

**THE EFFECT OF FINANCIAL PERFORMANCE ON STOCK PRICE VOLATILITY
OF COMMERCIAL BANKS LISTED AT NAIROBI SECURITIES EXCHANGE**

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DECLARATION

This is my original work and has never been submitted for degree award in any other university.

Signature.....Date.....

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D63/84209/2015

This research project has been submitted for examination with our approval as university supervisors.

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DEDICATION

I dedicate this work to my dear husband and my little daughter for their inspiration.

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I pleased to acknowledge various people who were so critical in my education. First, I would like to thank my supervisors, Dr. Iraya for his exemplary instructions and guidance without which this project will not have been completed.

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To God, be thy Glory!

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LIST OF ABBREVIATIONS AND ACRONYMS

CAPT	Capital Asset Pricing Theory.
EMH	Efficient Market Hypothesis.
NII	Net Interest Income.
NIM	The Net Interest Margin.
NSE	Nairobi Security Exchange.
ROA	Return on Asset.
ROE	Return on Equity.
ROI	Return on Investment.

ABSTRACT

Volatility of the stock prices is inevitable, and has partially been attributed to uncertainties in macroeconomic factors such as inflation, exchange rate and poor economic growth rate. Studies have argued that financial performance of a firm listed at stock markets can affect the movement of its stock prices and that firms with strong financial position have highly valued share prices. Commercial banks in Kenya play a critical role in all sectors of the economy. Their sound performance contributes to a better and profitable banking sector as well as a stronger financial system which is better able to endure negative shocks Kenya's. The debate on the effect of bank financial performance and share price volatility is inconclusive due to limitation in the existing literature. Therefore, this study sought to investigate the effect of financial performance on the volatility of share prices, focusing on commercial banks in Kenya trading at the Nairobi Securities Exchange. The study is guided by Revenue and Investment Catering, Capital Asset Pricing and EMH (Efficient Market Hypothesis) theories. The target population for the study were all commercial banks listed at the NSE. There are 11 commercial banks trading at the NSE for which this study investigated. This study used a descriptive survey design to explain how financial performance affects stock price volatility of commercial banks listed at the NSE, and regression analysis with the help of Ordinary Least Square method to estimate the effects and levels of significance. The study concludes that, there is a negative and but, not significant relationship between the return on equity and share price volatility of commercial banks listed at the Nairobi Securities exchange. In addition, inflation was also found to be negative and significant. Furthermore, the study found that, there is a positive and significant relationship bank interest rate spreads and volatility in the share prices. Based on the findings, the study recommends that banks trading at the NSE needs to maintain a good financial performance because, this could help to mitigate against their share price volatility. the study also recommended that government needs to find mechanisms to keep inflation at lower level because, high inflation has negative implications on business enterprises.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The volatility of the share price is a risk in the market for stocks and encompasses variations in prices of stocks (Mgbame & Ikhatua, 2013). This means that stock price volatility is inevitable in a market which is based on the basics, information and previous market practices. Stock prices volatility is an indication of market trends and as thus, it interferes with the smooth operations of the stock market. Beyond certain limits, share price volatility could increase chances of losses to the shareholders where they may also raise concerns over the healthiness of the entire economy (Rudd, 2009). Firm performance could also explain the stock prices among firms trading at the Nairobi Securities Exchange. An increase in profits raises the stock prices due to the fact that the firm is able to attract more investors (Al-Shubiri 2010).

The study is guided by Revenue and Investment Catering Theory proposed by Stein (1996). Capital Asset Pricing theory (CAPT) fronted by Sharp (1964) and the EMH (Efficient Market Hypothesis) proposed by Fama (1970). The Revenue and Investment Catering Theory argues that if investors have a short horizon then, managers might decide to commit finances in projects which are overpriced and at the same time, avoid those that are under-priced and therefore catering to sentiment so to take advantage of the near-term share prices. This theory points to the fact that, there is a link between stock pricing and revenue generation of a company, where higher share price is likely to generate more revenue for the company and vice versa. On the other hand, CAPT theory is a framework for pricing risky stocks relative to expected revenue on those stocks. The theory argues that expected returns on the stock equals the summation of price of risk-free security and a risky premium. CAPT is an instrument of measuring risks and the expected relationship between expected income and the risk of a

stock. EMH postulates that in a market that is efficient, share prices contain all information available such that no analysis or information can beat the market. It further explains that share prices assume random departure from previous share prices, which is known as Random walk theory.

The role played by the banking sector towards Kenya's economic growth and development cannot be gainsaid. They ensure circulation of currency, capital development through savings and employment creation among others (Cytonn, 2017). Commercial banks in Kenya operates in highly liberalized environment where they encounter intermittent technological evolution as well as global competition likely to impact on their performance. This sector comprises of commercial banks, mortgage firms, micro-finance companies and forex bureaus. As at the end of December 2017, there were 42 commercial banks, 8 microfinance institutions, 89 forex bureaus and 1 mortgage company (Cytonn, 2017). Out of the 42 commercial banks, only 11 are listed at the Nairobi Security Exchange (NSE). Every firm that operates at NSE expects to reap dividends in terms of financial performance. In The last two decades, NSE has experienced stock price volatility which has an implication of the performance of the listed banks and other companies as well. However, it still remains unclear on the effect of stock price volatility on financial performance of the listed commercial banks in Kenya.

1.1.1 Firm Performance

Firm performance was defined by Ngobe et al. (2005) as a way of achieving the most efficient and effective utilization of available resources. Measures of performance are both qualitative and quantitative in nature. There are various categories of firm performance measures such as financial Return on Asset (ROA), Return on Investment (ROI) and Stock

Turnover, measures of goods produced and services offered (number of units), number of customers or clients, customer satisfaction index, number of process errors and measures of employee satisfaction such as time (Ramadan, 2013).

Bank performance indicates bank's capacity to generate sustainable profits. Banks protect the profitability against unexpected losses, as it strengthens its capital position and improves future profitability through the investment of retained earnings. A bank that persistently makes a loss will ultimately deplete its capital base, which in turn puts equity and debt holders at risk. In order to create shareholder value, bank's return on equity (ROE) needs to be greater than its cost of equity. Studies on performance of banking institutions are plenty.

Results of these studies strongly suggest that bank profitability determinants vary across countries and also among regions of the world (Doliente, 2003). According to Grier (2007), profitability ratios are often used in a high esteem as the indicators of credit analysis in banks, since profitability is associated with the results of management performance.

1.1.2 Stock Price Volatility

Mgbame & Ikhatua (2013) defines share price volatility as the measure of uncertainty in the stock market. On the other hand, stock price volatility is defined by Gatuhi (2015) as a measure of uncertainty which comes as a result of investing in shares or market securities at the stock exchange. According to the words of Siopis and Lyroudi (2007), stock price volatility is the number of times the share price fluctuates for a given period of time. This imply that the volatility of share price can significantly vary and therefore, it is very difficult to forecast what the future price could be. The price of an asset is said to be volatile when its hypothesised value takes a range of numbers showing that the price could shift significantly in either way in the short-run. Empirically, observation of the price at known intervals

establishes volatility of financial securities (Ramadan, 2013). This observation may be undertaken in terms of days, weeks or months.

Kotze (2005) argue that stock price volatility is computed by first establishing standard deviations from a certain return compounded successfully for a given period of time. For example, the variation of an asset price can be computed on a daily, weekly, monthly or even yearly basis. Parkinson (1980) proposed a method of computing price volatility which employs variations between the highest and the lowest price, divided by the average of the same top and bottom prices. This is superior method as opposed to just taking the variance between the highest and lowest prices. This is the most commonly used formula in empirical studies today (Wodung, 2014).

1.1.3 Firm Performance and Stock Price Volatility

Most of the companies trading in securities at stock market exchange are aware of the volatile nature of share prices. Kiymaza and Berument (2003) argued that high levels of volatility at securities market are likely to result into low trading volumes largely explained by unwillingness of firms to commit their money into investment. This is likely to have a ripple effect on the other indicators of firm performance such as profits, ROE and ROI. Siopis and Lyroudi (2007) observed that market openness increases market returns but this does not increase price volatility in equal measure. However, Shaharudin, Samad and Bhat (2009) argued that uncertainty nature of the stock market prices, occasions unpredictable changes in the stability of market returns of the firm.

The volatility of the company's share price could have negative consequences on capital and revenue or profitability position. According to Rudd (2009) a decline in the general share

price does not worry the company as much. However, a highly volatile stock market coupled with persistent rise and decline in the price of traded stocks, may discouraged firms to issue more shares in order to raise additional income. For example, in the present climate of stock market volatility at NSE, most firms would not have confidence in floating shares and this could result into low incomes. On the other hand, the performance of the company can as well explain the movement of stock prices at stock market. According to Sharma (2011), more profitable companies have high share prices. This is because, investors are motivated by returns on their investment and would therefore purchase those shares where they are likely to benefit more.

1.1.4 Listed Commercial Banks in Kenya

There are 42 commercial banks in the republic of Kenya, 8 microfinance institutions, 89 forex bureaus and 1 mortgage company. According to Cytonn (2017) banking report, there were 11 commercial banks listed at the Nairobi Securities Exchange (see Appendix I). This report indicates that earnings from commercial banks has generally declined by 8.1% and this was attributed to the cap on interest rate which came into effect in June 2016 following enactment of 2015 banking Act.

However, despite a decline in earnings, Cytonn (2017) shows that listed banks recorded an increase in the loan advances by 11.2% in the third quarter of 2017, while their deposits grew at 12.1%. Furthermore, banking sector has witnessed poor asset growth in the last 1 year with an increase in the rate of non-performing loans to 25.5%. While literature has indicated that the performance of firms listed at stock exchange can affect stock price volatility, there is limited knowledge regarding this relationship for commercial banks in Kenya.

1.2 Research Problem

Globally, Stock price volatility is inevitable and has partially been attributed to uncertainties in macroeconomic factors such as inflation, exchange rate and poor economic growth rate.

It has been argued that performance of a company trading at the stock exchange can affect the movement of its stock prices. Sharma (2011) has adduced that companies with strong financial position have highly valued share prices.

Commercial banks are predominant financial institutions and their changes in performance and structure have far reaching implications on the economy (Bohnstedt et al., 2000). The very nature of the banking business is so sensitive because more than 85% of their liability is deposits from depositors (Saunders & Cornett, 2005). The level of share price volatility may lead to an unpredictable outcome.

Commercial banks, mainly due to their intermediation function play a crucial role in the financial sector of any country in the world. Good financial performance of commercial banks according to Ongore and Kusa (2013), contributes to a sound and profitable banking sector as well as a stronger financial system which is better able to endure negative shocks Kenya's listed banks recorded a negative EPS growth of 8.2% in Q3'2017, compared to an average positive growth of 14.1% in Q3'2016 Cytonn (2017). The poor performance was on the back of a decline in Net Interest Income (NII) following the capping of interest rates. The Net Interest Margin (NIM) declined to 8.4% in Q3'2017 from 9.4% in Q3'2016.

Listed banks recorded gross loans and advances growth of 11.2% to Kshs 1.9 trillion in Q3'2017 from Kshs 1.7 trillion in Q3'2016, slowing down from the 5-year average growth rate of 14.6%. On the other hand, deposits grew 12.1% to Kshs 2.4 trillion in Q3'2017 from

Kshs 2.2 trillion in Q3'2016, also a decline from the 5-year average of 12.8%. It is unclear as to whether these changes in financial performance affect the volatility of stock prices of the listed commercial banks

Several studies have examined the concept of stock market prices and the performance, and the determinants of stock market prices of companies around the world. Khan et al. (2011) investigated the relationship between stock market returns for 55 firms listed on Karachi Stock Exchange. The study employed Ordinary Least Square (OLS) regression method to carry out the analysis and used return on equity (ROE), earnings per stock and company profitability to measure company performance. Findings of the study indicate that all the measures of firm performance employed in the study are positively related to the market stock prices. However, the study despite using OLS, did not consider the problem of multicollinearity, and heteroscedasticity which could have adverse effects on the estimates. The study at hand, sought to check and correct for these anomalies. The study therefore answered a research question, “what is the effect of listed commercial bank performance on stock prices in Kenya?”

1.3 Research Objective

To determine the effect of financial performance on stock price volatility of commercial banks listed at the Nairobi Securities Exchange.

1.4 Value of the Study

Firms trade at the NSE for two reasons: One, to raise additional capital in order to increase the scope of their operations and two, to make additional profits through buying and selling of securities. The price of a stock reflects the company value and therefore a higher price is

desirable. Therefore it is important to understand the determinants of share price for securities. This will help investors in their prediction of the share price in order to make better investment decision.

In addition, there is limited literature on the effect of commercial bank performance on stock prices at NSE. Therefore, this study seeks to fill this gap. Furthermore, findings of the study are likely to challenge the theoretical knowledge on the relationship between firm performance and stock prices. This is likely to generate a debate that could lead to further studies in this field.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter is composed of both theoretical and empirical literature related to the study. Empirical literature is sub-divided into two sections namely; determinants of stock prices and the stock prices verses firm performance. In addition, the chapter presents a discussion of theoretical framework.

2.2 Theoretical Review

Several theories have been advanced debate on the operations and outcomes of the stock market and particularly, stock returns, pricing behaviour and factors that influence it. Key among these theories is revenue and investment catering, capital asset pricing and Efficient Market Hypothesis. The study will use these theories to explain the determinants of stock market prices as well as the effect of prices of stocks on the performance of commercial banks listed at the Nairobi securities Exchange (NSE).

2.2.1 Revenue and Investment Catering Theory

This theory was proposed by Stein (1996). The theory defines catering as any initiative designed to increase the share price above the basic level. In this theory, the investment decision of a firm is influenced by how a company is valued regardless of whether the new investment initiatives are funded by new equity or not. The theory holds that if those who invest have a short horizon then, managers might decide to commit finances in projects which are overpriced and at the same time, avoid those that are under-priced and therefore catering to sentiment so to take advantage of the near-term share prices.

The theory asserts that if the market undervalues or overvalues firm prices based on the investment levels, then managers might strive to increase short-term price of shares by catering to up-to-date sentiments. On the other hand, managers with short-term shareholder horizons, and those that have difficulties in valuing their assets, should cater more. Aghion and Stein (2008) argue that if managers of firms pay more attention of current prices of stocks, then more energy will be directed to enhancing their sales when investors place more emphasis on income. They further observe that stakeholders have time-varying demand for income growth and managers will take care of this demand by generating higher revenues.

On the other hand, managers who consider current prices of stocks will cater for the time-varying shareholder preferences by directing more efforts on revenue generation at a time when investors pay more attention on revenue. There can be an interference on the investor demand for income growth emanating from the pricing weight placed on revenue (Aghion & Stein 2008). This theory points to the fact that, there is a link between stock pricing and revenue generation of a company, where higher share price is likely to generate more revenue for the company and vice versa. The theory is therefore going to be usefully in explaining the effect of the performance of commercial banks on stock prices at NSE.

2.2.2 Capital Asset Pricing Theory

Capital asset pricing theory (CAPT) is attributed to the works of Sharp (1964) and Lintner (1965). The theory is termed as the equilibrium asset pricing model employed in pricing of risky assets. CAPT is a model for pricing risky stocks relative to expected revenue on those stocks. The theory argues that expected returns on the stock equals the summation of price of risk-free security and a risky premium. CAPT is an instrument of measuring risks and the expected relationship between expected income and the risk of a stock.

CAPT model is employed in the determination of the needed rate of return of a stock if this stock is subject to portfolio and that the asset risk is given. Since its formulation, this theory has become the most popular in financial modelling be it in academics or practical world. Using the same breath, this theoretical thinking can be used in modelling the pricing of prices for stocks, that is, determinants of stock prices and how such prices could affect the performance of the firm. The theory will therefore be useful in explaining factors influencing stock pricing behaviours.

2.2.3 Efficient Market Hypothesis

The Efficient Markets Hypothesis (EMH), presupposes that current information is immediately included in prices of shares such that no extra profits can be made using the information (Fama, 1970). EMH postulates that a market that is efficient is both internally and externally efficient; thus, the price assets at any point include all information on the asset, expected future cash flows and the uncertainty involved in investing in that security (Mgbame & Ikhatua, 2013). The market efficiency is in three forms which are the weak form of efficiency, the semi-strong form of efficiency and the strong form of efficient market.

Weak form of market efficiency has prevailing prices of securities include every past information available including a historical sequence of prices, market return, market capitalizations and information from the market (Ilaboya & Aggreh, 2013). The semi-strong form of efficiency argues that current prices of stock include all the existing informational content of historical prices and the publicly available information about corporations (Malkiel, 2005). The semi-strong form of EMH covers the weak form and the available of day to day data enabled tests, which presents evidence of public information affecting prices of stocks in limited time. The strong form postulates that security prices include the available

information and even private information. No group of participants has monopolistic access to the relevant information; hence, no one makes above average profits (Wabwire et al., 2013). The logic of EMH premise is that information flows fluently and immediately get included in the current share prices such that tomorrow's price changes are only affected by information that emerges tomorrow (Malkiel, 2005). From an investor's point of view, stock market participants cannot use the information they have to generate abnormal profits (Praptiningsih, 2011). Besides, the efficient market hypothesis holds, the information changes affect share prices. Thus, as stock price volatility keeps changing as new information flows into the market hence may negatively impact the performance of the market as news keep arriving and the ensuing response of traders.

2.3. Determinants of Stock Price Volatility

2.3.1 Firm Performance

The performance of a firm is hypothesised to explain stock price volatility. There are several measures of firm performance such as technical efficiency, return on equity, and profitability. Khan et al .(2011) argue that the performance of a company listed at the stock exchange affect its value and hence, the price of stock. A better performing firm is likely to have highly valued stock prices due to the confidence of the investors. Thus, changes in the firm performance can explain the volatility of stock market prices.

2.3.2 Exchange Rate

This is the rate at which the domestic currency is exchanged with foreign currencies. Exchange rate is an important determinant of the income and price level in the country (Thiong'o, 2011). For example, devaluation of the domestic currency is likely to increase a country's exports and lower imports and this enhances the balance of trade. In addition, the exchange rate affects the demand for money in the economy and thereby affecting general

price levels in the country. Changes in the exchange rate affects profitability of the firms especially financial institutions trading in foreign currency. This has implication on the firm value and its price of stock at NSE.

2.3.3 Inflation

Inflation refers to the general increase in the price level (Sharif et al., 2015). There are two types of inflation, that is, demand pull and cost push inflation. Demand pull type of inflation emerges when total demand in the economy increases to a level that is more than total supply in the economy. When this happens, the price of most goods and services tend to increase. On the other hand, cost push inflation is caused by an increase in the price of inputs such as wages, raw materials and the cost of capital goods. Changes in inflation are thus likely to affect the value of a company's stock price.

2.3.4 Lending Rate

Lending interest rate constitutes the interest a borrower pays for usage of borrowed funds (Crowley, 2007). It's quoted as a percentage of principal amounts which is paid at a considerable amount of times in a specific period of time.

Commercial bank's lending operation is normally guided by three main principles: financial performance, solvency and profitability. The decision to lend out loans is however dependent on various factors, for instance, economic fluctuations, prevailing interest rates, deposits volume, balance of payment, the financial performance ratio of a bank and ability of client to repay the loan among other.

2.4 Empirical Review

Studies have investigated factors determining the behaviour of stock prices across the world. A study by Corwin (2003) on the determinants of stock market price found that information asymmetry and uncertainties in the prevailing economic environment are positively related to stock market prices. In addition, the study established that there are various macroeconomic factors which explain prices of stocks. For instance, increase in the rate of inflation, interest rate was found to affect stock prices negatively.

Khaled et al. (2011) conducted a study in the United Kingdom (UK) on the effect of dividend policy on stock price movement. The study employed multiple regression on firm-level cross-sectional data. The study found that there was a positive relationship between dividend yield and the volatility in stock prices. In addition, results of the study indicate that the level of debts, the size of the firm and revenue determined the movement in stock prices. Similar results were observed by Allen and Rachim (1996), who noted that dividend yield was positively correlated with stock market prices. Khaled et al., study is criticised based on the fact that, real effect of dividend pay-outs could not be established through a cross-sectional analysis. A considerable number of years will be better to establish true effect of dividend policy on stock market prices, the basis for the study at hand.

Ngunjiri (2016) investigated the link between dividend pay outs and stock market prices using 40 firms listed on the Nairobi Stock Exchange (NSE). Ordinary Least Square regression was employed to estimate the relationship. The study established that dividend yields have no impact on the stock prices movements. In a similar study, Thiong'o (2011) examined the relationship between dividend payments and stock market prices of firms quoted on the NSE using 2006-2010 data. Using simple regression, Thiong'o established that

there is a positive link between the two variables. However, this relationship was found to be weak. Similarly, Ngobe et al. (2013) argued that there is a positive relationship between stock prices and dividends paid to shareholders.

In Kenya, Sifunjo (1999) investigated the relationship between exchange rate and stock market prices at NSE between 1993 and 1999. This study found that there is a unidirectional link between Kenya's exchange rate and share prices. In another study, Nyamute (1998) examined the link between stock prices and several financial variables such as money supply, interest rates, inflation rates and exchange rates in Kenya. The study established that there was a positive relationship between share prices and exchange rates. Nevertheless, findings of the two studies have been obsolesced due to passage of time where there have been tremendous changes at NSE such as automation of stocks and the introduction of Central Depository System.

Several studies have examined the concept of stock market prices and the performance, and the determinants of stock market prices of companies around the world. To begin with, Khan et al (2011) investigated the relationship between stock market returns for 55 firms listed on Karachi Stock Exchange. The study employed Ordinary Least Square (OLS) regression method to carry out the analysis and used return on equity (ROE), earnings per stock and company profitability to measure company performance. Findings of the study indicate that all the measures of firm performance employed in the study are positively related to the market stock prices. However, the study despite using OLS, did not consider the problem of multi-collinearity, and heteroscedasticity which could have adverse effects on the estimates. The study at hand, is set to check and correct for these anomalies.

A study by Sharif et al. (2015) used ROE and dividend earned as measures of company performance to examine, how it is affected by the movement of stock prices of 41 companies listed on the Bahrain Stock Exchange. The study established that ROE was positively related to stock market prices. However, the study observed a significant but, negative relationship between dividends issued to shareholders and stock prices implying that dividend decisions are made to attract certain customers. Given that Kenya and Bahrain have different socio-economic conditions as well as business environment, the study at hand is likely to come up with similar or different findings.

Uddin et al. (2013) determined the effect of stock market prices on company performance. This study used data of 72 companies in Bangladesh for the period 2005 to 2010. Net asset value and profit was used as indicators of company performance, while price-earning ration was employed to measure stock price behaviour. The study had employed descriptive statistics and OLS regression analysis. It was found that net asset value had a strong and positive correlation with price earnings ratio for all years. However, the study established a positive but, not significant link between profit and stock prices. The analysis of the study indicates that even though OLS was used, endogeneity and heteroscedasticity problems were not controlled for which could have compromised the validity of the estimates. The study at hand is set to control for these challenges to ascertain validity of estimates.

2.5 Conceptual Framework

Conceptual framework is a mathematical or diagrammatic representation of the relationship between dependent and independent variables of the study. The framework details the channels through which independent variables explain the dependent variable. For this study, Figure 2.1 shows the conceptual framework. The framework indicates that bank performance proxied by ROE, & profits, exchange (measured in terms of Kshs/USD), interest rates and inflation, measured by Consumer Price Index (CPI) are independent variables which are hypothesised to explain stock prices. For example, better financial performance as measured by ROE is likely to have a positive effect of the stock price volatility. On the other hand, exchange rate is hypothesised to affect stock price volatility negatively

Independent variable

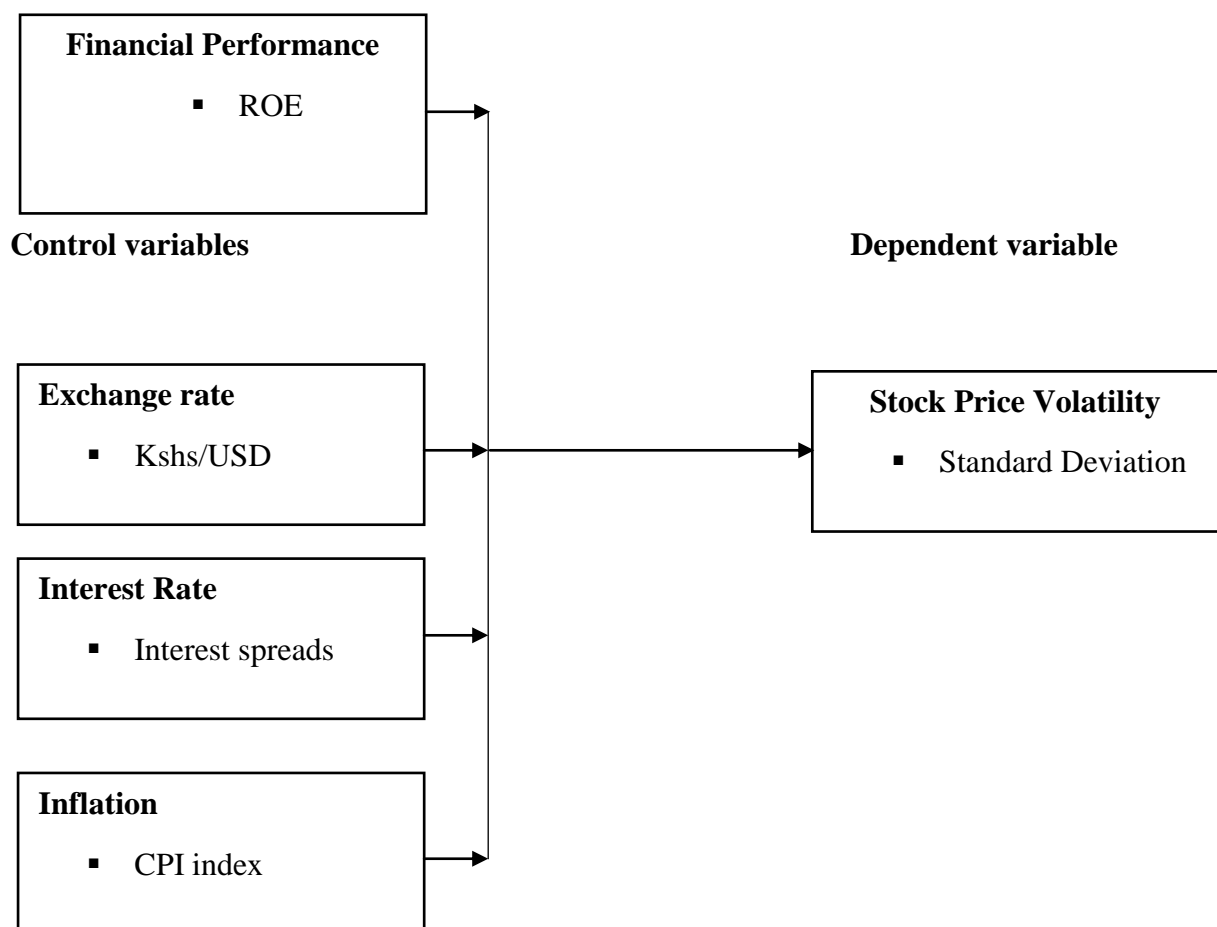


Figure 2.1: Conceptual Model

2.6 Summary of Literature Review

Several studies have been conducted on the concept of stock market, stock prices as well as their determinants and relationships. However, according to the reviewed literature, there appears to be gaps to be addressed regarding the study at hand. First, most of the studies have focused of the effect of dividend policy on firm financial performance. Other studies have paid more attention on the relationship between firm performance and stock market returns. Furthermore, some studies have emphasised on determinants of stock market prices. Therefore, there is limited empirical evidence on the effect of firm performance on stock prices in Kenya.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents a discussion of the research methods which the study adopted. These includes the design, target population, analytical model and data collection. In addition, the chapter explains how data was analyzed including diagnostic tests to be performed in order to ascertain validity of the results.

3.2 Research Design

A research design in a study refers to the model adopted to respond to the study objectives. This study used a descriptive survey design to explain how financial performance affects stock price volatility of commercial banks listed at the NSE. This design is ideal because it describes the situation as it is. The design was instrumental in describing the direction of the relationship between financial performance and stock price volatility.

3.3 Target Population

This study targeted all commercial banks trading at the NSE. According to the NSE website (<https://www.nse.co.ke/listed-companies/list.html>), there are 11 commercial banks which are listed for trading (see Appendix I). Therefore, the study used census of all the commercial banks listed at NSE to analyse the effect of financial performance on stock price volatility.

3.4 Data Collection

The study used secondary data covering the period 2006 and 2015. The data was collected from various sources. Data on stock prices, and exchange rates was obtained from the NSE. On the other hand, data on ROE, firm performance and debt was obtained from the Central Bank of Kenya, bank supervision reports. Lastly, data on inflation and exchange rate was

collected from the Kenya Bureau of Statistics (KNBS). All these institutions collect and stores data in a well-structured manner, and therefore, the data is very reliable.

3.5 Diagnostic Tests

The study conducted multi-collinearity and hetero-scedasticity tests to ensure validity of the estimates. The test did not confirm the presence of these problems and hence, the estimated results can be relied on.

3.6 Data Analysis

Both descriptive and regression analysis techniques were used. Descriptive statistics aimed at understanding the characteristics and trends such as means, standard deviations, minimum and maximums were generated. On the other hand, regression analysis was undertaken to investigate the nature and direction of the relationship between stock prices and financial performance of commercial banks. The analyst results were presented in tables and graphs.

3.6.1 Analytical Model

The analytical model for this study was derived from the conceptual framework as presented in Figure 2, which presents a regression equation where stock price is the dependent variable as:

$$(\text{spv})_{it} = \alpha_0 + \beta_1(\text{fp})_{it} + \beta_2(\text{exr})_{it} + \beta_3(\text{ir})_{it} + \beta_4(\text{inf})_{it} + \varepsilon_i \dots \dots \dots (2)$$

Where spv_{it} is the stock price volatility of bank i at a given time t .

α is the intercept of the regression model, $\beta_1 - \beta_4$ are the slope coefficients for the independent variables, and ε_i is the error term.

3.6.2 Operationalisation and Measurement of Variables

Table 3.1: Variable operationalization

Variable	Type	Operationalization	Measurement	Hypothesized direction
spv (stock price volatility)	Dependent	spv (computed annually)	Standard deviation	None
Firm performance (fp)	Independent	ROE	Annual ROE	Positive
Interest rate (ir)	Independent	interest rate spread	annual interest rate spreads	positive
Inflation	Independent	Annual inflation rate	CPI	Negative
Exchange rate (exr)	Independent	Exchange rate	Kshs/USD	Negative

3.6.3 Test of Significance

The study applied a correlation coefficient (R^2) to determine how strong is the relationship between financial performance and stock market volatility. In addition, F-test statistical significance, and t-test statistic, were used by this study to ascertain whether the relationship between the dependent and independent variables are significant or not.

CHAPTER FOUR DATA: ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

The volatility of share prices of securities at the Nairobi Securities Exchange creates uncertainties that results into low trading. This is because, most investors would be unwilling to commit their money into investment. Studies have adduced evidence on the existence of relationship between financial performance and share price volatility. This chapter presents analysis of the findings on the effects of financial performance on share price volatility focusing on commercial banks trading at the NSE. The chapter is subdivided into two sections, that is sections 1 and 2. While section 1 deals with descriptive statistics, section 2 analyses regression results based on the study objective.

4.2 Descriptive Statistics

This section describes the means standard deviations, maximum and minimum values of the variables under study. This is mean to understand these variables, and have a clear picture of them before further analyses. Based on this, Table 4.1 presents descriptive statistics for the study

Table 4.1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
spv	110	.23	.20	.026	1.10
roe	110	43.72	22.39	-24.34	130.89
ir	110	6.29	1.77	2.17	10.94
inf	10	10.62	6.44	3.96	26.24
exr	10	81.074	9.81	67.32	98.18

Source: Computed from Research Data (2018)

Findings as presented in Table 4.1 indicate that the mean of share price volatility (*spv*) for all the commercial banks for the period under study was 0.23 with a standard deviation of 0.20. In addition, these statistics indicate that *spv* oscillated between a minimum of 0.026 and a maximum of 1.10. This behaviour is largely associated with changes in micro as well as macroeconomic factors like inflation and exchange rates. For example, high inflation is expected to cause turbulence in the *spv*, due to uncertainties generated. With regard to return on equity (*roe*), the mean was 43.72 with a standard deviation of 22.39 and oscillating between a minimum of -24.34 and a maximum of 130.98. This discovery indicates that, in the banking sector, there has been periods of boom and periods of recession.

Findings on the interest rate (*ir*) show that between 2006 and 2015, the mean was 6.29 with standard deviation of 1.77. This ranged between a, minimum of 2.17 and a maximum of 10.94. Given that interest rate in the difference between lending and deposit rate, higher *ir* is expected to contribute positively to firm's financial performance. Looking at these statistics on *ir*, the study infers that there are some periods when banks made a lot of money. However, the enactment of the interest rate capping in 2016, is likely to standardise *ir* across commercial banks.

The average inflation (*inf*) for the ten-year period under study (2006-2015) was 10.62 with standard deviation of 6.44. In addition, this meant oscillated between a minimum of 3.96 and a maximum of 26.24. Inflation is a key macroeconomic variable that virtually explains all aspects of finance and economics. Last, but not least, the statistics on exchange rate (*exr*) show that the mean exchange rate of Kenyan shillings against USD was 81 with a standard deviation of 9.81. In addition, the values of exchange rate ranged between a minimum of 67.32 and a maximum of 98.18 Kshs/USD.

4.3 Correlation Analysis

The study sought to examine the presence of correlation between among the variables. Table 4. 2 shows Pearson’s correlation coefficients.

Table 4.2: Pearson’s Correlation Coefficients

	spv	ROE	inf	ir	exr
spv	1.0000				
ROE	-0.0263	1.0000			
inf	-0.0048	-0.0770	1.0000		
ir	0.0135	0.2518	0.0685	1.0000	
exr	-0.0058	-0.0228	0.4189	0.1421	1.0000

Source: Computed from Research Data (2018)

The results of the correlation coefficients indicate that share price volatility is negatively to return on equity, inflation and exchange rate. On the other hand, share price volatility (*spv*) is positively related to interest rate. With regard to correlation, the coefficients of the independent variables indicate its absence. This is because, the coefficients are less than 0.8.

4.4 Regression Analysis

The purpose of this study was to examine the effect of financial performance on share price volatility of commercial banks listed at the Nairobi Securities Exchange. The study used return on equity (ROE) as a measure of financial performance, while share price volatility of commercial banks which is the dependent variable, was obtained from the Capital Markets Authority (CMA). Other variables which are believed to influence *spv* were included in the study. These were: inflation, exchange rates and interest rate spreads.

The study used Ordinary Least Square (OLS) to regress the dependent variable *spv* on the independent variables (*exr, roe, inf, and ir*). Regression analysis achieved two objectives, with the first one was to indicate the direction of the effect (negative or positive) and secondly, to show whether there the estimated results are significant or not. Null hypothesis

for OLS is that, the coefficients for all independent variables are different from zero, so that a p-value of less than 5% confidence level leads to acceptance of the hypothesis meaning that the results are significant. However, in OLS, two key assumptions must hold to guarantee validity of results and therefore, inferences. The first assumption is that there should be no autocorrelation (multicollinearity) among the independent variables, and the second is that the variables must have constant variances or heteroscedasticity must be absent to put in another way. Thus, after running the OLS regression equation, a check on the present of autocorrelation and heteroscedasticity is necessary, otherwise, the study could interpret biased results.

4.4.1 Multi-collinearity Test

Multicollinearity or autocorrelation occurs when independent variables explain each other. This problem can result to biased estimates. To detect for the presence of this challenge, Variance Inflation Factors (VIF) are used. According to this test, VIF that is more than 10 and $1/VIF$ that is less than 0.1 indicate the presence of multicollinearity. The results for the test are presented in Table 4.7.

Table 1.3: Variable Inflation Factors

Variable	VIF	1/VIF
exr	3.11	0.322015
inf	3.06	0.327120
ir	1.03	0.972644
ROE	1.00	0.999754
Mean VIF	2.05	

Source: Computed from Research Data (2018)

The results in Table 4.7 indicates the absence of multicollinearity in the OLS model. This is because, VIF for all variables is less than 10 and $1/VIF$ value is greater than 0.1. In addition,

the mean VIF is less than 10. Therefore, the study concluded that the model did not suffer from multicollinearity challenge, and thus, the estimates are unbiased.

4.4.2 Heteroscedasticity Test

The study conducted this test with the help of Breush Pagan. The null hypothesis of the test was that all observations had constant variances, interpreted as lack of heteroscedasticity.

Table 4.4 presents summary result for this test.

Table 4.4: Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

chi2(1) = 0.07
Prob > chi2 = 0.7860

Source: Computed from Research Data (2018)

According to the results, of the heteroscedasticity test is absent due to the fact than p-value (0.7860) is greater than 5% confidence interval. Therefore, the study accepted null hypothesis of constant variances across all observations.

4.4.3 Regression Results

The estimated results of the OLS regression where share price volatility is the dependent variable, are presented in Table 4.6

Table 4.6: OLS Estimates

		Robust				
spv	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
ROE	-3.289675	8.795091	-0.37	0.709	-20.72872	14.14937
inf	-.8772487	.3843248	-2.28	0.024	-1.639294	-.1152035
ir	3.039455	1.332412	2.28	0.025	.3975288	5.681381
exr	.053089	.0626788	0.85	0.399	-.0711916	.1773695
_cons	26.00064	8.734499	2.98	0.004	8.681746	43.31954
Number of observations		110				
Prob > F	0.0074					
R-squared	0.0743					

Source: Computed from Research Data (2018)

4.5 Discussion of Findings

The characteristics of the model have confirmed that the equation was perfectly fit. This is because, the Prob>F 0.0074 is less than 0.05 and hence accepting the OLS null hypothesis. This means that the coefficients of the independent variables are different from zero. However, the R-squared value of 0.0743 is smaller indicating that a change in independent variables in general, causes about 7.43 % change in the dependent variable. These imply that the independent variables determine the size of the spv to a smaller extent.

The estimated *spv* equation is now presented as:

$$\begin{aligned}
 (\text{spv})_{it} = & 26.00064 - 3.289675(\text{ROE})_{it} - .8772487(\text{inf}) + 3.039455 (\text{ir})_{it} \\
 & + .053089 (\text{ext})
 \end{aligned}$$

Regression estimates indicate that there is a negative relationship between the return on equity (ROE) and share price volatility of commercial banks listed at the Nairobi Securities exchange. Furthermore, ROE has a great impact on spv going by the size of its coefficient which means that, a unit change in ROE leads to more than 300% change in share price volatility. However, the p-value of 0.709 <0.05 indicates that these results are not significant.

These results show that better financial performance of the bank would reduce the volatility of its share price. Khan et al (2011) established that the performance of a company listed at the stock exchange affect its value and hence, the price of stock. This study further argued that better performing companies have highly valued stock prices due to the confidence of the investors. Therefore, increase in firm financial performance can lead to lower volatility of stock market prices.

With regard to inflation, the study has established a negative and significant relationship. This is indicated by the negative sign of the coefficient (-.8772487) and the p-value of 0.024 which is less than 0.05 confidence level. In addition, inflation has a big impact on share price volatility as indicated by the size of its coefficient. This is because, a unit change in the level of inflation, could lead to a negative change in share price volatility by 87. 72 %. These findings are consistent with Sharif et al (2015) who argue that cost push inflation increases the general price of goods and services and therefore creating uncertainties which could lead to volatility in the market for stocks. Changes in inflation are thus likely to affect the value of a company's stock price. In addition, Khaled et al. (2011) reported that inflation reduces the purchasing power, and also pushes up the level of interest rate in the economy. When interest rate goes up, most investors would shift their money from stocks to bond markets to realize, higher returns. This is also likely to cause uncertainty in the prices for stocks.

Concerning interest rate spread, the study has established a positive and significant relationship between interest rate and volatility of the share prices. This is shown by the positive sign of its coefficient (3.039455), and the fact that it has a p-value of 0.025 which is less than 0.05 confidence level. In addition, interest rate has a huge impact of the share price of stocks of the commercial banks operating at the NSE. The coefficient indicates that a unit

change in the interest rate spreads could lead to about 303.9 % increase in the share price of the bank stocks. These imply that increase in the lending rate would cause an increase in share price volatility because of the uncertainties that comes with high interest rates (Crowley, 2007).

Finally, the study has established a positive relationship between share price volatility and exchange rate. This is indicated by the positive sign of its coefficient (0.053089). This imply that an increase in the Kenya's exchange rate against the United States Dollar, would increase the uncertainties in the share prices of commercial banks listed at the NSE. A study by Thiong'o, (2011) argued in a similar manner. This study reported that, the exchange rate affects the demand for money in the economy and thereby affecting general price levels in the country. Changes in the exchange rate affects profitability of the firms especially financial institutions trading in foreign currency. This has implication on the firm value and its price of stock at NSE. However, the p-value of 0.399 which is greater than 0.05 level of confidence means that the results are not significant.

CHAPTER FIVE: SUMMARY, CONCUSSION AND RECOMMENDATION

5.1 Introduction

The purpose of this study was to examine the effect of financial performance on the share price volatility among commercial banks listed at the Nairobi Securities Exchange. This chapter five therefore, focusses on the study summaries and conclusions. In addition, recommendations of the study are presented. Furthermore, the study makes suggestions for further investigation.

5.2 Summary

The uncertainty at the market for stocks is explained by various factors which might be associated with the industry, operations at the stock market as well as firm characteristics. However, this study focused on investigating the effect of financial performance on share price volatility. The target population for the study was all commercial banks listed at the NSE. There are 11 commercial banks trading at the NSE for which this study investigated. The dependent variable for the study was the share price volatility while the independent variables include: the return on equity (ROE) which was a measure of bank financial performance, the interest rate spread (lending rate less deposit rate, the rate of inflation, and the Kenya' s exchange rate against USD). This study used a descriptive survey design to explain how financial performance affects stock price volatility of commercial banks listed at the NSE.

Secondary data covering the period 2006-2015 was used. This data was obtained from the CMA, various issues of economic surveys and Central bank of Kenya published reports (bank supervision reports). The study employed both descriptive and regression analysis methods in data analysis. Descriptive statistics included means, standard deviations, minimum and maximum values for all study variables. On the other hand, Ordinary Least Square method was used to conduct regression analysis where, the direction and the level of significance of independent variables was estimated. The study conducted autocorrelation and heteroscedasticity tests to ensure validity of the results.

The results indicate that a negative but, not significant relationship between the return on equity (ROE) and share price volatility of commercial banks listed at the Nairobi Securities exchange. In addition, the study has established that ROE has a great impact on the share price volatility based on the size of its coefficient (see Table 4.6). These findings imply that better financial performance of the bank would reduce the volatility of its share price. Other studies have also supported this view. For instance, Khan et al (2011) argued that financial performance firms trading at the stock exchange affect its value and hence, the stock prices. In addition, this study observed that highly profitable firms have highly valued stock prices due to the confidence of the investors. Therefore, increase in firm profits or ROE can lead to lower volatility of stock market prices.

Regarding the effect of inflation, the study has also found a negative and significant relationship. In addition, inflation has a big impact on share price volatility. These findings imply that a change in inflation causes changes in the share price volatility for commercial banks stocks at NSE. These revelations have also been supported by other researchers. For example, Sharif et al (2015) reported that an increase in inflation could push prices of goods

and services up and hence creating uncertainties in the market. Similarly, Khaled et al. (2011) argued that inflation reduces the purchasing power, and also pushes up the level of interest rate in the economy. When interest rate goes up, most investors would shift their money from stocks to bond markets in order to realize higher returns. This could in turn cause uncertainties in the prices for stocks.

Furthermore, the study has found a positive and significant link between interest rate and volatility in the share prices. In addition, the impact of interest rate on share price volatility seems to be huge (see Table 4.6). These findings mean that increase in the lending rate would cause an increase in share price volatility because of the uncertainties that comes with high interest rates. Other studies have reported similar results (Crowley, 2007; Al-Shubiri, (2010).

5.3 Conclusion

Following discussion of findings and summaries, several conclusions are presented. First, the study concludes that, there is a negative but, not significant relationship between the return on equity (ROE) and share price volatility of commercial banks listed at the Nairobi Securities exchange (spv), and also that ROE has a big impact on share price volatility. Negative sign could signify periods of boom and recession with regard to bank ROE. This imply that financial stability of a firm trading at the stock market could remedy the volatility of its share price.

Secondly, the study concludes that inflation is negative and significantly associated with share price volatility for commercial banks in Kenya. High inflation rate could push prices of goods and services up and hence creating uncertainties in the market. Inflation could also cause an increase in the level of interest rates which might prompt investors to shift their

money from stocks to bond markets so as to generate higher returns, and hence creating uncertainties in the share prices.

Third, the study concludes that, there is a positive and significant relationship bank interest rate spreads and volatility in the share prices, and that interest rates have a huge impact on the share price volatility. These imply that increase in the bank interest rate charges could cause an increase in share price volatility because of the uncertainties that comes with high interest rates.

5.4 Recommendations

Arising from the conclusions, the study recommends that banks trading at the NSE needs to maintain a good financial performance because, this could help to mitigate against their share price volatility. Posting better financial performance increases investor confidence, and this could lower uncertainties in the share prices.

Secondly, following the negative effect of inflation, the study concludes that the government needs to find mechanisms to keep inflation at lower level because, high inflation has negative implications on business enterprises.

5.5 Limitations of the Study

The study was limited on commercial banks operating at the NSE, and not other firms. Inclusion of other firms from across all sector could have yielded different results.

The study did not focus on other aspects which theoretically explain stock price volatility. For example, factors related to the industry like competition, as well as managerial aspects of the banks, could have given a different perspective, and probably, different results.

The study used data from 2006-2015. Data for 2017 was not consistent. I would have been better including that current data, as this might have given different findings.

5.6 Suggestions for further Studies

This study was limited to ten commercial banks listed on the Nairobi Securities Exchange and thus the researcher suggests that further studies should be conducted on the factors affecting the financial performance of all commercial banks in Kenya

Further analysis on the effect of financial performance on share price volatility which would incorporate other sectors is necessary. In addition, this could also bring out the comparison in that effect across all sectors of the economy.

Future studies on a similar topic may also gain from using both qualitative and quantitative research approaches as the views of bank stakeholders can provide additional information not necessarily covered by the bank financial reports

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Appendix I: Commercial Banks Listed at NSE as at 31st December 2017

1. Kenya Commercial banks
2. Cooperative bank of Kenya
3. NIC Bank
4. Diamond Trust Bank
5. National Bank of Kenya
6. Equity Bank
7. CFC Stanbic Holdings
8. Standard Chartered Bank of Kenya
9. Barclays Bank
10. I & M Holdings
11. HF Group Limited

Source: Cytonn (2017)