2005). Thus the contribution of stock markets to economic growth in any economy is not in doubt and by extension implying that stock markets must have a considerable impact on and relationship with other financial sectors of the economy (Ahmed, 2008). One phenomenon of the stock market that has received considerable interest among academics, market practitioners and regulatory and supervisory authorities due to its impact on financial stability and repercussions in the real economy is stock market volatility (Grouard, Levy, & Lubochinsky, 2003)

Being a key component of the financial system, the banking sector is not spared the effects of the volatility in the stock market- the other key component of the financial system. To understand the link between the stock market and bank performance, studies have been undertaken to investigate whether stock market volatility can affect the performance of banks in a financial system (Albertazzi & Gambacorta, 2009; Tan & Floros, 2012).

1.2 Statement of the Problem

The banking sector plays a crucial role in the allocation of resources and any form of disruption in its functioning is likely to have economic-wide effects (Albertazzi & Gambacorta, 2010). Given the crucial role of the banking system for the economy, it is important to know the factors that influence the performance of the banking sector (Dietrich & Wanzenried, 2009). Identifying the determinants of bank performance is an important predictor of unstable economic conditions (Albertazzi & Gambacorta, 2009). This has motivated a large body of research and literature that has investigated and identified a number of determinants of bank performance. With the numerous studies of bank performance determinants, few studies have studied the link between the stock market and bank performance especially in view of the increasing role that the stock markets continues to play in the financial system and the economy at large.

Albertazzi and Gambacorta (2009) investigated the influence of stock market volatility on bank performance for 9 nine main industrialised countries and found that stock volatility does affect bank performance. Tan and Floros (2012) have also examined the influence of stock market volatility on bank performance in China and also found bank performance to be affected by stock market volatility. In Kenya where the financial sector has for long been dominated by commercial banks but the stock market increasing playing a crucial role in the allocation of resources, no study has been carried out to examine whether stock volatility affects bank performance in the country. Thus, this study aims to contribute to the current literature by providing evidence on the influence of stock market volatility on the performance of commercial banks in Kenya.

While there has been extensive studies done to understand the effects of most of these profitability determinants on bank financial performance, few studies investigate the relationship between stock market volatility and bank performance. Albertazzi and Gambacorta(2009) undertook a study to examine how stock market volatility affects the performance of banks in Austria, Belgium, France, Germany, Italy, The Netherlands, Spain, UK and USA between 1981 and 2003. They net interest income, non-interest income, operating cost, provisions, profit before tax, and ROE as bank performance indicators. Floros & Tan(2012) used four performance indicators(EROE, ROE, NIM,

EVA) to investigate the influence of stock market volatility on bank performance in China. In view of the rapidly increasing role of the stock market in the developing countries, it remains to be seen the influence this is having on the bank profitability in this countries.

1.3 Objectives of the Study

1.3.1 General Objective

To evaluate the effects of stock market volatility on the profitability of listed commercial banks in Kenya.

1.3.2 Specific Objectives

1. To evaluate the effect of stock market volatility on the profitability of listed commercial banks in Kenya.
2. To evaluate the effect of stock market capitalization on the profitability of listed commercial banks in Kenya.
3. To evaluate the effect of stock market turnover on the profitability of listed commercial banks in Kenya.
4. To evaluate the effect of stock market trading volume on the profitability of listed commercial banks in Kenya

1.4 Hypotheses of the Study

Based on the objectives, this study sought to test the following four hypotheses:

H₀₁: Stock index volatility has no significant effect on the profitability of listed commercial banks is Kenya.

H₀₂: Stock market capitalization has no significant effect on the profitability of listed commercial banks is Kenya.

H₀₃: Stock market turnover has no significant effect on the profitability of listed commercial banks is Kenya.

H₀₄: Stock market trading volume has no effects on the profitability of listed commercial banks in Kenya

1.5 Significance of the Study

Studies on bank performance provide more elaborate and current information that is important for policy and also scholarly literature. This study will contribute to existing knowledge in the area of determinant of bank performance in the Kenyan context. This will in turn contribute to the well-being of the financial system of the economy. The major beneficiaries of from this study are the banks, regulatory bodies, policy makers and the academic fraternity in the country

1.6 Scope of the Study

The scope of the study will be limited to the impact of stock market volatility on the profitability of listed commercial banks in Kenya from 2004 to 2015.

1.7 Operational Definition of Terms

Commercial Bank: According to Badu (1994), a Commercial Bank is a financial intermediary that accepts deposits and channels those deposits into lending activities, either directly by loaning or indirectly through capital markets. This study adopted the same meaning with all the listed commercial banks in NSE being target population.

Profitability- According to Booth, Avaizian, Dermirg and Maksimovic (2001), Profitability is the state or condition of yielding a financial profit or gain. It is often measured by price to earnings ratio. In this study profitability was measured by return on average assets (ROAA), Return on Average Equity (ROAE) and Net Income Margin (NIM)

Stock market capitalization-- Stock market capitalization refers to the value of the listed value of listed shares to the GDP (Dietrich & Wanzenried, 2010).

Stock Market return volatility- Stock market volatility is a measure for the variation of price of a financial asset over time. It is essentially, concerned with the dispersion and not

the direction of price changes (Osahon, 2014). In this case stock market return volatility was measured using the NSE all time share index.

Stock market turnover- Stock market turnover is the value of traded shares as percentage of total market capitalization (the value of stocks listed on the exchange). This turnover ratio measures trading relative to the size of the stock market (Levine, 1996).

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter highlights the literature relating to the research topic. It deals with the review of theories relating this study; general literature review; review of empirical studies and the conceptual framework on which the study leans.

2.2 Theoretical Review

This section reviews the basic theoretical issues related to banks and bank profitability and its determinants. Studies on the performance of banks started in the late 1970s/early 1980s with the application of two industrial organizations models: the Market Power and Efficiency Structure theories (Athanasoglou, Delis, & Staikoras, 2006). Also providing important and better understanding of the study of bank profitability is the balanced portfolio theory (Nzongang & Atemnkeng, 2006). Thus, each of the aforementioned theories and others related to bank profitability and its determinants are discussed in detail in this particular section as follows.

2.2.1 The Market Power Theory

When applied to banking, the market power theory postulates that bank performance is affected by the industry market structure whereby greater market power results to higher profits rates (Short, 1979). From the market power theory, two hypotheses are derived; the Structure-Conduct-Performance (SCP) and the Relative Market Power (RMP) hypotheses. The SCP hypothesis postulates that bank profitability depends on the market power by banks which results from the level of concentration in the banking market. In more concentrated markets, banks are most likely to make high profits since they are able to reduce the rates pay for deposits at the time charging higher interest rates on loans due monopolistic behavior of the banks. On the other hand, banks operating in less concentrated markets are more likely to make lower profits even though their highly efficient (Tregenna, 2009; Athanasoglou, Delis, & Staikoras, 2006). Contrary to the SCP

hypothesis, the RMP hypothesis suggests that bank profitability is influenced by market share. It assumes that only large banks with differentiated products can influence prices and increase profits. They are able to exercise market power and earn non-competitive profits (Tregenna, 2009; Athanasoglou, Delis, & Staikoras, 2006).

2.2.2 The Efficiency Theory

The efficiency hypothesis, on the other hand posits that banks earn high profits because they are more efficient than others (Rose & Fraser, 1976). Like the market power theory, there are two distinguishable hypotheses to the efficiency theory; the X-efficiency and Scale-efficiency hypothesis. The X-efficiency hypothesis, proposes that firms with high efficiency have the ability to reduce their costs which leads to high levels of profitability. Such firms tend to gain larger market shares, which may manifest in higher levels on market concentration, but without any causal relationship from concentration to profitability (Athanasoglou, Delis, & Staikoras, 2006). The scale-efficiency theorem on the other hand focuses on the economies of scale employed by firms to achieve efficiency as opposed to differences in management or production technology applied by the X-efficiency approach to achieve efficiency. In the scale approach, larger firms can obtain lower unit cost and higher profits through economies of scale. This enables large firms to acquire market shares, which may manifest in higher concentration and then profitability (Athanasoglou, Delis, & Staikoras, 2006).

2.2.3 The Balanced Portfolio Theory

In the studies of bank performance, the balanced portfolio theory plays the most relevant and important role (Nzongang & Atemnkeng, 2006). According to the Portfolio balance model of asset diversification, the optimum holding of each asset in a wealth holder's portfolio is a function of policy decisions determined by a number of factors such as the vector of rates of return on all assets held in the portfolio, a vector of risks associated with the ownership of each financial assets and the size of the portfolio. It implies portfolio diversification and the desired portfolio composition of commercial banks are results of decisions taken by the bank management. Further, the ability to obtain maximum profits depends on the feasible set of assets and liabilities determined by the

management and the unit costs incurred by the bank for producing each component of assets (Nzongang & Atemnkeng, 2006).

2.2.4 Risk-Return Trade off Theory, The Signaling and Bankruptcy Cost Hypotheses

These three theories explain the relationship between capital and profitability (Berger, 1995; Athanasoglou, Brissimis, & Delis, 2005; Olweny & Shipho, 2011). The signaling hypothesis and bankruptcy cost hypothesis support a positive relationship between capital and profitability. The signaling hypothesis suggests that a higher capital is a positive signal to the market of the value of a bank. Bank management signals private information that the future prospects are good by increasing capital. Less profitable banks cannot achieve such a signal since this will further deteriorate their earnings. Thus, a lower leverage indicates that banks perform better than their competitors who cannot raise their equity without further deteriorating the profitability. On the other hand, bankruptcy hypothesis argues that in a case where bankruptcy costs are unexpectedly high, a bank holds more equity to avoid period of distress. However, the risk-return hypothesis suggests that increasing risks, by increasing leverage of the firm, leads to higher expected returns. Financing theory suggest that increasing risks, by increasing leverage and thus lowering equity-to-asset ratio, leads to higher expected returns as entities will only take on more risks when expected returns will increase; otherwise, increasing risks have no benefits. Therefore, if a bank expects increased returns (profitability) and takes up more risks, by increasing leverage, the equity to asset ratio (represented by capital) will be reduced. Thus, risk-return hypothesis predicts a negative relationship between capital and profitability (Dietrich & Wanzenried, 2009).

2.3 Bank Profitability Indicators

There are a variety of ratios from literature that have used to measure bank performance with respect to profitability. In essence, these measures of bank profitability fall into two major groups: accounting and economic measures. Among widely used accounting measures of bank profitability include the return on equity (ROE) or return on average equity (ROAE) and return on assets (ROA) or return on average assets (ROAA)

(Heffernan & Fu, 2010). Return on assets is the net profit after tax divided by total assets and indicates the returns generated from the assets financed by the bank. In order to capture any differences that occur in assets during a financial year, average assets used hence ROAA (Kosmiduo, 2008). ROE is an internal performance measure of shareholder value and it reflects how effectively a bank management is using shareholders' funds. It is the net profit after tax divided by total equity or average equity (Ongore & Kusa, 2013).

The economic measures of performance take into account the development of shareholder value creation and aim at assessing, for any given fiscal year, the economic results generated by a company from its economic assets (as part of its balance sheet). These measures mainly focus on efficiency as a central element of performance, but generally have high levels of information requirements (European Central Bank, 2010). Some indicators amongst economic measures of performance are net interest margin (NIM), economic value added (EVA) and risk-adjusted return on capital (RAROC). NIM is a measure of the difference between the interest income generated by banks and the amount of interest paid out to their lenders, relative to the amount of their interest earning assets. NIM measures the gap between the interest income the bank receives on loans and securities and interest cost of its borrowed funds. It is usually expressed as a percentage of what the bank earns on loans in a specific time period and other assets minus interest paid on borrowed funds divided by the average amount of the assets on which it earned income in that period (Ongore & Kusa, 2013). Developed by Stern and Stewart in 1991, EVA takes into account the opportunity cost for stockholders to hold equity in a bank, measuring whether a company generates an economic rate of return higher than the cost of invested capital in order to increase the market value of the bank (European Central Bank, 2010). The calculation of the EVA can be expressed as follows:

$$\begin{aligned} \text{EVA} = & \text{return on invested funds} - (\text{weighted average cost of capital} * \text{invested capital}) \\ & - (\text{weighted average cost of debt} * \text{net debt}) \end{aligned}$$

RAROC allows banks to allocate capital to individual business units according to their individual business risk. As a performance evaluation tool, it then assigns capital to

business units based on their anticipated economic value added. There are many different measures and different types of indicators under the generic name of RAROC: RORAA (return on risk-adjusted assets), RAROA (risk-adjusted return on assets), RORAC (return on risk-adjusted capital) (European Central Bank, 2010).

2.3.1 Factors Affecting Bank Profitability

A review of literature revealed that theoretically factors affecting bank profitability are mainly divided into two categories as internal and external variables. The internal variables originate from bank accounts(balance sheets and/or profit and loss accounts) and therefore termed as micro or bank-specific since they are related internal inefficiencies and management policy decisions (Athanasoglou, Brissimis, & Delis, 2005; Kosmiduo, 2008). The external variables are determinants reflect the economic and legal environment that affects the operation and performance of the banks and are not related to bank management (Dietrich & Wanzenried, 2009). The external variable have further been categorised into two: industry-specific factors which represent market characteristics and include market concentration or market share, and macro-economic variables such as GDP, central bank interest rates, inflation, taxation, money supply, stock market volatility among others.

2.3.2 Stock Market Volatility

In line with the general objective of this study to assess the effects of stock market volatility, this study will consider industry-specific determinants which affect the profitability of banks with specific focus on the various aspect of the performance of stock markets that can impact the performance of banks. To this end, the focus is stock market volatility, stock market capitalization and stock market turn-over.

Volatility has been an enormously important topic to almost anyone involved in the financial markets making it one of the important aspects of financial markets development (Thapa, 2012). This enormous focus on volatility in the financial markets has been as a result of the growing role being played by financial markets in the efficient allocation of resources in an economy. If financial markets work well, they will direct

resources to their most productive uses. Volatility may impair the smooth functioning of the financial system and adversely affect economic performance (Molla, 2009).

One form of volatility within a financial system is stock market volatility. Stock market volatility is a measure for the variation of price of a financial asset over time. It is essentially, concerned with the dispersion and not the direction of price changes (Osahon, 2014). It is the potential of a given stock to experience a drastic decrease or increase in value within a predetermined period of time. Like any form of financial volatility, stock market volatility has a number of negative implications (Mala & Reddy, 2007). Stock market volatility could harm the economy through a number of ways. A volatile stock market weakens consumer confidence and drives down consumer spending (Porteba, 2000). The impact of stock market volatility on consumer spending is related via the wealth effect. Increased wealth will drive up consumer spending while a fall in stock market will weaken consumer confidence thus driving down consumer spending (Mala & Reddy, 2007). Stock market volatility may also affect business investment spending and economic growth directly (Arestis, Demetriades, & Luintel, 2001). A rise in stock market volatility can be interpreted as a rise in risk of equity investment and thus a shift of funds to less risky asset (Mala & Reddy, 2007).

Stock market volatility is determined by a number of factors such as: credit policy, inflation rate, interest, financial leverage, corporate earnings, dividend yield policies, bond prices and many other macroeconomic, social and political variables (Thapa, 2012).

2.3.2.1 Measuring Stock Market Volatility

Since volatility is linked to the variance in price of an asset price, it is a measure of the range of an asset price about its mean over fixed amount of time and hence can simply be defined as measure of dispersion around a mean or average return of a security (Abken & Nandi, 1996). If a stock is labeled as volatile then the price will vary greatly over time and conversely, a less volatile stock will have a price that will deviate relatively little over time. Volatility is calculated as the standard deviation from a certain continuously compounded return over a given period of time (Gabriel, 2012). With regard to the stock market as a whole, stock market volatility is the fluctuation in price of broad stock market

indices over a defined period calculated as the standard deviation of a stock market index's returns.

2.3.3 Stock Market Capitalization

Another aspect of the stock market whose effects on the profitability of listed commercial banks this study seeks to examine is the stock market capitalization. Stock market capitalization refers to the value of the listed value of listed shares to the GDP (Dietrich & Wanzenried, 2010). In other words, it is the total value of shares traded on a country's stock exchange as share of GDP (Levine, 1997). The value of equity transactions as a share of national input is likely to vary with ease of trading. In other words, if it is very costly or risky to trade, there will not be much trading. High cost or risk of trading can be attributed to a rise in stock market volatility.

On one side, an increasing stock market capitalization can be interpreted as an indicator of financial disintermediation and growth in market-based finance. The threat of substitution of bank finance by market-based finance might lead to lower interest rate margins and thus to less profitable bank. On the other side, it is also possible there is a positive relationship between stock market capitalization and the profitability of a bank since banks benefit from deposit fees for managing the portfolios of their customers with stock holdings (Dietrich & Wanzenried, 2010).

2.3.4 Stock Market Turnover

Stock market turnover is the value of traded shares as percentage of total market capitalization (the value of stocks listed on the exchange). This turnover ratio measures trading relative to the size of the stock market (Levine, 1996).

2.3.5 Stock Market Trading Volume

As argued by Fama (1965) and French (1980), trading itself is a cause of volatility meaning that the greater the level of trade volume, the greater the price movements. There is much evidence that increased trading activity and stock return volatility occur

together with some observers concluding that trading volume directly causes volatility (Schwert, 1990)

2.4 Empirical Review

The study on the determinants of bank profitability began as early as 1979 when Short (1979) examined the relationship between profit rate and the bank concentration Canada, Western Europe and Japan. By classifying the determinants to internal and external determinants, Bourke (1989) extended this study to banks in twelve countries in Europe, North America and Australia. Additional study undertaken by Athanasoglou et al. (2005) classified the determinants to three specific aspects: bank-specific, industry-specific and macroeconomic determinants of bank profitability. Thus, the following section reviews the empirical evidence on factors affecting bank profitability. It reviews determinants of bank profitability studies conducted in single country, determinants of bank profitability studies carried out on a panel of countries and finally related studies conducted in the Kenyan context.

2.4.1 Single Countries Studies

Berger A. (1995b) more or less belonged to one of the earliest researches conducted in the area of bank profitability. Berger (1995b) examined the relationship between the return on equity and the equity to asset ratio for a sample of United States banks for the 1983-1992 time periods. Using the granger causality model, he showed that the return on equity and equity to asset ratio tend to be positively related.

Guru et al. (2002) investigated the determinants of bank profitability in Malaysia, using a sample of 17 commercial banks during the 1986 to 1995 period. The profitability determinants were divided into two main categories, namely the internal determinants (liquidity, capital adequacy, and expenses management) and the external determinants (ownership, firm size and economic conditions). Their finding revealed that efficient expenses management was one of the most significant factors explaining high bank profitability. Among the macro indicators a high interest rate ratio was associated with

low bank profitability and inflation was found to have a positive effect on bank performance.

Athanasoglou et al. (2008) examined the effect of bank-specific characteristics, industry-specific and macroeconomic determinants of bank profitability for Greek banks that covered the period 1985-2001. Specific attention was given for the testing of SCP hypothesis. The empirical results suggested that capital, labor productivity growth, operating expenses, inflation, and cyclical output significantly affect profitability. However, the impact of bank size and ownership cannot be observed. Furthermore, the SCP hypothesis was not verified as the effect of the industry concentration on bank profitability was found insignificant.

Sufian and Chong (2008) examined the determinants of Philippines banks profitability during the period 1990–2005. The empirical findings suggested that all the bank-specific determinant variables had a statistically significantly impact on bank profitability. The empirical findings also suggested that size, credit risk, and expense preference behavior are negatively related to banks' profitability, while non-interest income and capitalization had a positive impact. During the period under study, the results suggested that inflation had a negative impact on bank profitability, while the impact of economic growth, money supply, and stock market capitalization had not significantly explained the variations in the profitability of the Philippines banks.

Ben Naceur and Goaid (2008) examined the impact of bank characteristics, financial structure and macro-economic conditions on Tunisian banks' net interest margins and profitability during the period from 1980 to 2000. They suggested that banks which hold a relatively high amount of capital and higher overhead expenses tend to exhibit higher net-interest rate margin and profitability levels, while size was negatively related to bank profitability. During the period under study, they found that stock market development had a positive impact on bank profitability. The empirical findings suggested that private banks were relatively more profitable than their state owned counterparts. The result indicated that macroeconomic conditions had no significant impact on Tunisian banks' profitability.

Garcia-Herrero et al. (2009) analyzed the main determinants of profitability for Chinese banks by employing a panel data set for 87 banks from 1997-2004. They found that better capitalized banks, a relatively larger share of deposits, and more efficient banks tend to be more profitable. Hence, a less concentrated banking system as well as lower government intervention increases bank profitability. Furthermore, from the macroeconomic variables included, higher real interest rates on loans and inflation appear to foster profitability while the volatility of interest rates reduces it.

A study made by Semu (2010) assessed the impact of reducing or restricting loan disbursement on the performance of banks in Ethiopia. It also attempted to examine the possible factors that compel the banks to reduce or restrict lending, covering the period of 2005-2009. Quantitative method particularly survey design approach was adopted for the study. The findings of the study showed that net deposit and paid up capital have statistically significant relationship with banks' performance measured in terms of return on equity. New loan disbursement and liquidity had relationship with banks' performance measured in terms of both return on asset and Return on Equity (ROE). However, the relationship was found to be statistically insignificant. Net deposit and paid up capital had no statistically significant relationship with banks' performance in terms of Return on Asset (ROA).

Damena (2011) examined the determinants of Ethiopian commercial banks profitability. The study applied the balanced panel data of seven Ethiopian commercial banks that covers the period 2001- 2010. The paper used Ordinary Least Square (OLS) technique to investigate the impact of some internal as well as external variables on major profitability indicator i.e., ROA. The estimation results showed that all bank-specific determinants, with the exception of saving deposit, significantly affect commercial banks profitability in Ethiopia. Market concentration was also a significant determining factor of profitability. Finally, with regard to macroeconomic variables, only economic growth exhibits a significant relationship with banks' profitability.

Gul et al. (2011) examined the relationship between bank-specific and macro-economic characteristics over Pakistan bank profitability by using data of top fifteen Pakistani commercial banks over the period 2005-2009. Their paper used the Pooled Ordinary

Least Square method to investigate the impact of assets, loans, equity, deposits, economic growth, inflation and market capitalization on major profitability indicators i.e., return on asset , return on equity, return on capital employed and net interest margin separately. The empirical results have found strong evidence that both internal and external factors have a strong influence on the profitability.

Sufian F.(2011) examined the bank-specific and macroeconomic determinants of profitability of Korean banking sector by employing unbalanced bank level panel data, the period considered is 1992-2003. The empirical results revealed that liquidity level, diversification, credit risk, business cycle, and industry concentration significantly affect banks' profitability.

Sufian and Noor-Mohamad-Noor (2012) examined the internal and external factors that influenced the performance of banks operating in the Indian banking sector during the period 2000–08. The empirical findings from this study suggested that credit risk, operating expenses, liquidity and size had statistically significant impact on the profitability of Indian banks.

Floros and Tan(2012) conducted a study between 2003 and 2009 on how bank performance of 11 banks listed in the Chinese Stock Exchanges is affected by stock market volatility, competition and ownership. Of the 11 banks, four were state-owned while seven were joint-stock commercial banks. The generalized methods of moments (GMM) difference and system estimators were applied in the analysis of the data. Empirical results show that high level of stock market volatility can translate into higher return on equity (ROE) and excess return on equity (EROE).

2.4.2 Panel Countries Studies

Molyneux and Thornton (1992) were the first to explore thoroughly the determinants of bank profitability on a set of countries. They used a sample of 18 European countries during the 1986-1989 periods. They found a significant positive association between the return on equity and the level of interest rates in each country, bank concentration and government ownership.

Abreu and Mendes (2002) investigated the determinants of bank's interest margins and profitability for some European countries in the last decade. They reported that well capitalized-banks face lower expected bankruptcy costs and this advantage "translate" into better profitability. Although with a negative sign in all regressions, the unemployment rate was relevant in explaining bank profitability. The inflation rate was also relevant.

Athanasoglou et al. (2006) examined the profitability behavior of bank-specific, industry-related, and macroeconomic determinants, using an unbalanced panel dataset of South Eastern European credit institutions over the period 1998-2002. The estimation results indicated that, with the exception of liquidity, all bank-specific determinants significantly affect bank profitability in the anticipated way. A key result is that the effect of concentration was positive, which provides evidence in support of the structure-conduct-performance hypothesis, even though some ambiguity arises given its interrelationship with the efficient-structure hypothesis. In contrast, a positive relationship between banking reform and profitability was not identified, whilst the picture regarding the macroeconomic determinants is mixed.

Pasiouras and Kosmidou (2007) measured the effects of 10 internal and external variables on profitability, including the capital ratio, cost to income ratio, loans to customers and short-term funding, bank size, inflation, GDP growth, concentration, and three determinants reflecting the development of banking and stock markets on bank returns for 584 domestic and foreign commercial banks in the 15 developed European Union countries over the period 1995-2001. The effects of all variables are found to be significant, regardless of bank ownership status except for the concentration ratio.

Using a sample of 389 banks on an unbalanced panel of 41 SSA countries over the period 1998-2006, Flamini et al. (2009) studied the determinants of bank profitability. The paper proposed that higher returns on assets are associated with larger bank size, activity diversification, and private ownership. Bank returns are affected by macroeconomic variables, which indicate that macroeconomic policies that promote low inflation and stable output growth promote the expansion of credit. The results also indicated moderate persistence in profitability. Causation in the Granger sense from returns on assets to

capital occurs with a considerable lag, which means that it does not maintain high returns immediately in the form of capital increases. Thus, the paper gave some support to the policy of imposing higher capital requirements in the region to promote financial stability.

Albertazzi and Gambacorta (2009), while studying the effect of stock market volatility on bank performance in nine (9) industrialized nations (Austria, Belgium, France, Germany, Italy, The Netherlands, Spain, UK and USA) between 1982 and 2003 using five bank performance proxies (net interest income, non-interest income, operating cost, provisions, profit before tax, and ROE), they found that net interest income, non-interest income, provision and ROE are positively related to stock market volatility. Additionally they found the stock market volatility is negatively related to profit before tax while no relationship between stock market volatility and provisions was found. In a similar study in which the taxation variable was considered, where instead of ROE, they used profit after tax; the results showed that profit after taxes, non-interest income and provisions are positively related to stock market volatility. However, net interest income was found to be significantly and negatively related to stock market volatility.

Ben Naceur and Omran (2011) analyzed the influence of bank regulations, concentration, and financial and institutional development on the Middle East and North Africa countries' commercial banks' margins and profitability during the period 1989-2005. They found that bank specific characteristics, in particular bank capitalization and credit risk, had a positive and significant impact on banks' net interest margins, cost efficiency, and profitability. On the other hand, macroeconomic and financial development indicators had no significant impact on bank performance.

More recently, Said and Tumin (2011) examined performance and financial ratios of commercial banks in Malaysia and China. The purpose was to investigate the impact of bank-specific factors which include liquidity, credit, capital, operating expenses and the size of commercial banks on their performance, which is measured by return on average assets and return on average equity. The results imply that ratios employed in the study have different effects on the performance of banks in both countries, except credit and

capital ratios. Operating ratios influence performance of banks in China, but this influence was not true for Malaysian banks regardless of the measure of performance.

2.4.3 Review of Bank Performance Studies in Kenya

Mathuva (2009) examined the effects of capital adequacy and cost income ratio on bank's profitability in Kenya. Using ROA and ROE as proxies for bank profitability for the period 1998 to 2007, the study found that bank profitability is positively related to the core capital ratio and the tier 1 risk-based capital ratio. The study established that there exists a negative relationship between equity capital ratio and profitability. The study revealed that the CIR is inversely related to both bank profitability measures i.e. ROA and ROE.

Olweny and Shipho (2011) examined the effects of banking sector factors on the profitability of commercial banks in Kenya. To this end, their study adopted an explanatory approach by using panel data research design. Annual financial statements of 38 Kenyan commercial banks from 2002 to 2008 were obtained from the Central Bank of Kenya and banking survey 2009 for the analysis purpose. The data was analyzed using multiple linear regressions method. The results of the analysis showed that all the bank specific factors had a statistically significant impact on profitability, while none of the market factors had a significant impact.

Ongore and Kusa (2013) carried out a study to examine the effects of bank specific factors and macroeconomic factors on the performance of commercial banks in Kenya during the period 2001-2010. They carried out an analysis on a panel data of 37 commercial banks using linear multiple regression model to evaluate the effects of the bank determinants on financial performance of the banks as expressed by ROA, ROE and NIM. They reported that the financial performance of banks in Kenya is significantly impacted by bank specific factors. However, the direction and effect of macroeconomic variables on the performance of commercial banks in Kenya was found to be inconclusive. They reported that GDP had a insignificant negative relationship with ROA and NIM and positive with ROE. However, the relationship was not significant. Inflation was found to a relatively strong negative correlation with performance of the

banks compared to GDP, affecting negatively the profitability of commercial banks in Kenya. The moderating role of ownership of ownership identity on the overall performance of commercial banks in Kenya was not significant.

2.5 Research Gap

From the review of literature, most of the empirical studies that have been conducted with the aim of identifying factors affecting bank profitability belong to the main industrialized countries especially European Union and North America, and some emerging markets such as Philippines, china, Malaysia and Tunisia. Very few studies have been done with the objective of identifying the determinants of profitability of banks in SSA in general and Kenya in particular. Furthermore, much fewer studies have investigated the relationship between the stock market and bank performance especially in the light of the increasing important role being played by the stock market with the financial system. These studies have focused on the main industrialized countries (Albertazzi & Gambacorta, 2009; Dietrich & Wanzenried, 2010) and more recently in china (Floros & Tan, 2012) where the stock markets are developed. With stock markets in the emerging markets experiencing significant growth, so has their importance and role within the financial sector in the economy become critical. Since previous studies in developed countries have established that the stock markets do affect the performance of banks, there is therefore need to carry out similar studies in the emerging economies like Kenya. No study on the relationship between the stock market and bank performance has been conducted in Kenya. This study seeks to examine the effects of stock market volatility on bank profitability in Kenya.

2.6 Conceptual Framework

From the literature review presented above, conceptual framework is developed showing the relationship between the dependent and independent variables. The dependent variable represents bank performance in terms of profitability whose indicators are ROAA and ROAE. The independent variable in this study will be stock market volatility whose measurable indicators will be stock price volatility, stock return volatility and stock market capitalization. The framework assumes that the relationship between the

variables is linear. The figure below provides a diagrammatical representation of the conceptual framework

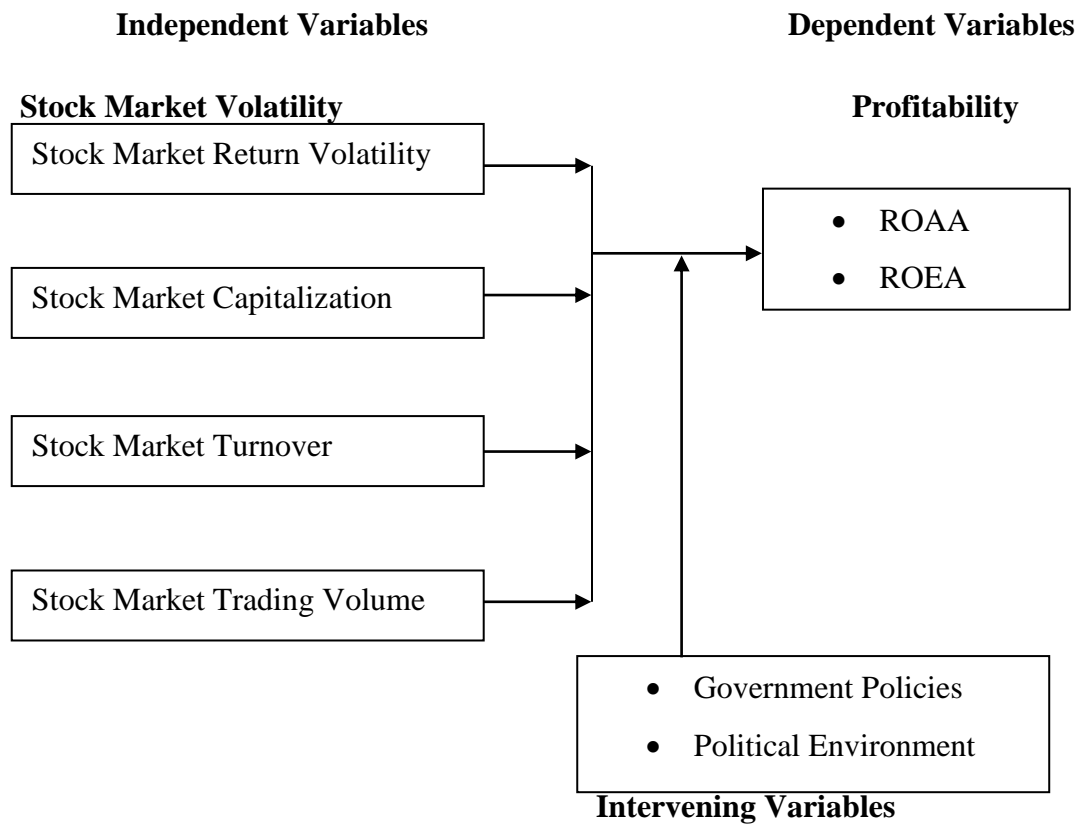


Figure2.1: Conceptual Framework

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The purpose of this chapter was to present the underlying principles of research methodology and the choice of the appropriate research method that will be used for this study. It explains the research design that was adopted by the study, the population and sampling design for the study, and the data collection, analysis and presentation techniques that was employed by the study.

3.2 Research Design

Quantitative research design was adopted for this study. Quantitative research design involves testing objective theories by examining relationships among variables, which are measured numerically and analyzed using a range of statistical techniques (Creswell, 2009; Saunders, Lewis, & Thornhill, 2012). It entails the development of a conceptual and theoretical structure prior to its testing through empirical observation (Loose, 1993). Quantitative research conventionally commences by analyzing the literature to identify knowledge gap in which existing knowledge may be inadequate, or there could be identified gap between existing theories or evidence, or contradictions to be explored, or new contexts for applying previous findings. Thus, the reason for adopting a quantitative research design in this study is to apply previous findings in the context of Kenya.

3.3 Target Population

A research population constitutes all elements in any field of an inquiry (Kothari, 2004). For the purpose of this study, the research population of interest was all the commercial banks listed at the NSE. As at 31/12/2015, there were 10 NSE listed commercial banks in Kenya comprising Barclays Bank of Kenya Limited, Stanbic Bank, Co-operative Bank of Kenya, Diamond Trust Bank (Kenya) Limited, Equity Bank Limited, Kenya Commercial Bank Limited, National Bank of Kenya Limited, NIC Bank Limited, Standard Chartered Bank Kenya Limited and I&M Bank.

3.4 Sample and Sampling Procedure

The frame for drawing the sample included those commercial banks that have been listed for at least 10 years in Kenya (i.e. from 2004-2015). In Kenya there are seven commercial banks that have been listed in the NSE for at least 10 years which included: Barclays Bank of Kenya Limited, Stanbic Bank, Diamond Trust Bank (Kenya) Limited, Kenya Commercial Bank Limited, National Bank of Kenya Limited, NIC Bank Limited and Standard Chartered Bank Kenya Limited. Equity Bank Ltd (listed in 2006), Co-operative Bank (listed in 2008) and I & M Bank (listed in 2013) were excluded since they were less than 10 years since they got listed at the NSE. Since the number of NSE-listed commercial banks in Kenya is small, there will be no need for taking a sample. Therefore, the sampling frame and the sample was the same.

3.5 Data Collection

There are two types of data-primary data and secondary data (Kothari, 2004). This study used secondary data which was collected using a data collection schedule through structured document review of the Kenyan Banking Survey (Think Business, 2014), the NSE Hand Books, and web sites of the listed commercial banks in Kenya, and the NSE. The data collected in this study consisted of observations of multiple phenomena obtained over multiple time periods for the same firms i.e. a data set that includes both cross section and time series data. Hence the structure of our dataset was Panel Data. This secondary dataset was based on panel data covering a period of 12 years from 2004 to 2015.

3.6 Data Analysis

The data collected was analyzed using the statistical software package, Statistics/Data Analysis (*STATA*) version 12.0. Descriptive and inferential analyses were applied to study and compare the effect of independent variables on the dependent variables. Since our dataset was panel in structure, Panel Data Regression estimation was employed. In addition our data had dynamic variables resulting to the presence of a dynamic panel data model. This kind of research has been found to have the possibility of facing a number of problems (Tan & Floros, 2012); endogeneity of data may make the results biased while

unobserved heterogeneity across banks cannot be measured accurately. To solve these problems, the more appropriate technique to provide asymptotically efficient inference has been found to be the use of the Generalized Method of Moments (GMM) (Slimi, 2012). Data was presented using tables.

In this study, we controlled only for industry specific determinants (stock market volatility, capitalisation, trading volume and turn over) and did not consider any bank-specific or macroeconomic variables. Hence, the estimated regression model that was used to examine the effect of each independent variable on profitability of NSE listed commercial banks is as follows:

$$Y_{it} = \alpha + \beta_i X_{i,t} + e_{it}$$

$$Y_{it} = \alpha + \beta_1 X_{1,t} + \beta_2 X_{2,t} + \beta_3 X_{3,t} + \beta_4 X_{4,t} + e_{it}$$

Where;

i indexes the banks where $i = \text{bank } 1, 2, 3, \dots, 7$

t indexes time where $t = \text{year } 1, 2, 3, \dots, 12$

Y_{it} denotes the dependent variable, profitability of bank i in year t , expressed by ROAE, ROAA

$X_{j,t}$ denotes the independent variable, industry-specific determinant stock market volatility expressed by stock index volatility (X_1), stock market capitalization (X_2), stock market turnover (X_3) and stock market trading volume (X_4) all at time t

α is the value of the intercept.

β_i is the coefficient of the explanatory X variables.

e is the error term.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATIONS AND DISCUSSIONS

4.1 Introduction

This chapter presents the key findings of the research based on the methodology as identified in chapter three. The chapter is structured into data analysis, presentation and interpretation of descriptive statistics, correlation matrix and regression models.

4.2 Data Analysis

The main objective of the study was to investigate the effect of securities market volatility on Kenya commercial banks' profitability. Similarly, the data presented has been analyzed in line with the specific objectives of the study.

4.3 Attributes of Listed Commercial Banks

4.3.1 Kenya Commercial Bank

According to KCB's website, the company is over 120 years old since it is started operations in Zanzibar. The company was incorporated in 1896 as a branch of National Bank of India. In 1957 Grindlays Bank merged with the National Bank of India to form the National and Grindlays Bank, which was to spearhead the economic empowerment of local citizens following Kenya's independence. In 1970, the government of Kenya acquired a 100% shareholding in the Bank and changed the name to Kenya Commercial Bank Limited. It is East Africa's largest and oldest bank with over 242 branches across the region. The holding company (KCB limited) oversees KCB Kenya and all KCB's regional units in Uganda, Tanzania, Rwanda, Burundi, Ethiopia and South Sudan. In 1988, KCB listed on the Nairobi Securities Exchange through an IPO which saw over 120,000 new shareholders acquire the bank after the Government of Kenya sold 20% of its shareholding.

Today, Kenya Commercial Bank, a wholly owned subsidiary of KCB Holdings Limited, has over 150,000 shareholders with a share capital of over 3.025 billion. By this virtue, KCB is the second largest bank in the Kenyan banking industry by capitalization with its current Market Capitalization standing at Kshs. 76.097 Billion with a share price of Ksh.26.75.

Kenya Commercial Bank Holdings Limited, also operates an investment banking unit, KCB Capital. The lender having sold its investment banking arm to Dyer & Blair in 1983, was again recently licensed by the Capital Markets Authority in September 2016 to offer advisory services to its customers. The new unit is expected to increase the bank's revenue streams through fees earned. It also owns KCB Insurance Agency, KCB Foundation and all associate companies.

The firm faces some few challenges when operating in different countries. These include slow integration into the banking business across the Group, difficulties in ensuring 100% compliance, limited knowledge of insurance by staff and customers, price sensitivity and strong resistance from competition based on gaps in the regulations on the Banc assurance products. To tackle this the bank has concentrated on providing additional resources and training through existing KCB networks, improving operational efficiencies and completing the customization of the ICT system, to facilitate the rolling out of the first tranche of individual life insurance products.

There were 3.025 billion shares outstanding as at 31 December 2015 and 152,065 shareholders. This is outlined in table 4.1 (a) below; those who own less than 5000 shares constitute about 6.78%, while those who own more than 10 million shares constitute about 52.69% of ownership. It was noted that those who own less than 100,000 shares constitute less than 18%, while those who own more than 100,000 shares constitute more than 82%.

Table 4.1 (a): Distribution of Shareholders of KCB Holdings Ltd. as at 31.12.2015

Number of shares	Number of shareholders	Number of shares held	% shareholding
Less than 5000	123,714	205,248,439	6.78
5001 – 50,000	26,553	274,824,906	9.08
50,001 – 100,000	729	50,470,190	1.67
100,001 – 1,000,000	808	240,598,424	7.95
1,000,001 – 10,000,000	227	660,058,044	21.82
Over 10,000,000	34	1,594,012,989	52.69
Total	150,065	3,025,212,992	100.00

Source: www.kcb.co.ke 2016

Table 4.1 (b) below outlines that the largest shareholder in KCB Holdings is the Government of Kenya represented by the Permanent Secretary to the Treasury of Kenya with about 524 million shares; these constitute about 17.31%; this implies that this shareholder has influence in lenders decision making process. She may influence the voting of directors, making dividend decisions or even making capital decisions. KCB Holdings is therefore an associate company of the Kenyan Government. The top 10 shareholders alone own more than 37% of outstanding share capital of the company; this adds up to about 1.1 billion shares.

Table 4.1(b): List of 10 Largest Shareholders of KCB Holdings Ltd. as at 31.12.2015

Name	Number of shares held	%Share holding
Permanent Secretary to the Treasury of Kenya	523,600,000	17.31
National Social Security Fund	227,436,743	7.52
Standard Chartered Kenya Nominees Ltd, A/C KE18965	65,397,900	2.16
Standard Chartered Nominees Non Resident, A/C 9318	52,837,598	1.75
Standard Chartered Nominees Non-Resident, A/C 9069	49,992,256	1.65
Kanaksinh Karsandas Babla and Sandip Kanaksinh Babla	47,002,660	1.55
Standard Chartered Nominees, A/C 9688	45,778,323	1.51
Standard Chartered Kenya Nominees Ltd, A/C KE20531	45,498,900	1.50
Standard Chartered Kenya Nominees Ltd, A/C KE18972	43,240,300	1.43
Standard Chartered Nominees Non-Resident, A/C 9867	36,998,600	1.22
Total shares outstanding	1,137,783,280	37.61

Source: www.Kcb.co.ke 2016

4.3.2 Equity Bank Group Limited

According to Equity's website, Equity Bank was founded as Equity Building Society (EBS) in October 1984 and was originally a provider of mortgage financing for the majority of customers who fell into the low income population. The society's logo, a modest house with a brown roof, resonates with its target market and their determination to make small but steady gains toward a better life, seeking security and advancement of their dreams. Having been declared technically insolvent in 1993, Equity's transformation into a rapidly growing microfinance and then a commercial bank is widely considered to

be an inspirational success story. Currently, Equity Bank has more than 8 million customers making it the largest bank in terms of customer base in Africa and having nearly half of bank accounts in Kenya.

The bank listed in the Nairobi Securities Exchange in 2006. To mark its major milestone as a regional power house, the recently reorganized firm seeking to enhance its integrated financial solutions delivery capacity, cross listed in Rwandan bourse in 2015. This is after successful listing in the Ugandan and Tanzanian bourses. Apart from its regional banking operations the Group hold other additional five non-banking subsidiaries across the region engaged in provision of investment banking, custodial, insurance agency, philanthropy, consulting and infrastructure services.

Today, Equity bank has an issued share capital of Kshs 1.887 billion and has over 29,000 shareholders. Its current Market Capitalization stands at Kshs. 105.529 Billion with a share price of Ksh.26. It is important to note that this is the largest bank currently by market capitalization. The group also has a strategic stake of 21.41 per cent in British American Investment Company (Britam) and Finserve Africa Limited 100 %. In 2015, Equity Group Holdings Limited (“EGHL”) entered into a strategic partnership with ProCredit Bank Congo S.A after successfully obtaining 79% of its issued share capital which now gives them largest geographical reach of any Kenyan bank with a presence in six countries namely Kenya, Tanzania, Uganda, South Sudan, Rwanda, and Democratic Republic of Congo. ProCredit is a public limited liability company established in the Democratic Republic of Congo (“DRC”) and is the leading Bank in the SME sector. The Bank is the 7th largest bank by assets in the market with a customer base of over 170,000.

The Group is exposed to market risk, liquidity risk and credit risk. Credit risk is the risk of financial loss to the Group if a customer or counterparty to a financial instrument fails to meet its contractual obligations, and arises principally from the group’s loans and advances to customers and other banks and investment securities. For risk management reporting purposes, the group considers and consolidates all elements of credit risk exposure with branch managers and credit committees tasked with its control. This group is responsible for formulating credit policies in consultation with business units, covering

collateral requirements, credit assessment, risk grading and reporting, documentary and legal procedures, and compliance with regulatory and statutory requirements.

Liquidity risk is the risk that the group will encounter difficulty in meeting obligations from its financial liabilities. The group's approach to managing liquidity is to ensure, as far as possible, that it will always have sufficient liquidity to meet its liabilities when due, under both normal and stressed conditions, without incurring unacceptable losses or risking damage to the group's and the company's reputation. Market risk is the risk that changes in market prices, such as interest rates, equity prices, foreign exchange rates and credit spreads (not relating to changes in the obligor's / issuer's credit standing) will affect the group's income or the value of its holdings of financial instruments. The group separates its exposure to market risk between trading and non-trading portfolios. Trading portfolios include positions arising from market making and proprietary position taking, together with financial assets and liabilities that are managed on a fair value basis.

There were 3.773 billion shares outstanding as at 31 December 2015 and 29,000 shareholders. This is outlined in table 4.2 (a) below; those who own less than 500 shares constitute about 0.07%, while those who own more than 1 million shares constitute about 91.70% of ownership. It was noted that those who own less than 10000 shares constitute less than 2%, while those who own more than 10000 shares constitute more than 98%.

Table 4.2 (a): Distribution of Shareholders of Equity Bank Group as at 31.12.2015

Number of shares	Number of shareholders	Number of shares held	% shareholding
Less than 500	10,019	2,586,918	0.07
501 – 5,000	13,259	24,918,267	0.66
5,001 – 10,000	2,096	16,210,164	0.43
10,001 – 100,000	2,751	79,032,760	2.09
100,001 – 1,000,000	586	190,122,715	5.04
Over 1,000,000	289	3,460,803,978	91.70
Total	29,000	3,773,674,802	100.00

Source: www.equitybankgroup.co.ke 2016

Table 4.2 (b) below shows the list of top 10 shareholders of Equity bank group. These together own more than 40.26% of the company with about 1.52 billion shares, the largest shareholders being Norfininvest As and Britam, who own slightly over 452 and 239 million shares comprising 12.22% and 6.35% respectively of the share capital. This therefore sets the two as the top associates of the company. The least in the top 10 list is Andrew Mwangi Kimani with almost 2.32% of shares adding up to about 87.4 million shares.

Table4.2 (b): List of Equity Bank Group Top 10 Shareholders

No.	Name of Shareholder	No. of Shares	% Holding
1	Norfininvest As	452,581,275	12.223
2	British-American Investments Company (Kenya) Limited	239,501,330	6.35
3	Equity Bank Employee Share Ownership Plan	143,729,900	3.81
4	James Njuguna Mwangi	127,809,180	3.39
5	Fortress Highlands Limited	101,010,000	2.68
6	Standard Chartered Nominees Non-Resd. A/C 9069	93,396,569	2.47
7	Equity Nominees Limited A/C 00104	93,171,804	2.47
8	Cfc Stanbic Nominees Ltd A/C Nr3530153-1	90,516,255	2.40
9	AIB Nominee A/C Solidus Holdings Ltd	90,114,910	2.39
10	Andrew Mwangi Kimani	87,426,800	2.32
11	Others	2,254,416,779	59.74
Total Holding		3,773,674,802	100

Source: www.equitybankgroup.co.ke 2016

4.3.3 Barclays Bank of Kenya Ltd

According to the company's website, the bank has operated in Kenya for over 100 years having opened its doors in 1916. Trading under the name National Bank of South Africa, its first branch in Kenya, was in Mombasa, which was the main port and commercial center for the East Africa Protectorate. Barclays became the first Bank in Kenya to offer shares to the public on the Nairobi Securities Exchange in 1986 two years before KCB could list. The share floatation resulted in 40,000 new shareholders making it the largest Bank in Kenya at the time with assets worth Kshs 5.4 billion. With a branch network of approximately 119, Barclays Kenya is currently the largest business unit in Barclays

Africa family in terms of contribution to profit and size of operations. In Kenya, it boasts of a balance sheet worth US\$ 1 billion which is equivalent to 10% of the country's GDP. Its blue chip status has made its shares to be among the most sought after in the market.

Barclays Africa Group Limited holds a controlling stake of 68.5% in Barclays Kenya. The Group also has presence in other 9 African countries namely; Botswana, Ghana, Kenya, Mauritius, Mozambique, Seychelles, South Africa, Tanzania, Uganda and Zambia with representative offices in Nigeria and Namibia. On 1 March 2016, Barclays Plc announced its intention to sell down its 62.3% stake in Barclays Africa Group Limited (BAGL) to a level which will permit it to deconsolidate BAGL from an accounting and regulatory perspective. This was largely attributed to the recently introduced regulatory requirements in the United Kingdom. However, this will be effected over the next two to three years, subject to shareholder and regulatory approvals. According to the Fortune of Africa report released in June 2016, Barclays Kenya was ranked fifth in market share with 7.9 % of the market behind KCB, Equity, Co-operative and Standard Chartered Bank, who controlled 13.1% ,9.3%, 8.6% and 8.4% respectively.

The group has currently over 5 .431 Billion shares with about 61,000 shareholders with its market capitalization standing at 49,970 billion and a share price of Ksh.9.29. Those who hold 1000000 shares and less constitute about 12% of the total shareholding adding up to 648 million shares while 88% is held by 1130 shareholders who jointly own over 4.752 billion shares as illustrated in table 4.3 (a) below:

Table 4.3 (a): Distribution of Shareholders of Barclays Kenya Ltd. as at 31.12.2015

Number of shares	Number of shareholders	Number of shares held	% shareholding
Less than 500	11 689	3 287 068	0.06
501 – 5,000	23 208	50 160 104	0.92
5,001 – 10,000	7 081	51 632 547	0.95
10,001 – 100,000	18 414	532 608 581	9.81
100,001 – 1,000,000	966	268 443 683	4.94
Over 1,000,000	164	4 525 404 017	83.32
Total	61 522	5 431 536 000	100.00

Source: www.barclayskenya.co.ke 2016

According to table 4.3 (b) below, the largest shareholder in Barclays Kenya is Barclays Africa Group Limited who owns about 69% of the outstanding share capital constituting around 3.67 billion shares; this implies that the company is a subsidiary of BAGL which has total control and ability to affect the firm's returns through its power over the entity. The top 10 shareholders in this lending firm hold up to around 74% with shares adding up to about 4 billion. A point to note is that institutional shareholders dominate this firm. This is illustrated in table 4.4 (b)

Table 4.3 (b): List of Barclays Kenya Ltd. Top 10 Shareholders

No.	Name of Shareholder	No. of Shares	% Holding
1	Barclays Africa Group Limited	3,720,602,160	68.50
2	Standard Chartered Nominees RESD A/C KE11401	46,711,210	0.86
3	Standard Chartered Nominees NON-RESD A/C KE8723	46,168,056	0.85
4	Standard Chartered Nominees RESD A/C KE11450	42,909,134	0.79
5	Kenya Commercial Bank Nominees Limited A/C 915B	41,822,827	0.77
6	Kenya Commercial Bank Nominees Limited A/C 915A	34,218,677	0.63
7	CFC Stanbic Nominees Ltd A/C NR1873738	24,985,066	0.46
8	Standard Chartered Nominees A/C 9230	23,898,759	0.44
9	The Jubilee Insurance Company of Kenya Limited	20,096,683	0.37
10	Standard Chartered Kenya Nominees Ltd A/C KE19822	17,924,068	0.33
	Total Holding	4,019,336,640	74

Source: www.barclayskenya.co.ke 2016

4.3.4 National Bank of Kenya

National Bank was incorporated on 19th June 1968 and officially opened on Thursday November 14th 1968. At the time it was fully owned by the Government of Kenya. In an effort to become a top tier bank by 2017, the bank rebranded and changed its logo and colours from the predominantly green to yellow, and a new brand promise themed “Bank on Better” in 2013. Headquartered in Nairobi, the bank owns Nat Bank Trustee and Investment Services Limited. National Bank of Kenya is ranked number eleven, by assets, among the forty-three commercial banks licensed in the country with an asset base valued at approximately Kshs.92.5 billion. The Bank has a growing network of over 75 branches outlets across the country.

The group listed its shares at the Nairobi Securities Exchange (NSE) in 1994 culminating into the Government of Kenya reducing its shareholding by 32% (40 Million Shares) to members of the public. It further reduced its Shareholding by 40 million Shares to the public two years later.

The group’s activities expose it to a variety of financial risks and those activities involve the analysis, evaluation, acceptance and management of some degree of risk or combination of risks. Some of these risks include; credit risk, liquidity risk and Market risk- (currency, interest rate and price risk). To manage credit risk the Board of Directors has delegated responsibility for the management of credit risk to its Credit, Finance, Information & Technology Committee whose mandate is to establish an authorization structure for the approval and renewal of credit facilities with authorisation limits allocated to business unit credit officers. The group is also exposed to the risk that the value of a financial instrument will fluctuate due to changes in market interest rates. The maturities of asset and liabilities and the ability to replace at an acceptable cost, interest-bearing liabilities as they mature, are important factors in assessing the group’s exposure to changes in interest rates and liquidity. Interest rates on advances to customers and other risk assets are either pegged to the group’s base lending rate. To cap this, the base rate is adjusted from time to time to reflect the cost of funds and the Central Bank’s lending rate.

The group has currently over 308 million shares with about 48,000 shareholders. Its market capitalization stands at 1.85 billion with firm's share trading at Ksh.6.40 in the securities market. Those who hold less than 1,000,000 shares constitute about 25% of the total shareholding adding up to 77 million shares while 75% is held by 10 shareholders who jointly own over 231 million shares as illustrated in table 4.4 (a) below:

Table 4.4 (a): Distribution of Shareholders of National Bank of Kenya as at 31.12.2015

Number of shares	Number of shareholders	Number of shares held	% shareholding
Less than 1000	32,497	16,246,433	5.28
1001 – 10,000	15,320	31,097,481	10.10
10,001 – 100,000	761	18,757,346	6.09
100,001 – 1,000,000	51	10,757,186	3.49
1,000,001 – 10,000,000	8	13,839,057	4.49
10,000,001 – 100,000,000	1	69,300,000	22.50
100,000,000 and above	1	148,002,497	48.05
Total	48,639	308,000,000	100.00

Source: www.nationalbank.co.ke 2016

Table 4.4 (b) below shows that National Bank is a subsidiary of National Social Security Fund (NSSF) Limited and the Government of Kenya whose joint stake is about 217 million shares; this constitute about 71% implying that these two shareholders have unchallenged control in the lending firm. They may influence at will the voting in of directors, making dividend decisions or even making capital decisions. The top 10 shareholders own more than 75% of outstanding share capital of the company; this adds up to about 231 million shares.

Table 4.4 (b): List of National Bank of Kenya Top 10 Shareholders

No.	Name of Shareholder	No. of Shares	% Holding
1	National Social Security Fund	148,002,497	48.05
2	The Permanent Secretary To The Treasury	69,300,000	22.50
3	Kenya Reinsurance Corporation Limited	4,400,000	1.40
4	Best Investment Decisions Limited	2,136,610	0.70
5	Co-op Bank Custody A/C 4003a	1,695,330	0.55
6	NIC Custodial Services A/C 077	1,277,496	0.40
7	Craysell Investments Limited	1,143,442	0.40
8	Equity Nominee Ltd A/C00084	1,142,130	0.40
9	Natbank Trustee & Investment Services Ltd A/C 1	1,039,500	0.30
10	Eng. Ephraim Mwangi Maina	1,004,549	0.30
Total Holding		231,000,000	75

Source: www.nationalbank.co.ke 2016

4.3.5 Standard Chartered Bank Kenya Limited

According to Stanchart's website, the bank was established and commenced operations in 1911. The lender changed its name from Standard Bank to Standard Chartered Bank in 1969 after the merger of two separate banks, the Standard Bank of British South Africa and the Chartered Bank of India, Australia and China. It is a subsidiary of the British multinational financial conglomerate headquartered in London, United Kingdom, known as Standard Chartered. Since its inception, the bank has progressively and consistently continued to provide financial services to its customers over the years; this has in turn singled it out as one of the leading Banks in Kenya, with an excellent franchise with over 33 branches spread across the country.

The Group made its debut on the Nairobi Securities Exchange in 1989 when it offered 21 million shares to the public. This was the largest single placing at the NSE at the time. Currently, the bank has local shareholding of about 26%, comprising about 32,000 shareholders.

The Corporation is exposed to a range of financial risks such as liquidity risk. Liquidity risk is the risk that the Group either does not have sufficient resources available to meet all its obligations and commitments as they fall due, or can only access these financial resources at excessive cost. The Group's approach to managing liquidity risk is to ensure, as far as possible, that it will always have sufficient liquidity to meet its liabilities when due, under both normal and stressed conditions, without incurring unacceptable losses or risking damage to the Group's reputation. The Group also maintains a portfolio of short-term liquid assets, principally government securities, which can be realized, repurchased or used as collateral in the event that there is a need for liquidity in a crisis. In addition, liquidity crisis management plans are maintained by the Group and are reviewed and approved annually.

Today, Stanchart's market price per share stands at Kshs. 191 with a market capitalization of 68.35 billion and a share capital of 1,905 million. The corporation has over 309 million outstanding shares with preference share carrying 10% in dividends. 23% of the total shareholding is held by individuals who own below 1 million shares while the remaining 77% of ownership is distributed among 9 shareholders who jointly hold over 240 million shares.

Table 4.5 (a): Distribution of Shareholders of Standard Chartered Bank Kenya Ltd. as at 31.12.2015:

Number of shares	Number of shareholders	Number of shares held	% shareholding
Less than 500	9,559	1,800	0.58
501 – 5,000	19,912	25,091	8.12
5,001 – 10,000	333	2,369	0.77
10,001 – 100,000	499	15,477	5.01
100,001 – 1,000,000	101	23,849	7.71
Over 1,000,000	9	240,573	77.81
Total	30,413	309,159	100.00

Source: www.sc.co.ke 2016

With a shareholding of approximately 74% and over 228 million shares, the Standard Chartered Holdings (Africa) automatically qualifies as the largest shareholder of Stanchart, thus making it a subsidiary. A point to note is that the Kabarak Limited is also among the top three major shareholders in the bank with ownership of about 3 million shares which translates to approximately 1.03% of the total shareholding. It is therefore safe to assume that Standard Chartered Holdings (Africa) has total control over the corporation.

Table 4.5 (b): List of Standard Chartered Bank Kenya Ltd Major Shareholders as at 31.12.2015:

No.	Name of Shareholder	No. of Shares	% Holding
1	Standard Chartered Holdings (Africa) BV	228,432	73.89
2	Kabarak Limited	3,178	1.03
3	Standard Chartered Nominees – RESD A/C KE 11450	1,541	0.50
4	Standard Chartered Nominees – A/C 9230	1,467	0.47
5	Kenya Commercial Bank Nominees Limited – A/C 915B	1,334	0.43
6	Standard Chartered Africa Limited	1,307	0.42
7	Old Mutual Life Assurance Company Limited	1,214	0.39
8	Standard Chartered Nominees – RESD A/C KE11401	1,060	0.34
9	Kenya Commercial Bank Nominees Limited – A/C 915A	1,041	0.34
10	Standard Chartered Nominees – A/C 9187	714	0.23
11	Others	67,871	21.96
	Total Holding	309,159	100

Source: www.sc.co.ke 2016

4.3.6 Co-operative Bank of Kenya Limited

According to co-op's website, the Bank was initially registered under the Co-operative Societies Act at the point of founding in 1965. This status was retained up to and until June 2008 when the Bank's Special General Meeting resolved to incorporate under the Companies Act with a view to complying with the requirements for listing on the Nairobi Stock Exchange (NSE). The Bank went public and was listed on December the same year. Shares previously held by the 3,805 Co-operatives Societies and unions were ring-fenced under Co-op Holdings Co-operative Society Limited which became the strategic investor in the Bank with a 64.56% stake.

The Bank runs three subsidiary companies, namely: Kingdom Securities Limited, a stockbroking firm with the bank holding a controlling 60% stake; Co-op Trust Investment Services Limited, the fund management subsidiary wholly-owned by the bank; and Co-op Consultancy & Insurance Agency Limited (CCIA), the corporate finance, financial advisory and capacity-building subsidiary wholly-owned by the bank. The bank also commands a large market share with a branch network of over 142 branches spread out across the country

Co-operative bank of Kenya is the third largest bank by asset size of Kshs.309.6 Billion and the third largest by market capitalization on the Nairobi Securities Exchange (NSE) at over Kshs.104B from the shares issued to date. Currently Co-op Bank has over 96000 shareholders who jointly own 4.8 billion shares.

Table 4.6 (a): Distribution of Shareholders of Co-operative Bank Ltd as At 31.12.2015:

Number of shares	Number of shareholders	Number of shares held	% shareholding
Less than 500	10,976	2,159,241	0.04
501 – 5,000	39,358	76,036,524	1.53
5,001 – 10,000	31,346	223,703,535	4.56
10,001 – 100,000	13,727	277,745,212	5.67
100,001 – 1,000,000	662	192,213,601	3.99
Over 1,000,000	213	4,117,458,182	84.21
Total	96,282	4,889,316,295	100.00

Source: www.co-opbank.co.ke 2016

Co-op holdings Co-operative Society Limited tops the list of the largest shareholders in Co-operative Bank with over 3 billion shares which constitute about 65% of the total shareholding. This implies therefore that Co-op bank is a subsidiary of Co-op Holdings Limited. The top ten shareholders all together control stake in the firm is about 70% with Co-Operative Bank Co-Operative Savings & Credit Society Ltd holding the least with a 0.31% stake as shown in table 4.6 (b) below;

Table 4.6 (b): List of Co-operative Bank Ltd Major Shareholders as at 31 December 2015

No.	Name of Shareholder	No. of Shares	% Holding
1	Co-op holdings Co-operative Society Limited	3,156,429,504	64.56
2	Dr. Gideon Maina Muriuki	100,069,750	2.05
3	NIC Custodial Services A/C 077	26,764,853	0.55
4	Cfc Stanbic Nominees Ltd A/C Nr1030682	26,554,728	0.54
5	Standard Chartered Nominees A/C 9230	25,519,137	0.52
6	Standard Chartered Nominee Account Ke17605	24,144,330	0.49
7	Kenya Commercial Bank Nominees Limited A/C 915b	20,258,866	0.41
8	Standard Chartered Nominees Non-Resd. A/C Ke105161	19,605,687	0.40
9	Kenya Commercial Bank Nominees Limited A/C 771a	16,612,933	0.34
10	Co-Operative Bank Co-Operative Savings & Credit Society Ltd	15,103,667	0.31
Total Holding		3,431,063,455	70.17

Source: www.co-opbank.co.ke 2016

A point to note is that institutional shareholders dominate this firm with Harambee Cooperative Savings & Credit Society Ltd being an associate with 3.82% of the entire shares attributed to Co-op Holdings limited. This is illustrated in table and 4.6 (c)

Table 4.6 (c): List of Co-op Holdings Co-operative Society Limited Top 10 Shareholders

No.	Name of Shareholder	No. of Shares	% Holding
1	Harambee Cooperative Savings & Credit Society Ltd	120,714,860	3.82
2	H & M Cooperative Savings & Credit Society Ltd	104,372,893	3.31
3	Kenya Police Sacco Society Ltd	99,904,355	3.17
4	Afya Cooperative Savings & Credit Society Ltd	92,829,660	2.94
5	Masaku Teachers Coop Savings & Credit Society Ltd	91,697,527	2.91
6	Kipsigis Teachers Coop Savings & Credit Society Ltd	84,579,600	2.68
7	Telepost Co-Operative Savings & Credit Society Limited	75,638,570	2.40
8	K-Unity Savings And Credit Co-Operative Society Limited	73,187,640	2.32
9	Co-Operative Bank Coop Savings & Credit Society Ltd	62,598,760	1.98
10	Nawiri Savings And Credit Co-Operative Society Ltd	57,877,680	1.83
Total Holding		863,401,545	27.35

Source: www.co-opbank.co.ke 2016

4.3.7 National Industrial Credit Bank Limited (NIC)

According to NIC's website, the bank was founded in 1959 as a joint venture by Standard Bank Limited and Mercantile Credit Company Limited, both headquartered in South Africa and the United Kingdom respectively trading with the name National Industrial Credit Bank Limited. NIC was initially a non-bank financial institution (NBFI). In 1971, NIC became a public company, by listing on the Nairobi Stock Exchange, where it still trades today. The firm rebranded to NIC in 2005 and has since been operating as such. In May 2009, NIC Bank acquired a 51% shareholding interest in Savings and Finance Commercial Bank, a small Tanzanian retail bank and in 2012 NIC opened a subsidiary in

Uganda, NC bank Uganda. However, Savings and Finance Commercial Bank was rebranded to NIC Bank Tanzania to reflect the new shareholding structure.

June 2016, saw the Central Bank of Kenya appoint NIC Bank as asset and liabilities consultant for Imperial Bank Limited (in receivership). Effectively, NIC Bank took over the responsibility of returning funds to the failed bank's deposit customers. The agreement also allows NIC to acquire some of the deposits, assets and liabilities of Imperial once its receiver manager the Kenya Deposit Insurance Corporation starts liquidating the bank. The 28 branches and all former employees of Imperial Bank were also taken over by the Bank.

Today, NIC's market price per share stands at Kshs. 27.75 with a market capitalization of 17.75 billion and a share capital of 3,199 million. The corporation has over 640 million outstanding shares with a total equity of about 23 billion. 30% of the total shareholding is held by individuals who own below 1 million shares while the remaining 70% of ownership is distributed among 9 shareholders who jointly hold over 240 million shares. This is illustrated by table 4.7(a) below;

Table 4.7 (a): Distribution of Shareholders of NIC Bank Ltd. as at 31.12.2015:

Number of shares	Number of shareholders	Number of shares held	% shareholding
Less than 500	8,352	1,546,396	0.24
501 – 5,000	13,163	26,480,841	4.14
5,001 – 10,000	1,623	11,787,120	1.84
10,001 – 100,000	1,811	51,331,331	8.02
100,001 – 1,000,000	363	102,173,036	15.97
Over 1,000,000	64	446,626,879	69.79
Total	25,376	639,945,603	100.00

Source: www.nic-bank.co.ke 2016

According to table 4.7 (b) below, the largest shareholder in NIC is First Chartered Securities Ltd who owns about 16% of the outstanding share capital constituting around 101 million shares; this implies that the company is an associate of First Chartered Securities Ltd which has substantial control and ability to affect the firm's returns through its power over the entity. The top 10 shareholders in this lending firm hold up to around 53% with shares adding up to about 338 million. The shareholding of this firm is dominated by institutional bodies. This is illustrated in table 4.7 (b).

Table 4.7 (b): List of NIC Bank Ltd Major Shareholders as at 31.12.2015:

No.	Name of Shareholder	No. of Shares	% Holding
1	First Chartered Securities Ltd	101,383,047	15.84
2	ICEA Asset Management Ltd A/C 2000	58,603,280	9.16
3	Livingstone Registrars Ltd	55,870,153	8.73
4	Rivel Kenya Ltd	53,063,367	8.29
5	Saimar Ltd	26,922,967	4.21
6	Amwa Holdings Ltd	13,592,676	2.12
7	Makimwa Consultants Ltd	8,664,740	1.35
8	Murwoki Holdings Limited	7,038,541	1.10
9	Standard Chartered Nominees A/C 9230a	6,384,094	1.00
10	Thuthuma Limited	6,375,645	1.00
Total Holding		337,898,510	52.80

Source: www.nic-bank.co.ke 2016

4.3.8 Diamond Trust Bank Limited (DTB)

According Diamond Trust Bank website, DTB was incorporated in Kenya as the Diamond Jubilee Investment Trust (DJIT) in 1945. In 1972, the name was changed to Diamond Trust of Kenya (DTK). It acquired a much wider public profile, transforming itself from a community based finance house into a non-bank financial institution (NBFIs) serving the general Kenyan public. In the same year, DTB shares were floated on the Nairobi Stock Exchange through an IPO becoming the first banks to list in the bourse. Over the years DTB group has increased its capital base through rights issue offerings. The most recent offers were done in 2008 and 2014 in which the bank raised over 2.4billion.

An affiliate of the Aga Khan Development Network (AKDN), DTB has operated in East Africa for over 70 years, with a focus on the SME sector and a commitment to improving

our award-winning customer service. DTB currently has over 100 branches spread across Kenya, Tanzania, Uganda, and Burundi.

The group is exposed to various risks with the most common being market risk. Market risk is the risk of loss due to adverse movements in market rates or prices, such as foreign exchange rates, interest rates and equity prices, in the Group's case. It emanates from the trading activities mainly carried out by treasury and structural positions housed in the banking books. To cap this Group carries a limited amount of market risk. Tolerance limits for market risk are approved by the Board. The limits are further allocated to the banking and trading books that are monitored at pre-defined frequencies. Risk measurement is currently based on sensitivity analysis and stress testing.

Today, DTB has an issued share capital of Kshs 968 million with over 11,000 shareholders. Its current Market Capitalization stands at Kshs. 39.681 million with a share price of Ksh.149. There were 240 million shares outstanding as at 31 December 2015. This is outlined in table 4.8 (a) below; those who own less than 500 shares constitute about 0.25%, while those who own more than 1 million shares constitute about 56.10% of the firm's stake.

Table 4.8 (a): Distribution of Shareholders of NIC Bank Ltd. as At 31.12.2015:

Number of shares	Number of shareholders	Number of shares held	% shareholding
Less than 500	3,142	599,242	0.25
501 – 5,000	4,661	10,573,034	4.37
5,001 – 10,000	1,411	10,657,870	4.40
10,001 – 100,000	1,677	42,407,257	17.52
100,001 – 1,000,000	162	42,042,904	17.37
Over 1,000,000	17	135,829,798	56.10
Total	11,070	242,110,105	100.00

Source: www.dtbk.dtbafrika.com 2016

Table 4.8 (b) below shows the list of top 10 shareholders of DTB. These together own more than 52% of the company with about 125 million shares ,the largest shareholders being Aga Khan Fund For Economic Development and Habib Bank Limited, who own slightly over 41 and 28 million shares comprising 17.32% and 11.32% respectively of the share capital. This therefore sets the two as the top associates of the firm. The least in the top 10 list is Craysell Investments Limited with almost 1% of shares adding up to about 2.1 million shares

Table 4.8 (b): List of NIC Bank Ltd. Major Shareholders as at 31.12.2015:

No.	Name of Shareholder	No. of Shares	% Holding
1	Aga Khan Fund For Economic Development	41,936,579	17.32
2	Habib Bank Limited	28,980,677	11.97
3	The Jubilee Insurance Company of Kenya Limited	25,261,716	10.43
4	Standard Chartered Nominees A/C KE18972	8,445,775	3.49
5	Standard Chartered Nominees A/C KE18965	6,908,491	2.85
6	The Diamond Jubilee Investment Trust (U) Limited	3,489,488	1.44
7	Standard Chartered Nominees A/C KE18986	3,160,293	1.31
8	Standard Chartered Nominee Non Resd a/c KE11752	3,096,872	1.28
9	Mr. Amin Nanji Juma	2,234,702	0.92
10	Craysell Investments Limited	2,187,019	0.90
Total Holding		125,679,356	51.91

Source: www.dtbk.dtbafrika.com 2016

4.3.9 CFC Stanbic Bank Limited

According Stanbic's website, Stanbic Bank Kenya Limited (SBK) was established in 1958 when Ottoman Bank incorporated its first subsidiary in the region. In 1969, Ottoman Bank sold its Kenyan operations to National and Grindlays Bank (NGB Kenya)

making its exit from the East African market. A year later, the Kenya government and NGB entered into an agreement that saw the government takeover full control of NGB Kenya with the exception of the two branches inherited from Ottoman Bank. This saw NGB Kenya being rebranded Kenya Commercial Bank while the two branches hived off became Grindlays Bank International (Kenya) Limited (GBI). The stake control in GBI was 60% and 40% by NGB London and the government of Kenya respectively.

Standard Bank Investment Corporation (Stanbic Bank), a subsidiary of Standard Bank, acquired GBI by virtue of it being part of ANZ Grindlays Bank's African subsidiaries in 1992. The bank's name was later changed from Grindlays Bank International (Kenya) Limited to Stanbic Bank Kenya Limited. On November 12, 2007, the shareholders of CFC Bank held an Extraordinary General Meeting approving the merger of CFC Bank and Stanbic Bank making it the largest banking merger in Kenya's history. At the point of the merger, the bank was 96.31% owned by Standard Bank through Stanbic Africa Holdings Limited (SAHL) and the balance of 3.69% held by the Government of Kenya.

The Group is exposed to several risk such as credit and compliance risk. Compliance risk is the risk of legal or regulatory sanctions, financial loss or damage to reputation that the Bank may suffer as a result of its failure to comply with laws, regulations, codes of conduct and standards of good practice that are applicable to its business activities. This includes the exposure to new laws as well as changes in interpretations of existing laws by appropriate authorities. Examples of such risks include financial crime, Money laundering and terrorist financial control among others. To mitigate this , the Bank is subjected to extensive supervisory and regulatory regimes, and while the executive management remains responsible for overseeing the management of the Bank's compliance risk, SBG compliance actively engages with management and the compliance officers within subsidiaries to proactively support the generation of legal, ethical and profitable business.

Currently, CFC Stanbic has over 395 million shares with about 4100 shareholders. Its market capitalization stands at 30.439 billion with a share price of Ksh.80. Those who hold 1000000 shares and less constitute about 13% of the total shareholding adding up to

53 million shares while 87% is held by 24 shareholders who jointly own over 340 million shares as illustrated in table 4.9 (a) below:

Table 4.9 (a): Distribution of Shareholders of CFC Stanbic Bank Ltd. as at 31.12.2015:

Number of shares	Number of shareholders	Number of shares held	% shareholding
Less than 500	1,643	317,436	0.08
501 - 1,000	518	431,937	0.12
1,001 - 5,000	906	2,236,552	0.57
5,001 - 10,000	439	3,284,418	0.83
10,001 - 50,000	372	8,320,326	2.10
50,001 - 100,000	89	6,261,054	1.58
100,001 - 500,000	93	19,924,641	5.04
500,001 - 1,000,000	19	12,833,635	3.25
1,000,001 and above	24	341,711,639	86.44
Total	4,103	395,321,638	100.00

Source: www.standardbank.com 2016

Stanbic Africa Holdings Ltd tops the list of the largest shareholders in CFC Stanbic Bank with over 163.7 million shares which constitute about 41% of the total shareholding. This implies therefore that CFC Stanbic is an associate of Stanbic Africa Limited. The least among the 10 top shareholders is Sovereign Trust Ltd which owns 3.6 million shares translating to 0.98% of the total shareholding as shown in table 4.9 (b) below;

Table 4.9 (b): List of CFC Stanbic Bank Ltd. Major Shareholders as at 31.12.2015

No.	Name of Shareholder	No. of Shares	% Holding
1	Stanbic Africa Holdings Ltd. (UK)	163,715,735	41.41
2	CfC Stanbic Nominees (K) Ltd Non-Resident	73,477,246	18.59
3	Standard Chartered Nominees Non-Resident	29,520,128	7.47
4	Standard Chartered Nominees Non-Resident	16,024,572	4.05
5	Standard Chartered Kenya Nominees Ltd	6,414,100	1.62
6	Archer & Wilcock Nominees Limited	6,125,000	1.55
7	Standard Chartered Nominees Non-Resident	5,705,533	1.44
8	The Permanent Secretary to the Treasury of Kenya (On Behalf of the Government of Kenya)	4,342,548	1.10
9	SCB A/C Pan African Unit Linked Fd	4,335,400	1.10
10	Sovereign Trust Ltd	3,670,617	0.93
Total Holding		313,330,879	79.26

Source: www.standardbank.com 2016

4.4 Data Analysis and Interpretation

To achieve better analysis, the study used descriptive and inferential analytical techniques to analyze the data obtained. The study applied generalized methods of moments (GMM) system estimator regression models to investigate the relationship between the independent variables or predictor variables and the dependent or criterion variable. Subsequently, the four hypothesis of the study were tested at 5% level of significance using the z -tests. The z calculated values were derived from the STATA program and compared against the z table values. Where the calculated z values were found to lie within the accepted region, the researcher accepted the test and concluded that the variables have effect on the profitability of the firm and vice versa.

4.4.1 Descriptive Statistics

The data sample in this study used annual figures of ROAA and ROAE from the 7 NSE listed commercial banks whose attributes have been presents in the preceding section. The period studied was 2004-2015. Since all the above banks had complete information for every year our dataset was a strongly balanced panel data. Table 4.10 presents descriptive statistics on the dependent variables representing the profitability of the banks, the determinants employed in this study. According to these statistics, the average ROAA for the sample was 4.2% while the average ROAE value was 42.9%. When the independent variables were analyzed, the averaged stock market volatility which is defined as a natural logarithm of monthly share return of the stock exchange, registered a mean value of 0.0511. The average stock market capitalization for the sample was Kes 1,075.74 Billion, while the average stock market turnover was Kes 444,000,000. Finally, the average stock market trading volume was 11,700,000 shares.

Table 4.10: Descriptive Statistics

Variable	Definition	Mean	SD	Min	Max	Obs
<i>Dependent Variables</i>						
ROAA	Return on Average Asset	4.236	1.498	-1.36	7.39	84
ROAE	Return on Average Equity	42.903	19.196	-49.87	90.28	84
<i>Independent Variables</i>						
Stock Market Volatility	Monthly share return of stock exchange	0.0511	0.024	0.0178	0.1033	84
Stock Market Capitalization		1075.739	607.686	301.469	2195.571	84
Stock Market turn over		4.44e+08	4.04e+08	6.66e+07	1.58e+09	84
Stock Market Trading Volume		1.17e+07	1.05e+07	2647795	3.50e+07	84

Source: Research Data, 2016.

4.4.1 Regression Analysis

We had a balance panel of 7 NSE listed commercial banks for 12 years from 2004 to 2015. Since our data had bank fixed effects, dynamic dependent variables, and endogenous independent variable properties, the more appropriate Generalized Method of Moments was applied to examine to what extent the profitability of NSE listed commercial banks in Kenya are by the performance of the Nairobi Securities Exchange. For dynamic panel models having fixed effects and endogenous regressors, the system GMM panel estimator is considered the best (Blundell & Bond, 1998). Thus, our study employed system GMM using dependent variables ROAA and ROAE. The panel data regression results are presented the following Table 4.11.

Table 4.11: Regression Analysis Model Summary

PANEL DATA A: DEPENDENT VARIABLE: ROAA						
Variable	Coef.	Std. Err.	z	P>z	[95% Conf.Interval]	
ROAA L1.	.762858	.0838923	9.09	0.000	.598432	.927284
STOCKMARKETVOLATILITY	-7.021848	3.523219	-1.99	0.046	-13.92723	-.1164653
STOCKMKTCAPT	.0008399	.000853	0.98	0.325	-.000832	.0025118
STOCKMKTTTO	-1.88e-09	7.50e-10	-2.50	0.012	-3.35e-09	-4.08e-10
STOCKMKTTTRADINGVOL	-2.00e-08	2.84e-08	-0.70	0.482	-7.56e-08	3.57e-08
CONSTANT	1.729897	.4413619	3.92	0.000	.8648441	2.594951

PANEL DATA B: DEPENDENT VARIABLE: ROAE						
Variable	Coef.	Std. Err.	z	P>z	[95% Conf. Interval]	
ROAE L1.	.2564297	.0713499	3.59	0.000	.1165864	.396273
STOCKMARKETVOLATILITY	-60.51454	54.02435	-1.12	0.263	-166.4003	45.37125
STOCKMKTCAPT	-.0120356	.0119078	-1.01	0.312	-.0353745	.0113033
STOCKMKTTTO	-3.20e-09	1.04e-08	-0.31	0.758	-2.36e-08	1.72e-08
STOCKMKTTTRADINGVOL	3.14e-07	3.93e-07	0.80	0.424	-4.56e-07	1.08e-06
CONSTANT	46.03501	5.712566	8.06	0.000	34.83859	57.23144

Source: Research Data, 2016.

The regression results shown in table 4.11 indicated both insignificant and significant influence on the dependent variable by the independent variables. According to the results of the first model which is displayed in Panel A., stock market volatility is significant in explaining the variation in bank profitability when it is measured by ROAA. However, in Panel B. stock market volatility does not have significant impact on bank profitability whose proxy is ROAE. Analyses of the coefficients show that stock market volatility is significantly and negatively related to ROAA but negatively insignificantly related to ROAE, hence the more volatile the stock market is, the lower the ROAA and ROAE of the banks respectively. These findings are not in tandem with those of Albertazzi and Gambacorta (2010) and Floros and Tan (2012) who reported a significant and positive relationship between stock market volatility and ROE.

The negative and significant coefficient of the market stock turnover shows that as stock trading increases vis a vie the size of the securities market the lower the profitability of

the commercial banks as indicated by the ROAA. The effects of this variable is however insignificant when it is regressed against ROAE.

Interestingly, the results of the remaining explanatory variables are qualitatively similar in both models: Stock market capitalization and stock market trading volume are insignificantly related to both ROAA and ROAE. These findings are in line with those of Ongore and Kusa (2013), who found out that the direction and effect of macroeconomic variables on the performance of commercial banks in Kenya to be inconclusive. Contrarily, these results do not agree with those of Dietrich and Wanzenried (2010), who argued for a possibility of a positive relationship between stock market capitalization and the profitability of a bank since banks benefit from deposit fees for managing the portfolios of their customers with stock holdings.

4.5 Hypotheses Testing

In this section, the specific objective to the research is highlighted, hypotheses are tested and implications discussed. ROAA which is considered the best proxy measure for bank profitability was adopted in this study.

H₀₁: Stock Market volatility has no significant effect on the profitability of listed commercial banks in Kenya.

Regression results showed that the stock market volatility does significantly influence profitability of listed commercial banks (p value=0.046 and z value = -1.99) and thus we reject the null hypothesis. The implication of this is that if the stock market is labeled volatile (with prices varying greatly over time), it does significantly influence profitability of listed commercial banks.

H₀₂: Stock market capitalization has no significant effect on the profitability of listed commercial banks in Kenya.

From the regression it can be noted that the stock market capitalization does not significantly influence profitability of listed commercial banks (p value = 0.325 and z value =0.98) and thus we fail to reject the null hypothesis. This means that the variation in value of equity transactions as a share of national input does not significantly influence profitability of commercial banks.

H₀₃: Stock market turnover has no significant effect on the profitability of listed commercial banks in Kenya.

Regression results also showed that stock market turnover significantly influenced listed banks' profitability (p value = 0.012 and t value = -2.50) and thus we reject the null hypothesis. The implication of this is that if there is variation in the value of traded shares as percentage of total market capitalization (the value of stocks listed on the exchange), the profitability of commercial banks listed in the bourse will also vary significantly.

H₀₄: Stock market trading volume has no effects on the profitability of listed commercial banks in Kenya

Finally, we can also note from the regression that stock market trading volume also insignificantly influenced listed commercial bank's profitability (p value = 0.482 and z value = -0.70) hence we fail to reject the null hypothesis. This means that regardless of the level of trade volume (great or small) profitability of listed commercial will not be significantly be affected by such changes.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the discussion, conclusions, and recommendations arising out of the research findings in chapter four and suggests areas for further study. The study has generated several findings of which are in line with existing literature and previous research findings. The overall objective of this study was to investigate the effect of stock market volatility on the profitability of Commercial Banks listed in the Nairobi Securities Exchange. More specifically, the study sought to establish the extent to which Stock market volatility; Stock market capitalization, Stock market turnover and Stock market trading volume affect profitability of listed Commercial Banks.

5.2 Summary of Findings

The study findings indicated that several firms in the bourse have several subsidiaries but don't refer themselves as Group or Holding companies. It is therefore safe to state that various motives such as to improve stock value, growth rate, revenue earnings, stability and efficiency hence profitability entice companies to list. Only eleven commercial banks have listed at the Nairobi securities exchange, this is quite a small bunch compared to the number of those registered and already operating in Kenya (41). This could be attributed to the fact that non listed banks are in constant fear of vigorous accountability or the listing conditions could be too harsh for some of them to list. The disclosure rules also could be a major reason why they do not wish to be enjoined since listed firms are required by the Capital Market Authority to unveil information whose secrecy may be crucial for their competitive advantage, such as data about ongoing R&D projects or future marketing strategies. They are also exposed to close scrutiny from tax authorities, thereby reducing their tax elusion and evasion scope relative to private companies.

The first objective of this study was to assess the effect of stock index volatility on profitability of listed Commercial Banks. Data analysis and interpretation revealed a

significant negative impact of stock market volatility on profitability of listed commercial banks (p value=0.046 and z value = -1.99). This means that any drastic decrease or increase in value of a given stock within a predetermined period of time will affect profitability of individual listed commercial banks.

The second objective examined in the study was the effects of stock market capitalization on the profitability of listed Commercial Banks. This according to Dietrich & Wanzenried (2010), Stock market capitalization refers to the value of the listed value of listed shares to the GDP. Data analysis indicated that the total value of shares traded on a securities exchange as share of GDP did not significantly influence the profitability of listed commercial banks (p value = 0.325 and z value =0.98).

The third objective sought to determine the effect of stock market turnover on profitability of listed commercial banks. From the data analysis it was noted that the ratio of securities trading relative to the size of the stock market significantly affected the profitability of commercial banks (p value = 0.012 and z value = -2.50). Finally, the stock market trading volume was documented to have an insignificant effect on the profitability of commercial banks (p value = 0.482 and z value = -0.70).

5.3 Conclusions

Our results carry important implications for investors, managers and policy makers who are curious about the information related to the factors affecting the profitability of commercial banks. Overall, the results suggest that specific aspects of the stock market; stock market volatility measured by the 20 share index and the stock market turnover are significant in explaining variations in the profitability of listed commercial bank in Kenya. More importantly, these findings indicate negative significant relationships between the dependent variable and the two independent variables. However, similar studies carried out in Europe and China portrayed a significant positive relationship between the proxy measures of bank performance and stock market volatility. One possible reason for this pronounced effect on bank profitability by variation in the stock market volatility in industrialized countries is due to the fact that there is a tendency of

heavy reliance on capital markets as avenues for financing; this is not the case in developing countries where the stock markets are under developed.

The deviation in profitability can be attributed majorly on macro-economic factors as well as based on firms' strengths and weaknesses. More importantly, it has to be noted that the shareholding of these lenders is largely on the hands of a few individuals whom at the end of the day regardless of the market conditions and the efforts of management to improve profitability, nothing much can translate into these institutions. Additionally, the periodic profitability of these listed commercial banks did not portray any significant difference; this could be attributed to the fact that majority of these banks are at least subsidiaries, or associates of one another.

5.4 Recommendations

Even though the research results indicated both significant and insignificant relationship between stock market volatility variables (Stock index volatility, stock market capitalization, stock market turnover and stock market trading volume) and profitability of commercial banks, this should not discount the importance of stock market volatility to the overall performance of any company because Stock market volatility could improve or harm the economy through a number of ways such as weakening or strengthen consumer confidence which in turn drives up or down consumer spending (Porteba, 2000). The impact of stock market volatility on consumer spending is related via the wealth effect. Increased wealth will drive up consumer spending while a fall in stock market will weaken consumer confidence thus driving down consumer spending (Mala & Reddy, 2007). Stock market volatility may also affect business investment spending and economic growth directly (Arestis, Demetriades, & Luintel, 2001). A rise in stock market volatility can be interpreted as a rise in risk of equity investment and thus a shift of funds to less risky asset (Mala & Reddy, 2007).

Since Stock market volatility is determined by a number of factors such as: credit policy, inflation rate, interest, financial leverage, corporate earnings, dividend yield policies, bond prices and many other macroeconomic, social and political variables. In order to achieve the right balance in respect to stock market volatility so as to effectively impact the

economic market as well as individual firms' performance appropriate measures have to be upheld by the relevant authorities. For these reasons, due consideration should be undertaken by the CMA and NSE who are the policy makers and regulators of the stock market to necessitate measures that focus on corporate governance, shareholder protection and proper code of conduct for brokers. To improve on foreign investment investor's security is paramount.

5.5 Areas for Further Research

This study therefore suggests that future studies should be done on specific factors such as the interest rate capping by the government and how it affects the profitability of listed commercial banks. The results of the study were based on data from a single country; hence, another suggestion for further research could be to conduct a comparative study employing data from other emerging markets so that the results can become more generalizable. Finally, the explanatory power of the regression model could not be high especially for using the NSE 20share index as a proxy for stock market volatility hence exploring the impact of a more robust explanatory variable such as the NSE all-share index could be a fruitful avenue for further research.

REFERENCES

- Abken, P., & Nandi, S. (1996). Options and Volatility. *Economic Review*, pp. 21-35.
- Abreu, M., & Mendes, V. (2002). Commercial bank interest margins and profitability: evidence from European countries. *Porto working paper series*.
- Adjasi, K. C., & Biekpe, N. (2006). Stock Market Development and Economic Growth: The Case of Selected African Countries. *African Development Review*, 18(1), 144-161.
- Ahmed, S. (2008). Aggregate Economic Variables and Stock Markets in India. *International Research Journal of Finance and Economics*, 14, 141-164.
- Albertazzi, U., & Gambacorta, L. (2009). Bank Profitability and Business Cycle. *Journal of Financial Stability*, 5(4), 393-409.
- Albertazzi, U., & Gambacorta, L. (2010). Bank Profitability and Taxation. *Journal of Banking and finance*, 34, 2801-2810.
- Anyanwu, J. (1993). *Monetary Economics: Theory, Policy and Institutions*. Benin: Hybrid Professional Publishers Ltd.
- Arestis, P., Demetriades, P., & Luintel, K. (2001). Financial Development and Economic Growth: The Role of Stock Markets. *Journal of Money, Credit and Banking*, 33(2), 16-41.
- Arif, A., & Anees, A. N. (2012). Liquidity risk and performance of banking system. *Journal of financial regulation and compliance*, 20(2), 182-195.
- Arun, T., & Turner, J. (2004). *Corporate Governance of Banks in Developing Economies: Concepts & Issues*. Oxford: Blackwell Publishing Ltd.
- Athanasoglou, P. P., Brissimis, S. N., & Delis, M. D. (2005). *Bank-Specific, Industry-Specific and Macroeconomic Determinants of Bank Profitability*. Athens: Bank of Greece Working Paper 25.

- Athanasoglou, P., Delis, M., & Staikoras, C. (2006). Determinants of Bank Profitability in the south Eastern European Region. *Journal of Financial Decision Making*, 2, 1-17.
- Bank for International Settlements. (2008). *Principles for Sound Liquidity Risk Management and Supervision*.
- Beck, T., Cull, R., Fuchs, M., Getenga, J., Gatere, P., Randa, J., et al. (2009). *Banking Sector Stability, Efficiency, and Outreach in Kenya*.
- Beckett, S., & Sellon Jr, G. (1989, June). Has Financial Markets Volatility Increased? *Economic Review, Federal Reserve Bank of Kansas City*, pp. 17-30.
- Ben-Naceur, S., & Goaid, M. (2008). Determinants of commercial bank interest margin & profitability: Evidence from Tunisia. *Frontiers in Finance and Economics*, 5(1), 106–130.
- Ben-Naceur, S., & Omran, M. (2011). The effects of bank regulations, competition, and financial reforms on banks' performance. *Emerging Markets Review*, 12(1), 1-20.
- Berger, A. (1995). The profit-structure relationship in banking: the of market power and efficient-structure hypotheses. *Journal of Money, Credit and Banking*, 27, 404-431.
- Berger, A. (1995b). The Relationship between capital and earnings in banking. *Journal of Money, Credit and Banking*, 27(2), 432-456.
- Bessis, J. (2009). *Risk Management*. John Wiley & Sons.
- Bryant, J. (1980). A Model of Reserves, Bank Runs, and Deposit Insurance. *Journal of Banking and Finance*, 3, pp. 335-344.
- Bunda, I., & Desquilbet, J. (2008). The Bank Liquidity Smile Across Exchange Rate Regimes. *International Economic Journal*, 22(3), 361-386.
- Central Bank of Kenya. (2002). Liquidity Regulations Supplement 72. Nairobi.

- Central Bank of Kenya. (2013). *Bank Supervision Annual Report 2013*. Nairobi: Central Bank of Kenya.
- Creswell, J. (2009). *Research Design: Qualitative, Quantitative and Mixed Approaches*. New York: SAGE Publications.
- Damena, H. (2011). *Determinants of commercial banks profitability: an empirical study on Ethiopian commercial banks-MSc project paper*. Addis Ababa University.
- Dang, U. (2011). *The CAMEL Rating System in Banking Supervision*. Arcada University of Applied Sciences and International Business.
- Diamond, D., & Rajan, R. (2001). Liquidity Risk, Liquidity Creation, and Financial Fragility: A Theory of Banking. *The Journal of Political Economy*, 109(2), 287-327.
- Dietrich, A., & Wanzenried, G. (2009). Determinants of Bank Profitability Before and during the crisis: Evidence from Switzerland. *Journal of International Financial Markets, Institutions, and Money*, 21(3), 307-327.
- Dodds, J. (1982). The Term Structure of Interest Rates: A Survey of the Theories and Empirical Evidence. *Managerial Finance*, 8(2), pp. 22-31.
- European Central Bank. (2010). *Beyond ROE – How to Measure Bank Performance*. Frankfurt: European Central Bank.
- Fama, E. (1965). The Behavior of Stock Market Prices. *Journal of Business*, 38(1), 34-105.
- Fielding, D. (2005). Shorthand Political Violence and Express Liquidity in Egypt. *Journal of Development Studies*, 41(4), 542-557.
- Flamini, V., McDonald, C., & Schumacher, L. (2009). Determinants of commercial bank profitability in Sub-Saharan Africa. *IMF Working Paper*, 1-30.
- Floros, C., & Tan, Y. (2012). Stock Market Volatility and Bank Performance in China. *Studies in Economics and Finance*, 29(3), 211-228.

- French, K. (1980). Stock Return and Weekend Effect. *Journal of Financial Economics*, 8(1), 55-69.
- Gabriel, A. M. (2012). Volatility Estimation and Stock Price Prediction in the Nigerian Stock Market. *International Journal of Financial Research*, 3(1).
- Garcia-Herrero, A., Gavila, S., & Santabarbara, D. (2009). What explain the low profitability of Chinese banks. *Journal of Banking and Finance*, 33(11), 2080-2092.
- Gorton, G., & Huang, L. (2002). *Liquidity, Efficiency and Bank Bailouts*. Washington DC: National Bureau of Economic Research.
- Greenwood, J., & Smith, B. (1997). Financial Markets in Development and the Development of Financial Markets. *Journal of Economic Dynamics and Control*, 21, 145-181.
- Grouard, M., Levy, S., & Lubochinsky. (2003). *Stock Market Volatility: From Empirical Data to their Interpretation*. Paris: Banque de France.
- Gul, S., Irshad, F., & Zaman, K. (2011). Factors affecting bank profitability in Pakistan. *The Romanian Economic Journal*, 14(39), 61-87.
- Guru, B., Staunton, J., & Balashanmugam, B. (2002). *Determinants of commercial bank profitability in Malaysia-Working Paper*. University of Multimedia .
- Halling, M., & Hayden, E. (2006). Banking failure prediction:a two-step survival time approach. *C.R.E.D.I.T Conference* (p. 31). Vienna: Austrian National Bank.
- Hearn, B., & Piesse, J. (2010). Barriers to the Development of Small Stock Markets: A Case Study of Swaziland and Mozambique. *Journal of International Development*, 22, 1028-1037.
- Heffernan, S., & Fu, M. (2008). *The Determinants of Bank Performance in China*. EMG Working Paper Series.

- Heffernan, S., & Fu, X. (2010). Determinants of financial performance in Chinese Banking. *Applied Financial Economics*, 20(20), 1586-1600.
- Hubbard, R. G. (2008). *Money, The Financial System, and the Economy. 6th Edition.* Boston: Pearson Education, Inc.
- Ibrahim, M. (2011). Stock Market Development and Macroeconomic Performance in Thailand. *Inzinerine Ekonomika-Engineering Economics*, 22(3), 230-240.
- Ilhomovich, S. (2009). Factors Affecting the Performance of Foreign Banks in Malaysia. Malaysis College of Business.
- Kamau, A. (2009). *Efficiency in the Banking Sector: An Empirical Investigation of Commercial Banks in Kenya. A thesis submitted in partial fulfillment of Nairobi University for Degree of Doctor of Philosophy.* Nairobi: University of Nairobi.
- Kashyap, A., Raghuram, G. R., & Jeremy, C. (2002). Bank as Liquidity Providers: An Explanation for the Coexistence of Lending and Deposit Taking. *Journal of Finance*, 57, 33-73.
- Kosmiduo, K. (2008). The Determinants of Banks' profits in Greece during the period of EU financial intergration. *Managerial Finance*, 34(3), 146-159.
- Kothari, C. (2004). *Research Methodology-Methods and Techniques, 2nd Revised Edition.* New Delhi: New Age International Publishers.
- Levine, R. (1996, March). Stock Markets: A Spur to Economic Growth. *Finance & Development*, pp. 7-10.
- Levine, R. (1997). Financial Development and Economic Growth: Views and Agenda. *Journal of Economic Literature*, 35, 688-726.
- Litter, L., Silber, W., & Udell, G. (2004). *Principles of Money, Banking, and Financial Institutions.*
- Loose, J. (1993). *A Historical Introduction to the Philosophy of Science, 3rd ed.* Oxford: OPUS.

- Lucchetta, M. (2007). What Do Data Say About Monetary Policy, Bank Liquidity and Banking Risk Taking? *36(2)*, pp. 189-203.
- Mala, R., & Reddy, M. (2007). Measuring Stock Market Volatility in an Emerging Economy. *International Research Journal of Finance and Economics*, 8, 126-133.
- Mala, R., & White, M. (2006). Assessment of an Emerging Stock Market: The case for Fiji's Stock Market. *International Research Journal of Finance and Economics*, 6, 116-132.
- Mathuva, D. (2009). Capital Adequacy, Cost Income Ratio and Bank Performance of Commercial Banks: The Kenyan Scenario. *The International Journal Journal of Applied Economics and Finance*, 3(2), 35-47.
- Mishikin, F. (2004). *The Economics of Money, Banking and Financial Markets*. Boston.
- Mishikin, F. S. (2010). *The Economics Money, Banking and Financial Markets, 9th Edition*. Boston: Pearson Education, Inc.
- Molla, S. (2009). Stock Return & Volatility in Emerging Stock Market of Bangladesh. *Journal of Academy of Business & Economics*, 43(2), 29-78.
- Molyneux, P., & Thornton, J. (1992). Determinants of European bank profitability. *Journal of Banking and Finance*, 16(11), 73-1178.
- Munyambonera, E. (2013). Determinants of commercial bank profitability in Sub-Saharan Africa. *International Journal of Economics and Finance*, 5(9), 134-147.
- Ndichu, P., Ooko, E. M., & Muriithi, J. (2013). Factors Influencing Liquidity Level of Commercial Banks In Kisumu City, Kenya. *International Center for Business Research, volume 2*.
- Nwaezeaku, N. (2006). *Theories and Practise of Financial Management*. Owerri: Ever Standard Publishing.
- Nzongang, T., & Atemnkeng, J. (2006). *Market Structure and Profitability Performance in the Banking Industry of CFA Countries: The Case Of Commercial Banks In*

Cameroon. Retrieved on August 30 2014 from Journal of Sustainable Development in Africa:<http://www.jsdafrica.com/Jsda/Summer2006/PDF/ARC> Market Structure Profitability Performace.

Nzzotta, S. (2004). *Money, Banking and Finance: Theory and Practise*. Owerri.

Olweny, T., & Shipho, T. M. (2011). Effects of Banking Sectoral Factors on the Profitability of Commercial Banks in Kenya. *Economics and Finance Review*, 1(5), 01-30.

Ongore, V. O., & Kusa, G. B. (2013). Determinants of Financial performance of Commercial Banls in Kenya. *International Journal of Economics and Financial Issues*, 3(1), 237-252.

Osahon, O. H. (2014). Measuring Nigerian Stock Market Volatility. *Singaporean Journal of Business Economics, and Management Studies*, 2(8).

Panayiotis, P., & al, e. (2005). *Bank Specific, Industry-Specific and Macroeconomic Determinants of Bank profitability*. Bank of Greece.

Parsons, T., & Shils, E. (1962). *Towards a General Theory of Action*. New York: Harper and Row.

Pasiouras, F., & Kosmidou, K. (2007). Factors influencing the profitability of domestic & foreign commercial banks in European Union. *Research in International Business and Finance*, 21(2), 222-237.

Petra, T. (2007). *Panel Data; Fixed Effects Random Effects Dynamic Panel Data Models*. New York: Cambridge University Press.

Porteba, J. (2000). Stock Market Wealth and Consumption. *Journal of Economic Perspectives*, 39(4), 1127-1139.

Ramakrishnan, T., & Thakor, A. (1984). Information Reliability and the Theory of financial Intermediation. *Journal of Money Credit and Banking* , 621-650.

- Rauch, C., Steffen, S., & Hackthal, A. (2009). *Saving Banks, Liquidity Creation and Monetary Policy*. Available:<http://papers.ssrn.com/sol13/papers.cfm>.
- Rose, S., & Fraser, D. (1976). The relationship between stability and change in market structure: analysis of bank prices. *Journal of Industrial Economics*, 24, 251-266.
- Said, R., & Tumin, M. (2011). Performance & financial ratios of commercial banks in Malaysia & China. *International Review of Business Research Papers*, 7(2), 157-169.
- Saunders, M., Lewis, P., & Thornhill, A. (2012). *Research Methods for Business and Students, 6th Edition*. Harlow: Pearson Education Ltd.
- Schwert, G. (1990). Stock Market Volatility. *Finance Analyst Journal*, 46(3), 23-34.
- Semu, S. (2010). *Impact of reducing loan by Ethiopian banks on their own performance-MBL Thesis*. University of South Africa.
- Short, B. (1979). The Relationship between commercial bank profits and banking contraction in Canada, Western Europe and Japan. *Journal of Banking and Finance*, 3, 209-219.
- Spindt, P., & Tarhan, V. (1980). Liquidity Structure Adjustment Behavior of Large Money Center Banks. *Journal of Money, Credit and Banking*.
- Sufian, F. (2011). Profitability of the Korean banking sector: panel evidence on bank specific & macroeconomic determinants. *Journal of Economics and Management*, 7(1), 43-72.
- Sufian, F., & Chong, R. (2008). Determinant of bank profitability in a developing economy: empirical evidence from the Philippines. *Asian Academy of Management Journal of Accounting & Finance*, 4(2), 91-112.
- Sufian, F., & Habibulah, M. S. (2009). Bank Specific and Macroeconomic Determinants of Bank Profitability: Empirical Evidence From the China Banking Sector. *Frontiers of Economics in China*, 274-291.

- Sufian, F., & Habibullah, M. S. (2009). Determinants of Bank Profitability in a Developing Economy: Empirical Evidence from Bangladesh. *Journal of Business Economics and Management*, 10(3), 207-217.
- Sufian, F., & Noor-Mohamad-Noor, A. (2012). Determinants of bank performance in a developing economy: does bank origins matters. *Global Business Review*, 13(1), 1-23.
- Tan, Y., & Floros, C. (2012). Stock Market Volatility and Bank Performance in China. *Studies in Economics and Finance*, 29(3), 211-228.
- Thapa, B. (2012). Stock Market Volatility in Nepal. *New Dimensions and Innovations in Management*. Kathmandu: Uniglobe College.
- Thapa, B. (2012). *Stock Volatility in Nepal*. Kathmandu: Central Department of Management, Tribhuvan University.
- The Bank of Mauritius. (2007). *Guidelines and Banking Act*. The Bank of Mauritius.
- Think Business. (2014). *The Banking Survey-Kenya*. Think Business Publication.
- Tregenna, F. (2009). Fat years: The structure and profitability of the US banking sector in the pre-crisis Period. *Cambridge Journal of Economics*, 33(4), 609-632.
- Trehan, R. (2008). *Market-based finance versus Bank-based finance*. CCF Media.
- Valla, N., & Saes-Escorbiac. (2006). *Bank Liquidity and financial Stability*. Banque De France Financial Stability Review.
- Victor, O. (2005). *Does the Stock Market Matter in Ghana? A granger-Causality Analysis*, Bank of Ghana, Bank of Ghana Working Paper Series WP/BOG-2005/13,. Ghana: Research Department for Bank of Ghana.
- Vodová, P. (2009). Determinants of Commercial Banks' Liquidity in the Czech Republic. Karviná, CZECH REPUBLIC.

Yartey, C. A. (2008). *Determinants of Stock Market Development in Emerging Economies: Is South Africa Different? IMF working Paper-WP/08/32* .
Washington: IMF working Paper-WP/08/32 .

APPENDICES

Appendix 1: LIST OF NSE LISTED COMMERCIAL BANKS IN KENYA

1. Barclays Bank of Kenya Limited
2. CFC Stanbic Bank
3. Co-operative Bank of Kenya
4. Diamond Trust Bank (Kenya) Limited
5. Equity Bank Limited
6. Kenya Commercial Bank Limited
7. National Bank of Kenya Limited
8. NIC Bank Limited
9. Standard Chartered Bank Kenya Limited
- 10. I&M Bank**

Appendix 2: RAW DATA-ROAA/ROAC FOR LISTED COMMERCIAL BANKS (2004-2015)

	BBK		CFC		DTB		KCB		NBK		NIC		STANCHART	
	ROAA	ROAC	ROAA	ROAC	ROAA	ROAC	ROAA	ROAC	ROAA	ROAC	ROAA	ROAC	ROAA	ROAC
2004	5.40	61.14	1.43	19.60	2.65	25.35	1.65	20.04	2.63	-49.87	2.16	16.21	4.10	56.75
2005	5.03	53.97	3.35	32.95	3.10	37.79	2.63	29.37	2.72	52.39	2.90	17.38	5.02	68.35
2006	5.83	59.34	4.51	48.76	3.57	54.57	3.66	35.48	2.72	38.82	3.66	28.60	4.95	56.12
2007	5.14	59.61	3.96	51.12	3.73	55.56	3.95	44.30	4.15	52.79	4.02	41.30	5.71	58.61
2008	4.92	54.54	2.23	45.24	3.50	47.30	3.85	62.52	4.27	46.01	3.39	43.92	4.96	54.45
2009	5.40	48.66	1.48	29.31	3.27	45.99	3.26	48.03	4.59	42.70	4.90	33.45	6.04	73.54
2010	6.39	51.10	2.06	33.15	4.61	71.12	4.39	57.87	4.84	42.25	5.07	49.91	5.76	76.86
2011	7.07	47.47	2.53	42.68	4.01	54.22	5.27	53.14	3.80	30.21	5.07	54.83	5.38	74.84
2012	7.39	45.33	3.45	52.14	5.41	62.57	5.47	43.58	1.69	12.30	4.92	54.06	6.40	90.28
2013	6.08	39.65	4.61	36.63	5.30	40.88	5.64	38.12	2.23	17.85	4.86	39.14	6.40	56.12
2014	5.68	38.17	4.32	32.48	4.94	33.82	6.39	41.14	2.17	22.58	4.86	36.93	6.45	52.21
2015	5.17	35.61	3.83	28.20	4.25	29.60	5.55	41.16	-1.36	-16.74	3.29	23.94	3.92	34.40

Appendix 3: RAW DATA-MONTHLY NSE 20 SHARE INDICES (2004-2015)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
JAN	3,157.88	3,094.38	4,171.80	5,774.27	4,712.71	3,198.90	3,565.28	4,464.92	3,224.18	4,416.60	4,856.15	5,212.11
FEB	3,175.36	3,212.81	4,056.63	5,387.28	5,072.41	2,474.75	3,629.41	4,240.18	3,303.75	4,518.59	4,933.41	5,491.37
MAR	2,770.60	3,126.07	4,101.64	5,133.67	4,843.17	2,805.03	4,072.93	3,887.07	3,366.89	4,860.83	4,945.78	5,248.16
APR	2,707.60	3,227.59	4,025.21	5,199.44	5,336.03	2,800.10	4,233.24	4,029.23	3,546.66	4,765.23	4,948.97	5,091.43
MAY	2,689.14	3,505.39	4,349.75	5,001.77	5,175.83	2,852.57	4,241.81	4,078.10	3,650.85	5,006.96	4,881.56	4,786.74
JUN	2,639.75	3,972.15	4,260.49	5,146.73	5,185.56	3,294.56	4,339.28	3,968.12	3,703.94	4,598.16	4,885.04	4,906.07
JUL	2,708.03	3,982.00	4,271.68	5,340.08	4,868.27	3,273.10	4,438.58	3,738.46	3,832.42	4,787.56	4,906.09	4,404.72
AUG	2,708.86	3,938.70	4,486.07	5,371.72	4,648.78	3,102.68	4,454.59	3,465.02	3,865.76	4,697.75	5,139.39	4,176.59
SEP	2,670.69	3,832.69	4,879.86	5,146.46	4,180.40	3,005.41	4,629.80	3,284.06	3,972.03	4,793.20	5,255.62	4,173.52
OCT	2,829.65	3,939.45	5,314.36	4,971.04	3,341.47	3,083.63	4,659.56	3,507.34	4,147.28	4,992.88	5,194.89	4,025.55
NOV	2,918.34	3,974.12	5,615.20	5,234.54	3,386.65	3,189.55	4,395.17	3,155.46	4,083.52	5,100.88	5,156.33	4,166.59
DEC	2,945.58	3,973.04	5,645.65	5,444.83	3,521.18	3,247.44	4,432.60	3,205.02	4,133.02	4,926.97	5,112.65	4,040.75

Appendix 4: RAW DATA-MONTHLY NSE STOCK MARKET CAPITALIZATIONS (2004-2015) (Kshs. Billion)

MONTH	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
JAN	263.55	330.88	481.29	827.22	775.050	777.685	910.019	1,192.281	879.803	1,387.805	1,897.997	2,342.259
FEB	375.10	330.04	469.68	723.09	830.641	611.769	922.065	1,176.853	919.758	1,451.006	1,960.549	2,453.103
MAR	308.13	326.92	484.18	696.92	797.281	689.045	983.117	1,090.212	940.796	1,599.798	2,000.473	2,444.829
APR	302.73	335.76	486.78	718.10	907.96	683.309	1,049.504	1,154.922	984.866	1,601.926	2,106.075	2,422.981
MAY	287.33	287.33	614.91	709.69	916.62	693.726	1,076.306	1,144.207	1,005.193	1,720.431	2,091.655	2,267.713
JUN	274.41	274.41	623.20	743.91	1,230.68	821.762	1,108.654	1,121.440	1,048.717	1,618.270	2,106.691	2,301.879
JUL	287.87	287.87	617.64	780.72	1,122.24	827.080	1,142.581	1,049.872	1,098.902	1,727.382	2,125.306	2,077.768
AUG	286.79	286.79	668.67	813.17	1,081.86	785.266	1,136.072	950.392	1,117.394	1,686.642	2,216.573	2,005.601
SEP	288.59	288.59	726.97	791.66	972.27	771.612	1,173.698	885.571	1,155.988	1,790.854	2,295.950	2,063.644
OCT	297.72	297.72	771.95	745.290	764.98	783.952	1,220.890	927.000	1,217.092	1,873.657	2,248.232	1,930.809
NOV	331.27	331.27	806.22	804.067	791.575	825.819	1,169.168	846.550	1,234.465	1,975.004	2,307.289	2,018.133
DEC	314.15	314.15	791.58	851.13	853.880	834.165	1,166.992	868.241	1,272.002	1,920.718	2,300.054	2,018.133

Appendix 5: RAW DATA-MONTHLY NSE STOCK MARKET TURN OVER (2004-2015) (Kshs.)

Month	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Jan	135,212,442	99,676,385	232,658,565	367,510,229	440,006,623	70,446,877	159,236,501	278,824,124	151,114,598	382,932,593	1,198,559,155	744,394,073
Feb	192,428,825	19,498,386	147,606,358	309,786,839	800,405,148	106,296,745	167,943,050	284,686,529	323,711,390	253,658,510	1,001,978,130	896,753,641
March	91,195,096	100,222,555	128,081,195	359,930,314	220,450,005	98,516,458	520,137,461	583,056,985	232,361,569	480,467,486	464,291,134	669,284,741
April	89,970,692	76,284,400	117,356,066	129,968,109	463,448,309	109,978,375	155,295,535	631,479,971	327,685,181	580,920,047	1,263,261,021	629,133,838
May	53,669,212	53,669,212	403,006,712	337,970,739	281,456,462	98,241,460	142,561,525	480,715,028	494,452,398	750,660,405	1,323,222,832	2,034,287,489
June	98,695,021	98,695,021	387,632,714	307,192,331	498,512,405	300,092,660	372,052,527	250,017,123	155,397,377	176,969,289	495,373,346	8,928,259,051
July	36,717,489	36,717,489	250,230,559	334,440,750	262,186,182	158,330,410	383,283,517	134,687,537	319,162,348	391,785,328	723,983,473	1,236,539,495
Aug	73,349,658	73,349,658	463,143,000	530,854,004	632,489,847	457,811,390	300,814,706	120,661,610	195,781,555	654,404,874	542,831,594	511,802,870
Sep	52,123,195	52,123,195	625,295,797	318,556,729	190,363,714	420,186,130	344,973,623	183,108,546	476,863,848	569,543,858	1,184,667,679	1,427,981,299
Oct	82,846,813	82,846,813	1,072,849,782	345,537,664	173,638,665	339,722,180	326,809,527	202,959,792	506,411,904	841,360,691	808,744,227	203,622,690
Nov	79,239,683	79,239,683	572,557,878	392,667,913	113,115,060	129,745,370	452,106,727	345,744,506	361,361,422	340,934,915	918,133,139	801,858,027
Dec	27,383,149	27,383,149	331,959,711	505,239,417	203,093,028	61,501,855	115,293,947	73,778,542	107,836,510	302,735,401	1,238,437,759	841,360,691

Appendix 6: RAW DATA-MONTHLY NSE STOCK MARKET TRADING VOLUME (2004-2015)

	2,004	2,005	2,006	2,007	2,008	2,009	2,010	2,011	2,012	2,013	2,014	2,015
Jan	6,360,453	1,413,277	3,420,206	5,521,727	11,376,464	8,634,808	15,263,700	22,119,800	6,056,800	32,296,500	52,141,000	21,405,500
Feb	3,799,737	2,559,055	3,509,118	5,821,386	8,168,747	5,306,918	32,119,100	24,318,700	9,581,800	19,673,000	20,978,200	23,810,900
Mar	4,830,033	1,541,572	3,654,030	7,641,660	4,204,140	8,749,250	19,817,900	29,633,300	1,268,500	35,993,800	34,453,800	17,193,100
Apr	1,193,185	2,905,459	9,769,008	3,965,916	7,338,300	6,129,600	13,900,700	10,459,900	21,296,000	12,139,800	30,218,200	34,958,100
May	1,036,921	1,036,921	9,221,349	7,641,660	10,491,000	21,957,400	23,874,200	11,079,100	23,834,100	32,402,700	75,506,500	24,253,800
June	7,226,770	6,415,783	6,140,842	10,492,538	86,218,550	22,543,800	19,640,400	37,140,000	11,866,200	37,709,900	39,324,800	18,817,500
July	1,059,888	1,059,888	2,859,407	5,940,477	53,259,771	15,385,200	17,964,000	13,910,000	22,395,800	22,657,100	18,711,000	11,052,400
Aug	3,424,290	1,717,457	5,854,989	24,926,242	26,846,985	7,279,600	18,010,300	39,400,700	10,824,300	129,392,800	23,680,800	53,083,600
Sep	2,737,444	1,259,001	10,432,454	10,761,124	10,001,775	14,652,800	23,480,100	45,600,000	20,310,700	13,845,100	25,115,500	26,549,200
Oct	8,557,485	8,557,485	7,170,598	4,881,984	15,354,510	15,784,400	18,765,000	19,780,400	27,942,100	39,919,500	22,997,800	15,472,900
Nov	1,259,001	2,737,444	4,797,700	6,856,225	3,211,154	18,167,000	17,115,200	11,338,800	32,391,000	23,771,100	30,634,435	11,499,800
Dec	621,737	570,198	4,850,154	11,503,313	28,326,730	10,463,600	7,030,100	12,835,600	6,881,900	20,352,300	33,323,400	6,415,783

Appendix 7: PANEL DATA

BANK	TIME	ROAA	ROAE	STOCK MARKET VOLATILITY	STOCK MKT CAPT	STOCK MKT T/O	STOCK MKT TRADING VOL
BARCLAYS	2004	5.40	61.14	0.063767953	301.47	84,402,606	3,508,912.00
BARCLAYS	2005	5.03	53.97	0.045018989	307.64	66,642,162	2,647,795.00
BARCLAYS	2006	5.83	59.34	0.042231561	628.59	394,364,861	5,973,321.25
BARCLAYS	2007	5.14	59.61	0.041195918	767.08	353,304,587	8,829,521.00
BARCLAYS	2008	4.92	54.54	0.091531877	920.42	356,597,121	22,066,510.50
BARCLAYS	2009	5.40	48.66	0.103299969	758.77	195,905,826	12,921,198.00
BARCLAYS	2010	6.39	51.10	0.044529823	1,088.26	286,709,054	18,915,058.33
BARCLAYS	2011	7.07	47.47	0.053638950	1,033.96	297,476,691	23,134,691.67
BARCLAYS	2012	7.39	45.33	0.018027077	1,072.91	304,345,008	16,220,766.67
BARCLAYS	2013	6.08	39.65	0.046220420	1,696.12	477,197,783	35,012,800.00
BARCLAYS	2014	5.68	38.17	0.017786248	2,138.07	930,290,291	33,923,786.25
BARCLAYS	2015	5.17	35.61	0.046462122	2,195.57	1,577,106,492	22,042,715.25
CFC	2004	1.43	19.60	0.063767953	301.47	84,402,606	3,508,912.00
CFC	2005	3.35	32.95	0.045018989	307.64	66,642,162	2,647,795.00
CFC	2006	4.51	48.76	0.042231561	628.59	394,364,861	5,973,321.25
CFC	2007	3.96	51.12	0.041195918	767.08	353,304,587	8,829,521.00
CFC	2008	2.23	45.24	0.091531877	920.42	356,597,121	22,066,510.50
CFC	2009	1.48	29.31	0.103299969	758.77	195,905,826	12,921,198.00
CFC	2010	2.06	33.15	0.044529823	1,088.26	286,709,054	18,915,058.33
CFC	2011	2.53	42.68	0.053638950	1,033.96	297,476,691	23,134,691.67
CFC	2012	3.45	52.14	0.018027077	1,072.91	304,345,008	16,220,766.67
CFC	2013	4.61	36.63	0.046220420	1,696.12	477,197,783	35,012,800.00
CFC	2014	4.32	32.48	0.017786248	2,138.07	930,290,291	33,923,786.25
CFC	2015	3.83	28.20	0.046462122	2,195.57	1,577,106,492	22,042,715.25
DTB	2004	2.65	25.35	0.063767953	301.47	84,402,606	3,508,912.00
DTB	2005	3.10	37.79	0.045018989	307.64	66,642,162	2,647,795.00
DTB	2006	3.57	54.57	0.042231561	628.59	394,364,861	5,973,321.25
DTB	2007	3.73	55.56	0.041195918	767.08	353,304,587	8,829,521.00
DTB	2008	3.50	47.30	0.091531877	920.42	356,597,121	22,066,510.50
DTB	2009	3.27	45.99	0.103299969	758.77	195,905,826	12,921,198.00
DTB	2010	4.61	71.12	0.044529823	1,088.26	286,709,054	18,915,058.33
DTB	2011	4.01	54.22	0.053638950	1,033.96	297,476,691	23,134,691.67
DTB	2012	5.41	62.57	0.018027077	1,072.91	304,345,008	16,220,766.67

DTB	2013	5.30	40.88	0.046220420	1,696.12	477,197,783	35,012,800.00
DTB	2014	4.94	33.82	0.017786248	2,138.07	930,290,291	33,923,786.25
DTB	2015	4.25	29.60	0.046462122	2,195.57	1,577,106,492	22,042,715.25
KCB	2004	1.65	20.04	0.063767953	301.47	84,402,606	3,508,912.00
KCB	2005	2.63	29.37	0.045018989	307.64	66,642,162	2,647,795.00
KCB	2006	3.66	35.48	0.042231561	628.59	394,364,861	5,973,321.25
KCB	2007	3.95	44.30	0.041195918	767.08	353,304,587	8,829,521.00
KCB	2008	3.85	62.52	0.091531877	920.42	356,597,121	22,066,510.50
KCB	2009	3.26	48.03	0.103299969	758.77	195,905,826	12,921,198.00
KCB	2010	4.39	57.87	0.044529823	1,088.26	286,709,054	18,915,058.33
KCB	2011	5.27	53.14	0.053638950	1,033.96	297,476,691	23,134,691.67
KCB	2012	5.47	43.58	0.018027077	1,072.91	304,345,008	16,220,766.67
KCB	2013	5.64	38.12	0.046220420	1,696.12	477,197,783	35,012,800.00
KCB	2014	6.39	41.14	0.017786248	2,138.07	930,290,291	33,923,786.25
KCB	2015	5.55	41.16	0.046462122	2,195.57	1,577,106,492	22,042,715.25
NBK	2004	2.63	-49.87	0.063767953	301.47	84,402,606	3,508,912.00
NBK	2005	2.72	52.39	0.045018989	307.64	66,642,162	2,647,795.00
NBK	2006	2.72	38.82	0.042231561	628.59	394,364,861	5,973,321.25
NBK	2007	4.15	52.79	0.041195918	767.08	353,304,587	8,829,521.00
NBK	2008	4.27	46.01	0.091531877	920.42	356,597,121	22,066,510.50
NBK	2009	4.59	42.70	0.103299969	758.77	195,905,826	12,921,198.00
NBK	2010	4.84	42.25	0.044529823	1,088.26	286,709,054	18,915,058.33
NBK	2011	3.80	30.21	0.053638950	1,033.96	297,476,691	23,134,691.67
NBK	2012	1.69	12.30	0.018027077	1,072.91	304,345,008	16,220,766.67
NBK	2013	2.23	17.85	0.046220420	1,696.12	477,197,783	35,012,800.00
NBK	2014	2.17	22.58	0.017786248	2,138.07	930,290,291	33,923,786.25
NBK	2015	-1.36	-16.74	0.046462122	2,195.57	1,577,106,492	22,042,715.25
NIC	2004	2.16	16.21	0.063767953	301.47	84,402,606	3,508,912.00
NIC	2005	2.90	17.38	0.045018989	307.64	66,642,162	2,647,795.00
NIC	2006	3.66	28.60	0.042231561	628.59	394,364,861	5,973,321.25
NIC	2007	4.02	41.30	0.041195918	767.08	353,304,587	8,829,521.00
NIC	2008	3.39	43.92	0.091531877	920.42	356,597,121	22,066,510.50
NIC	2009	4.90	33.45	0.103299969	758.77	195,905,826	12,921,198.00
NIC	2010	5.07	49.91	0.044529823	1,088.26	286,709,054	18,915,058.33
NIC	2011	5.07	54.83	0.053638950	1,033.96	297,476,691	23,134,691.67
NIC	2012	4.92	54.06	0.018027077	1,072.91	304,345,008	16,220,766.67
NIC	2013	4.86	39.14	0.046220420	1,696.12	477,197,783	35,012,800.00
NIC	2014	4.86	36.93	0.017786248	2,138.07	930,290,291	33,923,786.25
NIC	2015	3.29	23.94	0.046462122	2,195.57	1,577,106,492	22,042,715.25
STANCHART	2004	4.10	56.75	0.063767953	301.47	84,402,606	3,508,912.00
STANCHART	2005	5.02	68.35	0.045018989	307.64	66,642,162	2,647,795.00

STANCHART	2006	4.95	56.12	0.042231561	628.59	394,364,861	5,973,321.25
STANCHART	2007	5.71	58.61	0.041195918	767.08	353,304,587	8,829,521.00
STANCHART	2008	4.96	54.45	0.091531877	920.42	356,597,121	22,066,510.50
STANCHART	2009	6.04	73.54	0.103299969	758.77	195,905,826	12,921,198.00
STANCHART	2010	5.76	76.86	0.044529823	1,088.26	286,709,054	18,915,058.33
STANCHART	2011	5.38	74.84	0.053638950	1,033.96	297,476,691	23,134,691.67
STANCHART	2012	6.40	90.28	0.018027077	1,072.91	304,345,008	16,220,766.67
STANCHART	2013	6.40	56.12	0.046220420	1,696.12	477,197,783	35,012,800.00
STANCHART	2014	6.45	52.21	0.017786248	2,138.07	930,290,291	33,923,786.25
STANCHART	2015	3.92	34.40	0.046462122	2,195.57	1,577,106,492	22,042,715.25