NOMINAL INTEREST RATE'S EFFECT ON THE STOCK PRICES OF BANKS QUOTED AT NAIROBI STOCK EXCHANGE (1995-2002)

BY

GLADYS MWENDE MUSUVA

UNITED STATES INTERNATIONAL UNIVERSITY

FALL 2005
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GLADYS MWENDE MUSUVA

A Project Report Submitted to the School of Business in Partial Fulfilment of the Requirement for the Degree of Masters in International Business Administration

UNITED STATES INTERNATIONAL UNIVERSITY

FALL 2005
STUDENTS DECLARATION

I, the undersigned, declare that this is my original work and has not been submitted to any other college, institution or university other than the United States International University in Nairobi for academic credit.

Signed: ___________________________ Date: 7-7-2006

Gladys Mwende Musuva (ID 606777)

This project has been presented for examination with my approval as the appointed supervisor.

Signed: ___________________________ Date: 16th July 2006

Francis M. Gatumo

Signed: ___________________________ Date: 5th October 2006

Dean, School of Business

Signed: ___________________________ Date: 21st October 2006

Deputy Vice Chancellor, Academic Affairs
ABSTRACT

The purpose of this study was to investigate whether there was any correlation between nominal interest rates with share price of commercial banks quoted at the Nairobi Stock Exchange (NSE) between 1995 and 2002. The specific objectives of the study were

i) To establish the degree of correlation between nominal interest rates with share prices of commercial banks quoted at the Nairobi Stock Exchange for the period between 1995 and 2002

ii) To assess the behaviour of nominal interest rates and stocks prices of stocks of commercial banks quoted at the Nairobi Stock Exchange

iii) To determine factors that affect nominal interest rates and shares of commercial banks quoted at the Nairobi Stock Exchange.

In order to carry out this investigation, secondary data was collected from NSE and CMA for the share prices of all commercial banks quoted at NSE and the Central Bank of Kenya (CBK) for nominal interest rates. The data was collected using a researcher designed data collection form. This instrument was developed to ensure that all the relevant data was collected. The data was then analysed using Microsoft excel method.

The research findings revealed that share prices were affected by both internal and external factors. For internal factors, these were mainly change in management, capital structure and dividend policy whereas for external factors it was mainly due to demand and supply of shares. The findings indicated that, whenever there was improvement in management due to change, share prices of the quoted banks also improved. It was also observed that shares of foreign-owned banks were more stable and resistant to changes than those of the locally owned banks. The researcher noted that there was close relationship between capital structure and dividend policy of the companies. In addition, shares of commercial banks with government control were more price-sensitive in 1997 and 2002. The findings revealed that there was high correlation between nominal interest rates and share prices. As nominal interest rates increased, share prices decreased and vice versa. Nominal interest rates reacted more, either to the increase or decrease of cash ratio as prescribed by Central Bank of Kenya, interest charged by Building Societies and Insurance Companies.
The main conclusion arising from this study was that there was positive correlation between nominal interest rates and share prices of all commercial banks quoted at the NSE. The correlation was more predictable for foreign owned commercial banks which did not have government influence and whose capital structure was stronger than locally owned banks.

The key recommendation arising from the study was that further research should be conducted on the impact of nominal interest rates on share prices of other Non-Bank Financial Institutions (NBFI) such as Insurance Companies, Building Societies and Small-Scale Enterprises. The results of such study could be compared with the above findings especially to determine whether their performance, which seemed to affect the performance and share prices of the banks, had a direct relationship with management.
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I am greatly indebted to the support of my family. My husband: Mr. Daniel W. Musuva, my children; Mumo: Mwikali, Mutisya and Naomi for their support. I also thank the Mwilu and Musuva families for the moral and spiritual support they gave me without which, it would have been impossible to achieve my long desired goal of holding this prestigious DEGREE of MASTERS IN INTERNATIONAL BUSINESS ADMINISTRATION-FINANCE.

I would once again like to specially recognise the contributions of my children Mumo and Mwikali who tirelessly helped in typing the project.

GOD BLESS YOU ALL
DEDICATION

Dedicated to my husband Daniel Wasua Musuva, and our children: Mumo, Mwikali, Mutisya and Naomi.
LIST OF ABBREVIATIONS

CBK  Central Bank of Kenya
NSE  Nairobi Stock Exchange
CMA  Capital Market Authority
IFC  International Finance Corporation
NBFI Non Bank Financial Institutions
RWH  Random Walk Hypothesis
EMH  Efficient Market Hypothesis
T/B  Treasury Bills
EPS  Earnings Per Share
P/E Ratio  Price/Earnings Ratio
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CHAPTER ONE
1.0 INTRODUCTION

1.1 Background to the Study

A bank is a financial institution that is registered under the company’s Act Cap 486 of the Laws of Kenya and also registered under the Banking Act Cap 488 respectively. For a bank to operate as a legal entity, it must hold a valid licence and commence its business within twelve months of obtaining the licence.

The “banking business” is defined in Sec.2 (1) of the banking Act (Chapter 488 laws of Kenya) as:

- Accepting money on deposits from members of the public,
- Accepting money on current account, from members of the public and paying on cheques or accepting cheques,
- Use of money held on deposit or current account for loans or investment.

It is expected that when carrying out their business, banks will act fairly and reasonably in all their dealings with customers and that they will maintain confidence in the security and integrity of banking industry and card payment systems. This is referred to as ‘governing principles of the code of good banking’.

As defined by the act (Banking Act Cap 488), all banks in Kenya are involved in general banking business services- a mixture of both retail and wholesale operations. By carrying out their functions as savings media and money lending, commercial banks act as financial intermediaries. The functions involve: aggregation of funds from savers, and risk transformation. This means that in pooling of risks, the financial intermediaries avoid risky situations and secures economies of scale thus they increase liquidity in the financial system for borrowers as well as lenders. In applying special knowledge of investment, banks improve efficiency in the investment in the sector. In risk minimisation, banks increase security and earnings for savers and reduce the cost of borrowing to ultimate users of funds and by so doing they encourage savings and investment in the economy. It should be noted
that out of the forty-three, (43) banks registered in Kenya, only eight (8) are quoted at the Nairobi Stock Exchange as is shown in appendix 1.

According to Muringu (1998), trading of shares require interplay of Central Bank of Kenya (CBK), the Nairobi Stock Exchange (NSE) and Capital Market Authority (CMA) to act as market regulators. Below is short description of the functions of these institutions.

The Central Bank of Kenya (CBK) is a non-profit making organisation registered under CBK Act of 1966. The act has since been amended to cater for economic and monetary changes. In its role to control interest rates, the Central Bank of Kenya controls commercial banks' asset composition, deposit liabilities (through ratios), capital and reserve, cash and liquidity ratios (CBK Act, 1966).

As stated in the CMA Act, (1989), The Capital Markets Authority (CMA) was established as a result of a research on the development of money and capital markets in Kenya. International Finance Corporation (IFC) and the Central Bank of Kenya (CBK) carried out the research in 1984. The Principal roles for the CMA are:

- The development of all aspects of the capital markets with particular emphasis on the removal of impediments to, and the creation of incentives for longer term investment in production enterprise and
- The creation, maintenance and regulation, through implementation of a system in which the market participants is self-regulatory to the maximum practical extent, of a market in which securities can be issued and traded in an orderly, fair efficient manner.

A stock exchange is defined as a market, which deals in the exchange of securities issued, by quoted companies and the government. The major role that the stock exchange has played and continues to play in many economies is that it promotes a culture of thrift or savings. The very fact that institutions exist where savers can safely invest their money and in addition, earn a return is an incentive for people to consume less and save more (NSE fact sheet, 2002).
Trading at the Nairobi Stock Exchange is regulated by the rules of the Capital Markets Authority (CMA) and the Nairobi Stock Exchange Council. Trading at the NSE is done on shares already issued in the primary market. It is in the market that investors who hold existing shares can sell them to other investors through broker firms whose main activity is to carry out the orders for investors and also provide financial advice. The firms charge a brokerage fee for their services. Once a bank is allowed to trade at the Nairobi Stock Exchange, it means that investors can freely trade in their shares. The volume of trade on an individual company will depend on many factors including demand and supply, the price, the prospects of its growth and the stability of the company.

Muringu (1998) further states that generally, there is a tendency for ordinary share and especially banking institutions shares to move in the same direction over a given period of time. The overall movement of the market is a matter of interest because it reflects what investors, in general, think of the prospects for the economy as a whole or on the sectors of economy. It may also indicate the investor preference or levels of income available for investment. The movement of share prices could be attributed to a variety of factors including political, economic and market efficiency, among others. One of the key factors attributed to this behaviour is interest rate.

A rate of interest represents a price. It represents the return required by the lender (in other words, the depositor) for temporarily losing the use of his money on one hand, while on the other hand, a borrower will look at interest rate as the charge that has to be paid to acquire the temporary use of another person’s money. The lender seeks the highest rate possible while the borrower will look for the lowest rate. Those who wish to borrow funds regard the rate of interest as a cost, so the lower the cost, the greater the demand. As lending rates increase, so does the demand for borrowing fall and vice versa. This is because increase in interest rates adds costs to business, making fewer new projects viable. However, a fall in interest rate will be welcomed as reducing the burdens on industry and increasing the possibility of starting new projects (Cox, 1996).
When commercial banks make profits, and pay high dividends, many investors would like to be associated with them. However, not all profits earned will be paid to shareholders; some will be retained for expansion of the institutions. The proportion of payment of dividends and retention for business expansion will depend on individual bank dividend policy and the individual investor whether they are capital seekers or income seekers. For example, if an investor is a basic income earner, he/she will be interested in income (in other words, high dividend) and would like to invest in banks that pay high dividends and with a steady dividend growth rate. However, if an investor is a high-income earner, he is likely to be interested in banks, which pay lower dividends, but has high capital growth. These may be banks with policies of payment of bonus share and rights issue, amongst others so as to take advantage of their tax benefits (Hirt, 1996).

Investment is a major activity in any country’s economic growth. For a country to develop, it is also important to develop investment vehicles. Such vehicles may include, investment in the stock market, where one can choose to invest either in the agricultural sector, commercial sector or the alternative market segment (Muringu, 1998). The commercial sector is made up of commercial banks and insurance industry. This study analyses the commercial banks. Commercial banks indirectly controls the NSE because all investors including the NSE deposit their money with commercial banks. The bank, which an investor will specifically choose, will depend on the returns on their investment and the dividend payout among other factors.

1.2 Statement of the Problem

Nominal interest rates tend to be associated with share prices. If rates of interest are rising, price of shares will be falling and vice versa. This research attempts to determine whether there is any correlation between nominal interest rates and share price of stocks of commercial banks, which are listed in the NSE. Minimal research has been carried out in Kenya with regard to behaviour of nominal interest rates and prices of stocks of commercial banks quoted at the NSE (Muringu, 1998). The research will seek to establish whether there is any such linkage.
1.3 Objectives of the Study

1.3.1 General Objectives

The general objective of the study was to establish whether there was any correlation between nominal interest rates and share price of stocks of commercial banks quoted at the Nairobi Stock Exchange.

1.3.2 Specific Objectives

The specific objectives of the study were:

i) To establish the degree of correlation between nominal interest rates and share prices of commercial banks quoted at the Nairobi Stock Exchange for the period between 1995 and 2002

ii) To assess the behaviour of nominal interest rates and stock prices of stocks of commercial banks quoted at the Nairobi Stock Exchange

iii) To determine factors that affect nominal interest rates and shares of commercial banks quoted at the Nairobi Stock Exchange.

1.4 Justification of the Research

The stock market is an effective source of financing for the productive sector of an economy. It is particularly important given the volatility of interest rates and return on investments. The liberalisation of interest rates has affected commercial banks’ portfolio and performance in stock exchange. This can be seen in their market capitalisation for the last eight years. For example, the stock market witnessed tremendous growth in terms of annual turnover, market capitalisation and index level. The level of capitalisation during the period of 1995 to 2002 ranged between Kshs. 100 billion to Kshs. 128 billion. Besides, the index level averaged from 3000 and 3400 during the same periods. The understanding of interest rate behaviour and return on stocks would therefore help investors in choosing which banks and financial institutions to invest their wealth in, in the stock market.

Commercial banks are the main channels of finances to the economy. From the list of the commercial banks quoted at the NSE, Barclays Bank of Kenya limited, Standard Chartered
Bank Limited (both foreign owned) and Kenya Commercial Bank Limited are the major investors, which form the highest capitalisation in the capital market and therefore positively contribute to the Kenyan economy. The period under study was that period when the Government liberalized interest rates and exchange control operations of the country. This meant that performance of commercial banks would be guided by their ability to invest “wisely” and charge “reasonable” interest rates. Failure to do this would “throw” the banks out of business.

The study attempts to establish whether there is any correlation between nominal interest rates and price of stocks of commercial banks quoted at the Nairobi Stock Exchange. Most investors do not spend time to analyse whether to invest in banks, which are financed by debt or by the shareholders equity. Gearing increases chances of high income. However, when the economy is not performing well, there are high chances of default in loan repayment and a moderate bank may move from profits to losses (due to non repayment of loans) and this can lead to the bank being put under statutory management by the Central Bank of Kenya (under the prudential guidelines on management of commercial banks). Where a bank is financed by equity, the bank may only be unable to pay dividends. If the bank is financed by equity, what will be affected during hard economic times will be earnings per share and dividend payments. The result findings of this study will help policyholders, and treasury managers of the banks to make prudent investment decisions to achieve maximum profits.

1.5 Scope of the Study
Since the research focused on the relationship between nominal interest rates and stock prices of commercial banks, the study would deal with all commercial banks in Kenya, that are quoted in the Nairobi Stock Exchange between the period 1995 and 2002.

1.6 Definition of Terms
1.6.1 Interest Rate

According to Cox (1996), an interest rate represents a price. It represents a return required by a lender for temporarily losing the use of his money. On the other hand, a borrower looks at
interest as the charge he has to pay to acquire the temporarily use of another person’s money.

1.6.2 Nominal Interest Rate

Nominal interest rate or the real risk-free rate is the minimum rate of return that you would accept from an investment to compensate your deterred consumption. It is the basic interest rate, assuming no inflation and no uncertainty about future flows (Reilly, 1997).

1.6.3 Blue chip Companies

First class companies with steady dividend payment rates and growth prospects (Winifeld, 1996)

1.6.4 Dividends

A dividend is the amount paid out of a company’s net profits to its shareholders. It represents the shareholders return on the investment held by them (Spaulding, 1997).

1.6.5 Stock prices

This is the price investors would be willing to pay for a particular stock or asset. The stream of expected returns, the time pattern of expected returns and the required rate of return on the investment affect the stock price (Reilly, 1997).

1.7 Chapter Summary

The chapter outlined the background, the statement of the research problem, and the purpose of the study and the objectives of the study. The Specific Objectives were to establish whether there was any correlation between nominal interest rates and share prices of stocks of commercial banks quoted at the Nairobi Stock Exchange.
CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter is organised as follows: Section 2.2 will look at correlation between interest rates and share prices, section 2.3 will look at behaviour of nominal interest rate and share prices section 2.4 will look at determinants of interest rates, section 2.5 will look at factors that affect nominal interest rates and share price and section 2.6 will give a summary of chapter two.

2.2 Correlation Between Interest Rates and Share Prices.

Research carried out by Fama (1976), Ndung’u, (1999) and Koch, (1995) indicates that the effect of money supply on stock prices identifies two competing hypotheses. The monetary portfolio hypotheses suggest that changes in the money supply result in changes in equilibrium position of money with effect on other assets in the portfolio of investors. Investors then adjust the proportion of the assets represented by the money balances. However, because all money balances must be held, the system will adjust until a new equilibrium is reached.

The Efficient Market Hypotheses (EMH) also argue that if the stock markets were able to channel funds to the most productive sectors of the economy, they would make an important contribution to economic development. This is particularly important given that in most developing countries credit markets are characterised by imperfect information and oligopolistic structures. A well functioning equity market can be regarded as a precondition of complete financial liberalization (Winfield, 1996).

The correlation between interest rates and share prices are based on interplay of factors as shown below:
2.2.1 Interest Rates
According to CBK monthly review (2000), movement of interest rates is affected by many factors such as:

2.2.1.1 91-Days Treasury Bills Interest Rate
Treasury bills are short-term discount securities issued by government with maturities ranging from a few days to twelve months. In terms of operation, Treasury Bills are issued by the CBK on behalf of the government and they constitute the largest proportion of the government's domestic debt. This instrument, which is sold weekly on bid basis, is purchased by a wide variety of investors including commercial banks, Non Banking Financial Institutions, Insurance Companies, Pension Schemes, Parastatals, corporate entities and individual investors (CBK, 2000). When Treasury Bill rates are high investors prefer to invest directly in the Central instead of the respective commercial banks. This would in turn affect the banks cash ratio, liquidity ratio and the amount of cash available for investment.

2.2.1.2 Inflation Rate
Inflation is the sustained rise in the average level of prices. It is measured by the percentage change in price level (CBK Monthly review, Various publications). The underlying inflation refers to inflationary pressures that result from policy influence such as monetary and fiscal policies. The overall inflation in the country is influenced by, riots, food shortages, drought, floods and other natural disasters among other factors (CBK, 2000).

2.2.1.3 Gross Domestic Product Rate
The Gross Domestic Product rate (GDP) is a measure of the final goods and services produced by a country using its local recourses (Lipsey, 1975). The Central Bank of Kenya, through Operational Policy Committee (OPC) reviews the performance of the economy with respect to production of goods and services for the past twelve months during which time, the information is available. Studies have shown that when the economy grows, GDP rises. This leads to improved investment and economic performance and, in turn, leads to increase in savings by individuals. By so doing economic growth is enhanced (Muringu, 1998).
2.2.2 Share Prices

Share price movement depends on the rate of investment by individuals and institutions. Investors would choose to invest in institutions where their wealth will increase over time. An investment is the current commitment of money for a period of time, to derive future payments. The payments should compensate the investor for the time that the funds are committed, the expected rate of inflation, and for the uncertainty of the future payments (Reilly and Brown, 1992). Individuals and corporations invest to earn a return from savings due to deferment of consumption (Christopher, 1996).

A risk free investment is one in which the investor is certain of the return of the amount invested and timing of the expected returns. The investment instrument, which would fit such a description would be investment in government papers for example Treasury Bills and Bonds. However, the type of investment medium to be used will depend on whether or not the investor is risk averse or a risk taker. Risk averse investors would prefer to invest in government securities. However, most investments are risky and investors require a rate that will compensate them for the time the funds are committed, the expected rate of inflation and the uncertainty of the future payments as already mentioned above (Reilly and Brown, 1992). According to Muringu (1998), the objectives of the investor must be clear-cut. This allows the investor to ascertain the degree to which the investment vehicle chosen would achieve his investment objectives. Thus, an investor whose primary objective is safety would invest in low yielding but more certain government Treasury Bonds and Bills.

The risk free rate is the starting point of any investment analysis. The Real Risk Free Rate (RRFR) is the basic interest rate, which assumes no inflation and no uncertainty about the future cash flows. The RRFR of interest rate is the price charged for the exchange between current goods and future goods (Reilly and Brown, 1992).

Investors in shares of banks quoted at the Nairobi Stock Exchange would observe, among other factors, the above investment criterion (RRFR) when choosing the bank to invest in. According to Reilly and Brown (1992), efficient investors would consider investing in only those securities that offer higher expected return with the same or lower risk. Alternatively,
the investor would choose lower risk with the same or higher returns (Reilly and Brown, 1992). In theory, price adjusts in order for the assets to provide the rate of return required by investors. When this condition is met, an asset is said to be “fairly priced” and its price would be equal to its fair or fundamental value (Miller, 1981).

2.3 Assessing the Behaviour of Nominal Interest Rates and Share Prices

2.3.1 Share Prices

According to Hirt (1996), technical analysts or “chartists” believe that past prices are predictive of future prices. They reject fundamental analysis, placing all their belief in their interpretation of the pattern of past share prices. They divide share price into three kinds:

a. **Tertiary movement.** Day-to-day price movements not regarded as materially important.

b. **Secondary movements.** Price movements over a period of weeks or months. These are somewhat significant

c. **Primary movements.** A long-term price trend, which might last several months or over a year. A primary move is made up of a number of secondary movements and these, in turn, consist of many tertiary movements.

The main objective of the chart-oriented investor is to ascertain when “a change in primary” has occurred. These changes are categorized into head, shoulder and neck.

2.3.1.1 Head and Shoulder Movement

According to Winfield (1995), this is the most famous method used by chartists to interpret common patterns. The Head is the Summit and the Shoulders are lower peaks on either side. For chartists, the “Head and Shoulders” configuration presages a “bear” movements as the line falls below the “neckline”. A reversed Head and Shoulder” pattern is interpreted to indicate the onset of a “bull” phase.

**Bulls and Bears.** These are the major symbols of the stock exchange. Operators who make a practice of buying shares hoping for a quick profit are known as bulls. Bears will sell the shares in the hope of buying them back at a lower price. The traded option market is the modern home for “bulls” and “bears”. The general term “Bullish” is applied to any news
report or sentiment, which tends to push prices up. It is derived from the term “bull”. The term Bearish is the language of the stock market, which is to anticipate that prices are more likely to move downwards (Hirt, 1996).

2.3.1.2 Filter and Hatch Method

According to “filter hatch methods”, an investor who uses the filter system (also known as hatch method) will be following a particular share for some months. The theory of hatch system is that no investor can consistently buy at the very bottom nor always sell at the very top. A “filter” (of say 10%) is used in the belief that a rise of that magnitude suggests a safe purchase, and that falls of say 10% from a ceiling suggests that the investor should sell the share in question. A 5% will be less safe and 20% risk being too late. In between, there will be periods of “hold” when the prices are rising until a signal of consistent falling occurs when the share should be sold (Reilly, 1992). These theories however are mostly applicable in developed countries than developing countries like Kenya.

2.3.1.3 Random Walk and Efficient Markets.

As investors’ risk/return preferences are constantly changing, they give rise to a frequent need to adjust the composition of their holdings to reflect these changes and investors in response to new events are continually revising their anticipation about the expected return associated with the holdings of different securities. A basic proposition of modern portfolio theory is that the stream of new events, which generates all the trading activity, tends to occur in random fashion. The nature of the next event cannot be successfully predicted from the knowledge of the last event. Therefore, the behaviour of stock prices resembles a random walk event to event (Sharpe, 1981).

The random walk hypothesis of stock prices movement is based on the assumption that the trading mechanism for stocks represents an efficient marketplace. In essence, the market is characterised by the presence of a large number of rational, profit-seeking, risk-averting investors who compete freely with each other in their effort to predict the future value of individual stocks. Information significant enough to affect value is held to be quickly available to knowledgeable investors. As a result, new information affecting a stock’s value
becomes quickly reflected in the price of the issue (Winfield, 1992).

This assumed rapidity of price response to new information tends to fly in the face of what many professional investors consider their greatest strength—the ability to benefit from a careful analysis of emerging new facts. This pattern of information recognition in turn is believed to cause a sequence of interim stock price movements, which reflects the gradual discounting of new information as it moves through the investor system rather than an abrupt and complete discounting as soon as the new information is made public (Muringu, 1998).

Thus, the Random Walk and Efficient-Market Hypothesis -key ingredients of modern portfolio theory-throw down the gauntlet to investors who believe they can outsmart the market. For random walk and efficient-market hypothesis lead to the conclusion that at any point in time the actual price of a security is the best estimate of it's incorporating all available information (Sharpe, 1981).

2.3.1.4 Efficient Market Hypothesis (EMH)

Efficient market hypothesis, developed from Random Walk Hypothesis (RWH), advocates that company’s share price movement should in theory reflect the prospect of the company. It is divided into weak form, semi-weak form and the strong form. Each of these connotes different levels of market efficiency (Reilly & Frank, 1992).

The weak form holds that successive changes in stock prices are essentially independent of each other and information content of historic market data (price, trading volume, among others) is already embedded in the existing price.

The Semi-strong form holds that stock prices adjust rapidly to all new publicly available information (not political events) and that action taken after an event is known will produce no more than random results.

The strong form holds that stock prices fully reflect not only public information but also most privately held information, which is likely to become public in the near future. Winfield (1995) believed that the market itself is the most efficient portfolio, which builds upon the
random walk hypothesis.

**Contagion model** states that in today’s global market, the prices in other markets and other information (even when it is spurious) may be a major influence on share price in the home market (Dyson, 1993).

### 2.3.2 Nominal Interest Rates

According to Loanable Funds Theory (Cox, 1996), a rate of interest is reached by the operation of mechanism of supply and demand of Loanable funds. The supply of funds is mainly from people and institutional savings. The amount of funds they are prepared to supply will vary with the price (rate of interest) they are offered. Thus, if rates of interest are very low, most people will decide that it is not worth lending out their savings, and so will prefer to keep them in liquid form. As interest rates rise, so the amount of savings will increase, and the supply of funds becomes greater. A borrower will view a rate of interest as a cost and so the lower that cost, the greater the demand; as rates of interest increase, so the demand for borrowing falls. This gives a conflict of interest. The savers would wish to get the highest possible rate of interest as return to their investment and to the borrower, the lowest rate of interest. When the returns are high from investments in banks, investors mainly from big institutions like insurances, social security fund and individuals, will wish to invest in such banks so as to earn high returns from their investments. Loanable funds theory is an over simplification of a complex matter. Any change in conditions of demand or supply of funds will affect interest rates. The following factors affect the level of interest rates charged by a bank to its borrowers:

**a) Base rate**: This is the basic lending rate of a bank or financial institutions, on which its lending and deposit rates are founded. Each bank determines its own base rate as it deems fit. From a bank’s point of view, base rate represents the marginal cost of borrowing funds. Normally, all banks tend to have very closely related interest rates since base rate is linked to Central Bank’s treasury bills rate (CBK Act, 1966).

**b) Demand and supply**: This is the biggest single factor affecting the market price of funds. The effect of supply and demand for funds can be expressed in simple terms by saying that if
there is a large supply for funds with very little demand for them, the price of the funds will be fairly low, whereas if there is limited supply continued with a high demand, they will command a high price (Hirt, 1996)

c) **Risk premium:** This is the reward paid to lenders for foregoing the use of his/her money. The risk of non-payment of borrowed funds will tend to raise interest rates by lenders. Bank lending rates depend on the borrowers providing security, whether the loan is secured or whether it is personal or business (Cox, 1996).

d) **Amount and time period:** A higher amount, which is deposited, will tend to attract a higher rate of interest and so is a longer period. Hence, time period of the loan is linked to higher rates (Davidson, 1999).

e) **Inflation Factors:** When inflation rates are high, lenders charge a high interest rate in order to compensate for expected loss in real value on their capital (Davidson, 1999).

f) **Government’s monetary policy:** The government may at times control the interest rates charged by commercial banks and other financial institutions (Cohen, 1997).

g) **Bank interest rates:** Bank’s interest rates charged will vary depending on the purpose. The following are main types of interest rates charged by banks as noted by Cox, (1996):

**Base Rate:** This represents the rate that a bank must charge to borrowers in order to meet most of the costs of running the bank while attracting sufficient deposits. Base rate is always close to short-term money market rates and therefore will be subject to frequent changes e.g. if base rate were below money market rates, a customer would borrow from a bank and lend these funds to the money market, thus making a profit on the deal. Borrowing customers pay a margin over base rate to meet the interest rate charged on loans and overdraft. This amount varies with the

- Risk perceived by the bank
- The amount borrowed
- The time period of the loan
- Security offered (if any). Such rates are called "blue chip rates"
- Banks policy such as 10-15% over base rate

**Deposit rate:** This is the current rate of interest allowed on deposits account displayed on all bank branches. Deposit rate is usually 2-5% below base rate. The difference between deposit rate and borrower’s rate represent gross profit out of which must be paid banks operating expenses.

**Personal loan rates:** Personal loan interest rate is normally fixed for the period of the loan and hence a flat rate. Annual percentage rate charged on personal loans will always be considered higher than overdrafts and will approach the rates charged by hire purchase companies.

**House-purchase loan rates:** These vary with the general level of interest rates charged are very close to those made by building societies that are the banks’ major competitors in the market.

**Inter-bank offered rates:** Interest rates charged to larger company customers by banks are often closely related to rates on the inter-bank wholesale money markets. The balance between demand and supply determines inter-bank interest rates.

### 2.4 Factors that Affect Nominal Interest Rates and Share Prices

#### 2.4.1 Nominal Interest Rates

According to Cox (1996), short-term interest rates are determined by Central bank as a result of its day-to-day intervention in the money market. By making funds available in the discount market, the bank can control the rates on marginal funds loaned to the banking system.
The rates of interest the bank charges to the market signal the direction in which it wishes to move. Example, if it raises the rate of discount on its purchase of commercial bills, then the discount market will in turn raise the rate of discount on the short-term securities in which they deal. Thus the interest rates on Treasury Bills certificates of deposit, commercial bills will tend to rise. The banks will in turn, increase interest rates that they charge for the money leading to high interest rates for certificates of deposits. This will push the banks to increase their base rate in order to maintain a sufficient margin between cost of borrowed funds and the return on funds employed. In turn, this will cause a rise in the rate paid on deposits. A rise in base rates if sustained will cause a flow of funds into the banks out of account of building Societies and savings banks. As a result, in order for Banks, Building Societies and other Financial Institutions to increase returns will raise the interest rates that they are prepared to pay. The Building Societies will increase the rates they charge on mortgage to cover the additional costs of funds. Thus, a change in Treasury Bill rates will affect the rates charged by Banks and Building Societies, affecting short-term and long-term rates. Other factors affecting rates of interest are: Rate of inflation, Exchange rates of other currencies, Economic factors, Political factors and Standards of living (Muringu, 1998).

Muringu (1998) argues that changes in the general level of interest rates have a major effect upon the economy of a country as a whole such as: High rates of interest slow down demand for bank loans and overdrafts. Economic activity will be reduced and the public will be less inclined to buy capital goods such as cars, machinery, and new houses amongst others. This reduced demand for manufacturing industry will lead to their postponement of new machinery and buildings and will in turn affect employment prospects. These will trigger un-employment and reduction in economic development. Reduction in investment will affect the balance of payment of the country, and will in turn affect the exchange rates of the country’s currency. This in turn will depress the economy. Hence interest rate is affected by the following factors,

a) Government Monetary Policy

The government may at times control the interest rates charged by commercial banks and other financial institutions either directly in the form of directives or indirectly through
b) Spot Interest Rates and Forward Interest Rates

According to Davidson (1999), interest rates are determined by spot rates or forward rates. There are four hypothesis concerning these relationships, expectations, liquidity premium, inflation premium, and market segmentation hypotheses.

**Expectations hypothesis** holds that the investor need not worry about the maturity of the government gilts he holds. However, the risk inherent in each of the maturity strategies is not the same, even if the expected return is.

**Liquidity premium hypothesis** is based on the view that investors usually want to lend for a short-term but borrowers wish to borrow on long-term. Investors would have to be paid a premium to invest in long-term gilt, for example, 10 years when one would have wished to invest for a short-term like, two years.

**Inflation hypothesis** is based on the idea that the risk of concern to the investor is not interest rate risk but inflation risk. If inflation can only be forecast accurately a short time ahead, investors will prefer to lend short-term, as under liquidity preference argument. Hence, forward rate will include a premium to persuade investors to lend for long term.

**Market segmentation hypothesis** presumes that the demand and supply for maturity of gilt will be different (or negative) depending on whether borrowers outnumber lenders and vice versa.

The risk premium on securities can be calculated using Treasury bills rate, nominal interest rate charged on the borrowers, inflation premium, portfolio risk premium and disturbance factor whatever else is not captured by the above variables.

c) Yield Gap Management

Yield as defined by Cohen (1997) is a combination of price and interest rate, which is appropriate in line with the current level of interest rates, the date of redemption (if any) and
the degree of risk. An increase in interest rates, for example, will cause government stocks to fall in price. This depresses the price of fixed interest securities. Investors calculate the flat yield (also known as the interest or running yield). The flat yield simply informs the investor of the interest return of the stock at the current market price. The relationship between yield and maturity date is shown by means of yield curve, which can be negative or down sloping. Reverse yield gap shows the difference at any point in between gilts and equities. The major theories, which explain yield curves, as analysed by Hirt (1996) are:

The expectation theory, which states that long-term interest, reflects the market’s expectation of short-term interest movement.

The market segmentation theory, which that states that investors in short-and long-term securities are altogether different. Yield in the different markets are therefore subject to supply and demand factors, affecting quite different institutions.

The Keynesian liquidity preference theory, which states that the yield curve will be upwards because investors (such as banks) prefer the greater certainty of near cash. Besides, as stock prices move closer to maturity, hence par, they are less volatile. Yield curve is affected by present and expected future interest rates. For example, if short-term interest rates are low and considered likely to rise in the future, the redemption yield on shorts will be lower than a 5 year or 10 year gilt, giving a rising yield curve. Given an estimated change in redemption yield, investors can calculate its effect on different gilts and make purchase, sale or switching decisions.

d) Interest Rates Swaps

Interest rate swaps represent an agreement to exchange interest rates payment, at least one of which must be on a floating basis, at a future date, based on a notional principal amount. Foreign exchange swaps are in effect a spot transaction coupled with an opposite forward deal (an agreement to conduct a reverse transaction at a fixed price at a future date).

The swap market provides a means of converting cash flows, changing the amount of
payments and/or the frequency and/or currency. This can enable investors to match more closely their assets/liabilities, to exploit arbitrage opportunities, to hedge exposures, to take advantage of better credit ratings, to speculate and to create certain synthetic products Market (Margin, 1983)

e) Traded Options

Traded options are contracts to purchase or sell securities at fixed prices at future dates. They are essentially short-term. The investor or speculator can affect two basic kinds of options contracts- “call” option or “put” option. The “call” option is appropriate where the investor expects shares to rise whereas the “put” option will be chosen where a downward movement is considered more likely. Options are derivative instruments and are more used in developed countries. Because of the risks attached to them, brokers are required to obtain the specific agreement of their clients before conducting any transactions (Spaulding, 1997).

2.4.2 Share Prices

According to fundamental and technical analysts, the prices of shares are constantly varying each day, moving either upwards or downwards. Generally, there is a tendency for all ordinary shares to move in the same direction over a given period of time although individual sectors of the market may be affected by different factors. An individual price reaction to a company's performance is frequently influenced by the general tendency in the market. The overall movement of the market is a matter of interest because it reflects what investors in general think of the prospects for the economy as a whole or sectors of the economy. It may also indicate the investor preference or levels of investable incomes.

The Greater Fools Theory. (Cohen, 1987) states that each buyer assumes that he/she will be able to sell at a higher price to a greater fool. These are referred to “bubbles” and such bubbles must eventually burst.

Cohen (1987), realised that, the hypothetical corporations stock might sell for a while, but people must eventually recognise that they are buying and selling a mere piece of paper without any value in the absences of the ability to pay dividends or liquidate. Hence, while
much of a stock’s value to an investor undoubtedly lies in the prospect of price appreciation, price cannot be divorced from dividend prospect.

Capital markets, including equity markets are much like other markets except perhaps for two characteristics, their speed and their regulation. They react to all but instantaneously to changes in demand and supply, which is one reason why they can be volatile. And both they and those who operate in them are overseen by a complicated rush-mash of government rates and regulations, designed (at least purportedly) to protect investors. As the number of investors grows, this job assumes increasing significance.

Fundamental analysts look at rational factors. That is, they look at fundamental factors, which could have contributed to the change in share price movements whereas technical analysts look at irrational factors, that is, factors, which may not be quantified in the share, price movements but have affected the share price movement.

2.4.2.1 Rational Factors

Rational factors of share price movement are associated with fundamental analysts (Reilly, 1992). They evaluate the value of a share by studying the balance sheet, profit and loss accounts, the calibre of management, the economic situation among others, which are associated with a company’s success. They try to assess whether a share is cheap or dear in relation to its intrinsic value. They analyse past performance and assess the likely future profitability and growth. Such analysis must include an examination of the prospects of the industry, the quality of earnings and the ability of management.

a) Beta Coefficients

As noted by Modigliani and Miller (1981), the Beta coefficient purports to measure the level of risk of a particular share in relation as whole, to the stock market. If a share has a beta coefficient of one, the share is considered to be no more or no less risky than stock market. The higher the beta coefficient, the more risky the share is considered to be. With the computer technology, a computer programme will compare the total return on a particular share (dividend and capital gain) over a given number of periods with the total return on the stock market as a whole for these periods. The volatility of the share’s return can be compared with the volatility of the stock market, and a beta coefficient can be used to
express that comparative volatility in a single number. If a share has a high beta coefficient, it is said to be “aggressive” whereas one with a low beta coefficient is said to be “defensive”.

b) Interest Rate Risk
Interest rate risk is a rise in interest rates that usually depresses the prices of fixed income type securities and equities as well. Historical experience indicates that when the average level of interest rises, absolute volatility also rises. According to a study carried out by Federal Reserve Bank of Kansas City’s economic review it was found that “interest rate volatility is generally what matters in economic theory because the risk on unexpected gain or loss can influence economic decisions.” Interest rates affect interest-sensitive investment spending. Interest uncertainty is attributed to by various factors such as interest rate deregulations, volatility of money and inflationary expectations. Interest rates uncertainty increases cash holdings because future securities prices become more difficult to forecast and the risk of capital loss becomes greater. Investors will prefer to hold money market deposits accounts or money market mutual funds which have market-related rates of return but little or no capital risk. Uncertainty about nominal interest rates reflects uncertainty about inflation and makes commodity inventories more attractive (Reilly, 1997).

c) Business Risks
Interest rate cycles, and stock price cycles have been closely related to the ebb and flow of general business activity. Essentially, interest rates have tended to rise as the business cycles mature.
A research carried by Hirt (1984) showed that during business cycle contractions, all or most of the factors affecting business operate in reverse and (tend to) bring interest rate down.
Changes in the regulations of financial markets will affect the historical relationship between business cycle movements and the stock market.
Monetary policy as a basis for analysis of business cycles claims that, the changes in monetary aggregates causes cycles in economic and the rate of inflation. The stock price cycles are closely related to changes in business activity, structures of these assist investor
decision making. The ability to foresee economic turning points improves the expectations of investment strategy.

d) Market Risk

The performance of the stock market generally affects the price of individual shares. When the stock market surges up, most stocks post high prices. On the other hand, when the market falls sharply, most common stocks will drop. Hence a change in market psychology can cause a security's price to decline irrespective of any truly fundamental change in the earnings power of the company itself.

It is important to note that movements in the price of stock which cannot be accounted for by volatility or high betas may be attributed to special factors intrinsic to the company itself which make its stocks price move either contrary to the market or move more extensively than the market (Richard, 1976).

e) Balance Sheet Analysis

A study carried out by Christopher (1996) indicates that financial analysts use the following analyses to assess the worth of a company's share.

i) Earnings Per Share (EPS)

Earnings per share represent the net profits of a company available to ordinary shareholders. Earnings can either be paid out to the ordinary shareholders by way of dividend or they can be retained within the company. The earnings figure will remain the same whether or not any dividend is declared. It is total earnings divided by the number of ordinary shares.

Earnings are important to the share price. If earnings are ploughed back into the company, the reserves or retained profits figure in the balance sheet will rise. Thus, the total shareholders funds will increase alongside with a corresponding increase in net assets value per share. This will result in a rise in the market price of shares. Earnings are said to have "quality" when the company shows steady increasing earnings, the management is sound, the product range is diversified and profits are in line with forecasts. If earnings are paid out by way of dividend, all things being equal, then the dividend yield will rise, making the shares more attractive and causing their price to rise. The prospect of growth of earnings has an
influence on the share price. When earnings grow at a faster rate than inflation does, it is said to be real growth. EPS can be calculated using nil basis, net basis or full basis (in other words net of distribution).

ii) Price Earning (P/E) Ratio

Earnings per share will be a meaningless term if taken in isolation. To compare earnings of two companies, from the point of view of an ordinary shareholder, we need to relate EPS to the current price of the share. This is done through the calculation of price earning ratio. The ratio shows the number of times the current share price exceeds earnings per share. The formula is current share price divided by earnings per share (Winfield, 1996).

The ratio is expressed as a number and is used to compare one share with another. A high P/E ratio of a particular bank can be compared with the average industry and appropriate conclusions drawn. One method of valuing a company (or of assessing the "intrinsic value" of its shares) is to try to forecast the earnings of the next accounting period. These earnings can be multiplied by the average P/E ratio for the sector to calculate the estimated company value (also known as estimated capitalisation).

iii) Dividend Yield

Dividends are the actual amounts from profits paid out to the shareholders in cash. The dividend is paid net of 15% tax. To calculate the dividend yield, the grossed up dividend, (not net), is used and the formula is Gross per share divided by current share price multiplied by 100. This will be shown as a percentage of current share prices. When comparing divided yields in two banks in the same sector, higher divided yield may be due to prospects of future divided rise, or investors behaviour that earnings are likely to fall in the future. It is worth to note that low divided yield and high price earnings ratio often go hand in hand since the current "high" share price reflects future prospects whilst the relevant dividends and earnings reflect the past performance (Winfield, 1996).

iv) Capital Structure

Capital structure refers to the financing composition of the company. Companies may be highly or lowly geared. Gearing refers to the capital structure by outside financing such as acquisition of long-term loans. Companies with high gearing have an option of performing very well especially if the loans assist in the expansion of the company. It may lead to fast
expansion leading to high profits and therefore good returns to shareholders. High rate of debt also means that in bad times, very little might be left for ordinary shareholders after payment of interest on the debt item and also preference dividends. It will also mean that depending on the type of debts, the debts could have a large portion of non-performing loans and thus leading to a large portfolio of bad debts. This will affect the performance of the company leading to the company being put in statutory management. The news travel very fast and shareholders would wish to sell their holdings of the company leading to high supply, not matching demand of the shares and thus depressing the share price of the company. The changes in gearing will be influenced by what kind of investors the company wishes to attract. A highly geared company will attract risk-taking buyers of ordinary shares whilst a low-geared company will be more attractive to potential ordinary shareholders who wish to minimise their risks. Muringu supported this view (Muringu, 1998).

2.4.2.2 Irrational Factors

Irrational factors of share price movement are related to technical analysts. Technical analysts or “chartists” believe that past prices are predictive of future prices. They consider fundamental analysts placing all their faith in their interpretation of the pattern of past share prices as sceptical and more conservative. They study the movement of stock prices, past and present, and other technical data such as trading volume, and the number of stocks, which are either advancing or declining. They believe that investors take note of share price patterns as one of many factors to be wished in investment decisions. By studying the price pattern of a particular share or that of a particular share index, they may decide on whether to buy or sell. They use many tools including odd lot trading, short interest, breach of market analysis, advance decline lines, ratios and disparity measures, moving average lines and the confidence of index. They include chart languages such as line charts, bar charts, and point and figure charts to interpret share price movement, and utilise techniques of “signalling” in order to form opinions in the following (Hirt, 1996),

a) Management

If a company’s rate of growth has consistently exceeded those of similar companies, then the reason could well be management. Management changes can therefore be an important
factor affecting future performance of a company and its shares. Good management is able to
spot the potential markets of the future and the skill to enable the company to change its
operations so as to be able to meet the demands of such markets.

b) Directors Share Dealing

According to signalling theory as expounded by Hirt (1996), director's dealings in the share
of their companies are looked on as a useful signal to the prospects of the company. While
directors cannot deal on "inside information" which constitutes a criminal offence, they
directors are in a better position to know just how good or bad the companies prospects are.
Information available about purchases and sales made by directors can be interpreted to be
"buy" or "sell "signals for the shares.

Buy signal

When a director buys shares, it is a signal that he believes the share price will rise.

Sell signal

When several directors sell at approximately the same time and in large transactions, then
this is interpreted as a "sell signal" showing the companies' prospects are bad.

As a result, and to prevent any problems the stock exchange rules prevent directors from
dealing for two months prior to the announcement of interim and final results.

c) Merger Announcements

When a company is being taken over by another in a merger situation, this will increase
market share and sales leading to increased profits. The bidder and any associates acting in
concert to the target company's shares may quote a bid price which is above the market price
or at least above the market price that prevailed before the news of the bid. Where the take
over becomes unconditional, the bidder will dictate the price but the price should be at the
same terms and conditions as other shares obtained. Where the bid is contested or hostile, the
market price of the targeted share will be below the offer price. When the target company's
share stays above the bidder's terms, it means that the market expects the opening bid to be
merely a "sighting shot" with an improved offer likely (Margin, 1983).
d) Time, Day, Month

The Dow theory, according to Sharpe (1981) maintains that there are three major movements in the market: daily fluctuation, secondary movements and primary trends. Daily fluctuations and secondary movements are only important to the extent that they reflect the long-term primary trend in the market. The primary trends may be characterised as “bullish” or “bearish”.

When the shares start trading in the stock exchange, the prices tend to be the closing price of the previous day. However, as the day moves on and more information is received, any information indicating change of views of the market sentiments will drastically change the price such as news of change of management, announcement of results of the company’s accounts, amongst others. The price will stabilise towards the end of the day. The bourse operates Monday to Friday; share prices on Mondays tend to be similar to close prices of Friday. However, as the week advances, and activities increase and more information is made available for quoted companies, prices will change by the middle of the week stabilizing towards the end of the week. With regard to months, shares tend to be cheap beginning of the calendar month. However, as prospective investors expect announcements of company’s performance by middle of the year, the share price will drastically change depending on what prospective investors think of the company, the shares will go up or down depending on the market sentiments.

e) Odd Lot Theory

An odd-lot theory is based on less than 100 shares and only small investors tend to engage in odd-lot transactions. The odd lot theory suggests you watch very closely what the small investor is doing then do the opposite (Cohen, 1987).

f) Volume

This refers to amounts of volume supporting a given market movement considered significant. Hirt (1996) argues that if a stock makes a new high on a heavy trading volume, this is considered a bullish market. Conversely, a new high on a light volume may indicate a temporally move that is likely to be reversed.
g) Surprise Earning Effect
Accounting information tends to be quickly impounded in the value of a stock. However, unexpected earnings announcements, if positive may cause a stock to go up for a number of days after the announcement and thus provide a superior investment opportunity. The opposite would be true of a totally unexpected negative announcement (Muringu, 1998).

h) Purchasing Power Risk (inflation)
A typical risk avert investor will seek a safe investment which will return at least the same number of shillings put in the investment originally. The investor hopes to achieve a current increase and for capital gain from an increase in earnings and assets of the corporation. However according to Hirt (1996), it takes a decade to achieve a 60% return inclusive of reinvested dividends when the price level over this period of time has risen 100%. Hence, the investor will be receiving in return a lesser amount of purchasing than was committed originally. Purchasing power risk (such as inflation) must be considered even when equity is considered on the basis of total return. Common stock prices over the long run exceed the growth of inflation.

It is important to note that movements in the price of stock which cannot be accounted for by volatility or high betas may be attributed to special factors intrinsic to the company itself which make its stocks price move either contrary to the market or move more extensively than the market (Richard and Ross, 1976).

2.5 Chapter Summary
The theory of investment behavior is based on the integration of costs of adjustment with the neoclassical theory of optimal capital accumulation. The main components of the theory are demand for capital services, replacement investment and the relationship between changes in demand for capital and actual investment expenditures. This theory has been tested at the aggregate level, industry level for manufacturers and at the level of the individual firm. This chapter considered the degree of correlation between interest rates and share price and factors that affect banks nominal interest rate in general and the factors that affect share price. The next chapter will consider the research methodology used in collecting the data, data analysis and presentation techniques.
CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction
This chapter discusses the research design, which will be used in the study. Broadly defined, a research design is a programme to guide the researcher in collecting; analysing and interpreting observed facts (Bless and Achola, 1988). The chapter will cover research design, population and sample, sources of data, target population, sampling procedures, and data collection techniques and data analysis and chapter summary. The study will utilise quantitative approach.

3.2 Research Design
The research design is correlational. Correlational research design is a statistical procedure, which identifies underlying patterns of variables. A large number of variables are correlated and the presence of high inter-correlations indicates a common underlying factor (Cooper and Schindler, 2000).

Correlational research designs are based on the assumption that reality is best described as a network of mutually interacting causal relationships. Everything affects, and is affected by everything else (Davis, 1997). However, the web of the relationship is not as clear as in experimental research. Therefore, the dynamics of a system, how each part of the whole system affects the other, is more important than the causality itself. The study focused on the causal relationship between nominal interest rates and shares of all commercial banks quoted at the Nairobi Stock Exchange (http://www/social research methods. net/tutorial)
3.3 Populations and Sample

3.3.1 Population

According to Babie (1995), the population for the study is that group about whom we want to draw conclusions. It refers to all the members or set of people, events or objects to which the results of research can be generalized. The target population in this study was all the eight banks quoted at the Nairobi Stock Exchange.

The target population was found to be in finance and investment segment of the listed companies at the NSE. The researcher then selected samples from the securities traded at the NSE by the commercial banks (Appendix 1)

3.3.2 Sampling design

3.3.2.1 Sampling Frame

Cooper and Schindler (2003) define a sampling frame as a list of elements from which the sample is drawn and is closely related to the population. The sampling frame would constitute commercial banks in Kenya, quoted at the Nairobi Stock Exchange. The sampling frame was obtained from NSE and Central Bank of Kenya Research Departments. The research covered all the entire population.

3.3.2.2 Sampling Technique

The principle of purposive sampling selection was used in the study. It is a procedure by which the elements in the population do not have any probabilities attached to their being chosen as sample subjects. This means the findings from the study cannot be confidentially generalised to the population.

The study relied on secondary data obtained from NSE library in order to capture stock prices. The technique used included reading and recording of information/data from the stock exchange as documented for the period of study.

Since the documents or pieces of information were neither prepared for the purposes of
research nor at the request of the researcher, they were written without any bias to the research topic. The nominal interest rates were collected from the research department of Central Bank of Kenya. The researcher used the same methodology to record both share prices and nominal interest rates.

### 3.3.2.3 Sample size

According to Cooper and Schindler (2003), a sample size population is the total elements to which inferences are made. In this study, the sample size was the same as population, which are all the eight commercial banks quoted at the Nairobi Stock Exchange.

### 3.4 Data Collection Methods

A secondary data collection method was used in the study. The data was collected using a researcher designed tabulated data collection form (Appendix 2). The technique used involved studying, reading, and recording information/data from the Nairobi Stock Exchange fact sheets as documented for the period of study. The data on nominal interest rates were collected from Central Bank of Kenya Research Department, which keeps data on interest rates among others.

### 3.5 Research Procedures

A research is supposed to exhaustively investigate. It is a careful or diligent search, studious inquiry or examination, especially the investigations on facts, revision of accepted theories or laws in light of new facts or practical application of such new or revised theories or laws, Webster (1985). In other words it is the collection of verified or analysed information about a particular subject.

In this study, the data regarding share prices and interest rates was collected from all the eight banks quoted at the NSE and CBK respectively. The data was then collated, analysed and tabulated to give authentic results.
3.6 Data Analysis Methods.
After a careful review of all the collected data, the data was analyzed using Microsoft excel's method. A correlation was carried out on the independent variables of share prices and nominal interest rates to determine how closely related each of these independent variables were to each other. The results were presented in form of tables, charts and graphs. Graphs were drawn to show the behaviour of nominal interest rates and share prices for each bank so as to observe how they relate with each other. Data was manipulated for the purposes of drawing conclusions that reflected the interests, ideas and theories as discussed in the literature review.

3.7 Chapter Summary
The objective of this chapter was to present the research design, population and sample, data collection method, target population, sampling procedures, data collection technique and data analysis. The study was to document the extent to which nominal interest rates change with share price movements of commercial banks that were quoted at the NSE. The study would therefore provide information on the correlation between nominal interest rate and shares of commercial banks quoted at the Nairobi Stock Exchange.
CHAPTER FOUR

4.0 RESULTS AND FINDINGS

4.1 Introduction

This chapter presents the findings of the study based on the data collected from the Central Bank of Kenya and Nairobi Stock Exchange. The data used consists of average nominal interest rates and share prices for the eight commercial banks quoted at the NSE between 1995 and 2002. The results of the study are presented as follows:

- Degree of correlation between nominal interest rates with share price in commercial banks quoted at the Nairobi Stock Exchange for the period 1995 and 2002.
- Assessing the nominal interest rate and share price of the commercial banks quoted at the Nairobi Stock Exchange
- Investigation on the factors that affect nominal interest rates and share price of commercial banks quoted at the NSE.

4.2 Correlation Between Nominal Interest Rates and Share Prices.

The table 1 shows a summary of share prices of commercial banks quoted at the Nairobi Stock Exchange. The summary shows a significant shift of prices from 1997. From 1997, there was a significant decline in share prices for most of the commercial banks quoted at the NSE except two foreign banks namely Barclays Banks of Kenya (BBK) and Standard Chartered Bank (STD Bank).
Table 1: Summary of share prices for banks quoted at the Nairobi Stock Exchange between 1995 and 2002 (in Kshs)

<table>
<thead>
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Source: Various publications from CBK, NSE and CMA

Table 1 above shows a summary of share prices for all the commercial banks quoted at the NSE during the period ranging from 1995 to 2001. The prices were obtained from the NSE library. Since shares are not traded on a daily basis, the prices indicated above are average prices per year for the period under review. The prices have been rounded up to the nearest five (5) cent.
Fig 1 below shows share prices of all commercial banks quoted at the NSE. The graph shows that share prices have been on a downward trend. However, in 1997, all banks showed a price gain except Barclays Banks and HFCK.

In 1997, KCB, NBK, NIC and CFC showed a price gain which was immediately lost in 1998. NBK showed the highest price gain of 68%. The Standard Bank and Barclay Bank of Kenya Ltd shares, seem to have been steadier compared to those of the other commercial banks quoted at the NSE. This is reflected in the trend analysis shown below.

Fig 1 Share price movement of all commercial banks quoted at the NSE

Sources: Various CBK and NSE publications
4.3 Assessing the Behaviour of Nominal Interest Rates and Share Prices of Commercial Banks Quoted at the NSE.

Below is the analysis of the changes of share prices of commercial bank quoted at the NSE to nominal interest rate changes.

4.3.1 Barclays Bank Of Kenya

The share price movement of BBK was "BUBBY" as compared to nominal savings interest rates of the period under study. Despite interest rates being generally steady in 1995 and 1997, there was a fall of shares price, which was temporally regained in 1999 only to be lost immediately in 2001- a price gain of 13%. Fig 2 below shows summary of the price behaviour of BBK.

![Chart showing share price and savings rate]

Fig 2 Barclays of Kenya: Share Price vs. Savings Rate

Source: Various publications from NSE and CBK
4.3.2 CFC Bank

The shares price movement was on a decline trend except in 1997 and 2002 when the shares showed a marginal price gain of 10% and 2% respectively. This is reflected in fig 3 below.

Fig 3 CFC Bank: Share Price Vs. Savings Rate

Source: Various publications of NSE and CBK.
4.3.3 Diamond Trust Bank

Fig 4 below shows that the shares of Diamond Trust Bank were on a general trend of decline except in 1999 when it gained by 14%. The price gain was at a period when interest rates surged to 5.65% (a loss of 29%)

![Chart showing share price vs. savings rate](image)

Fig 4  Diamond Trust Bank: Share Price Vs. Savings Rate

Source: Various CBK and NSE publications
4.3.4 Housing Finance Company of Kenya (HFCK)

Fig 5 below shows that the shares of HFCK had generally been on a decline trend except in 1999 when there was a marginal gain in price only to be lost immediately in 2000. The share prices of the bank were below nominal interest rate and actually below their pa value.

Fig 5  Housing Finance Company of Kenya: Share Price Vs. Savings Rate

Sources: Various NSE and CBK publications
4.3.5 Kenya Commercial Bank

The shares of KCB had the highest price gain in 1997 of 45% when nominal interest rates were falling and immediately the share took a nosedive in share prices, which continued up to 2002. This is reflected in fig 6 below.

![Graph showing share price vs savings rate](image)

**Fig 6** Kenya Commercial Bank: Share Price Vs. Savings Rate

*Source: Various CBK and NSE publications*
4.3.6 National Bank of Kenya

The share prices of NBK had the greatest price gain in 1997 of 70% only to be lost by 68% the following year in 1998. In 1999, despite improvement in nominal interest rate, the share prices continued on a downward trend to below nominal coupon rate of Kes 5.00 per share. From 1998, the share prices of NBK were below interest rate. This is reflected in fig 7 below.

![Share Price Vs. Savings Rate Graph]

**Fig 7** National Bank of Kenya: Share Price Vs. Savings Rate

**Source:** Various NSE and CBK publications
4.3.7 NIC Bank

The share prices have been on a declining trend except in 1997 when they showed slight recovery, which was not sustained for long. The rate of decline improved in year 2001 as shown in fig 8 below.

![Graph showing share price and savings rate over years from 1995 to 2002.]

Fig.8 National Industrial Credit Bank: Share Price Vs. Savings Rate

Sources: Various publications of NSE and CBK
4.3.8 Standard Chartered Bank

Between 1995 and 1998, there was a general price decline in line with nominal interest rate. However, after 1998, there was a change "a turn around" of share prices and in 1999, the share price gain was 25%. This upward trend has been sustained since then as shown in fig 9 below.

Fig 9  Standard Chartered Bank: Share Price Vs. Savings Rate

Sources: Various publications of NSE and CBK
4.4 Factors that affect Nominal Interest Rates and Share Prices.

Stock markets are indicators of investors' perception about the current and future state of the economy. The decline in NSE is therefore a reflection of depressed economic activity.

The linkage between the economy and the stock market can be traced to the sensitivity of companies' earnings to the level of economic activity. A slow down in economic growth leads to a reduction in company earnings, which in turn causes share price to decline.

Competition for investor's funds between the money market and stock market could also be another reason for market activity. In the money market, returns on Treasury Bills have remained attractive to investors leading to a gradual shift of funds from the stock market to the money market. On March 2001, the 91 treasury bills stood at 14.33%, another short-term maturity coupled with low risk made them more attractive to investors compared to the low yielding and the more risky stocks. New issue in shares usually have the effect of boosting the stock market by improving trading activity. If the economic slow down does not end immediately, then, investor's income will continue to decline causing them to move further away from the stock market. Return on other investments will consequently decline leading to overall reduction in yields to investors.

The money market still remains the most preferred investment avenue unless interest rates fall substantially which is not so likely to happen in the short-term given the Governments financial position of guaranteed investment in government stocks, that is .treasury Bond and Treasury Bills.

There is a promising window of opportunity in the stock market. It is inevitable that the economy will recover, how long this will take is the issue. Meanwhile, most stocks are at a bargain price and investors who start taking positions at this time stand to profit immensely once the economy recovers fully.

Other adages are still applicable in the present state of affairs, namely buy when the market is bearish (declining) and sell when the market is bullish (rising prices). Hence, understanding of bank performance would help investors to know which banks quoted on the stock exchange would/should be considered for investment.
Although interest rate had a major impact on share price, there were other factors that affected share price of the commercial banks quoted at the NSE. This can be tressed from the periods, specifically between 1997 and 2002 when share prices gained in more than nominal interest rates. These “possible” factors are discussed in chapter five.

Below is a summary of the major factors affecting the share prices of banks quoted at the NSE.

Table 2: Summary of factors that affect nominal interest and share prices of commercial banks quoted at the NSE

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<th>LOCAL BANKS</th>
<th>FOREIGN BANKS</th>
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<td>High</td>
<td>Low</td>
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<tr>
<td>Capital Structure</td>
<td>High</td>
<td>Low</td>
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<td>Government</td>
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<td>Low</td>
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<tr>
<td>Directors dealings</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>BOP</td>
<td>High</td>
<td>Low</td>
</tr>
</tbody>
</table>

Table 2 shows a summary of the findings on the factors that affected the share price movement of the commercial banks quoted at the NSE. The table is divided into: factors to be considered, local and foreign banks. Each factor is considered against its weight on the impact of share prices and nominal interest rate.

In terms of Management, the local banks reacted highly to change of management more than
foreign banks. This was mainly due to the fact that the government had a lot influence on locally owned banks. However, that was not the case with foreign owned banks. Management of foreign owned banks was decided by oversea countries as a global policy. Unlike foreign owned banks, which followed strict loan repayment policy, capital structure was unstable for local banks due to loan portfolio management. It should be noted, however, that although politics affected local banks more than it did the foreign owned ones, demand and supply of shares affected share prices of all the banks.

The dividend policy and director's share dealings had the same impact on share prices for both local and foreign owned banks. Investors considered this as "noise" which would affect the direction of share movement. BOP, which had a direct impact on interest rate, was highly manifested on the local banks more than the foreign owned banks. This was connected to capital base and management of the banks.

Chapter Summary

The main purpose of the study was to investigate factors that show whether there is any correlation between nominal interest rate and share price of commercial banks quoted at the Nairobi stock exchange. The population consisted of all the eight commercial banks quoted at the NSE. The data was collected from the Central Bank of Kenya and the NSE. The data analysis was carried out using Microsoft Excel and presented in the form of descriptions supported by tables and graphs.

The major finding of the study was that there was positive correlation between nominal interest rates and share price of shares of commercial banks quoted at the NSE. The research also revealed that nominal interest rate was not the "only" factor but one of the factors that affect share price movement.
CHAPTER FIVE

5.0 DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction.

This chapter discusses the findings of the study, the conclusions derived from the findings and recommendations based on the findings to form a basis for improvement and further research. Section 5.2 provides a summary of the purpose of the study, the methodology used and the major finding; section 5.3 provides the discussion of the major finding, while section 5.4 is a conclusion drawn from the major finding and section 5.5 gives recommendations and suggestions for future research work on the findings, respectively.

5.2 Summary

The general objective of the study was to establish whether there is any correlation between nominal interest rates and share price movement of stocks of commercial banks, which are quoted at the Nairobi Stock Exchange. The specific objectives of the study were:

i) To establish the degree of correlation between nominal interest rates and share prices of commercial banks quoted at the Nairobi Stock Exchange for the period between 1995 and 2002

ii) To assess the behaviour of nominal interest rates and stock prices of stocks of commercial banks quoted at the Nairobi Stock Exchange

iii) To determine factors that affect nominal interest rates and shares of commercial banks quoted at the Nairobi Stock Exchange.

In order to carry out this investigation, secondary data was collected from NSE and CMA for the share prices of all commercial banks quoted at NSE and the Central Bank of Kenya (CBK) for nominal interest rates. The data was collected using a researcher designed data
collection form. This instrument was developed to ensure that all the relevant data was collected. The data was then analyzed using Microsoft excel method.

The findings revealed that there was high correlation between nominal interest rates and share prices. As nominal interest rates increased, share prices decreased and vice versa. Nominal interest rates reacted more, either to the increase or decrease of cash ratio as prescribed by Central Bank of Kenya.

The findings revealed that as nominal interest rates increased, share prices decreased and vice versa. Nominal interest rates were related to CBK’s monetary policy. Any increase in nominal interest rate meant increase in direct investment to CBK through either Treasury Bills or Treasury bonds. This lead to decrease in demand for commercial bank shares and eventually decreases in share prices.

Nominal interest rates were affected by base rate (which is closely related to treasury bills), the government banks policies respectively, while the shares of commercial banks reacted to demand and supply, bank’s management policy and dividend policy. Nominal interests rates were affected by CBK’s base rate, inflation, amount and time period and government’s monetary policy. The share prices were affected by demand and supply, price earning ratio, management and the day of trading during the week.
5.3 Discussion

This section comprises of discussion based on the research objectives and study findings.

5.3.1 Degree of Correlation Between Nominal Interest Rates and Share Prices

The research revealed that there was a high degree of correlation between nominal interest rates and prices of stock of commercial banks quoted at the Nairobi Stock Exchange. When the interests were low, this meant that the cost of borrowing funds was low and therefore lead to increase in borrowing. As a result, there was demand of funds for investment thus leading to high returns on investment and consequently high demand for the shares. However, when the nominal interest rates were high, investors were unable to repay their loans leading to bad debts and as a result, huge volume of un-serviced loans, this in turn affected banks’ performance, resulting in share price decline. High interest rates could also mean that even if the economy provided opportunities, it would be difficult for firms to take advantage of the situation as the cost of doing business increased with finance costs. This was in line with the question of uncertainty in returns as stipulated in investment theory (Reilly and Brown, 1992).

5.3.2 Assessing the Behaviour of Nominal Interest Rates and Share Prices

The research revealed that banks reacted differently to various factors on nominal interest rates and share prices. Nominal interest rates were affected by base rate. This was based on treasury bills rate set by Central Bank of Kenya. Nominal interest rates were also affected by deposit rate- the current rate of interest rate allowed on deposits account displayed on all bank branches, which was usually between 2-5% below the base rate. The nominal interest rates were also affected by CBK’s monetary policy (CKB monthly economic review, 2003).

When the policy was expansionary, money supply, cash ratio and interest rates on treasury bills would be reduced and this would lead to commercial banks reducing their lending rates and by so doing, making more affordable the funds to be borrowed. Affordable loans translated into repayment of loans and therefore reducing bad debt portfolio. This would lead to improvement of banks profitability and in return would give a signal to investors to
invest in such banks. If the policy was to contract money supply, CBK would either increase interest rates or increase treasury bills rate and/or cash ratio and this would automatically affect cash available and the lending rates. Increase in interest rates would in turn make loans more expensive and this would lead to increase in bad debt and consequently affect the profitability of the bank. As a result, this lead to low demand of investment in the bank as risk averse investors would seek assets with lower risk. This was similar to observations made by Fama in Nigeria (Fama, 1976). It was observed that banks did not charge the same interest rates, as interest charged by each bank was a factor of stability of the bank, supply of funds and the banks management policy among many factors as indicated by Cox (Cox, 1996).

The interest rates charged by each bank depended on a number of factors: CBK’s cash ratio and monetary policy, demand and supply, individual bank’s lending policy and the country’s economic situation as a whole. This behaviour was as noticed by previous researchers and writers like Fama (1987), Cox (1996) and Muringu (1998) respectively.

Share prices of banks, unlike interest rates, were affected mainly by demand and supply of shares of a particular bank, dividend payment rate, and management among other factors. The prices for foreign owned banks were more resistant to political and economic changes and therefore they were more stable than those of the locally owned banks. Shares of local banks reacted very fast to any political changes and management of the particular banks especially those with government as the major shareholder. As a result, share prices of foreign banks were higher than local banks. This was found to be in line with the expectations of Muringu (1998).

5.3.3 Determining the Factors that Affect Nominal Interest Rates and Share Prices of Stocks of Commercial Banks Quoted at The NSE.

5.3.3.1 Nominal Interest Rates.

As earlier noted, the research revealed that the banks reacted differently on nominal interest rate changes over the period under review. The main factors, which affected nominal interest rates, were Base rate, Inflation Balance of Payment and Economic factors.
Base Rate is the basic lending rate, which represents the marginal cost of borrowing funds. Normally, base rate is very closely related to treasury bills rate, which is set by Central Bank. It is normally 3-5% above CBK’s treasury bills rate. This margin allows banks to earn a return of their investment through lending. Banks normally adjust the lending rate to reflect the inflation in the economy. During the period under review, the inflation of the country was very high and this affected return on investment leading to low return on investment and therefore affecting dividends and consequently demands for the shares, as investors would like to invest where returns are high. With regard to Balance of Payment (BOP) and Economic Performance, the country had been relying on donor funds to supplement its budget. During the period under review, the donor countries withheld their funding and this affected the country’s ability to service both its domestic and foreign loans. The scenario led the country to raise funds through the use of Treasury Bills and Bonds and as a result, many investors converted their investments into purchasing of these risk-free investments rather than invest in stocks and shares of commercial banks Cox (1996).

The Central Bank of Kenya, as the monetary control arm of the government, tried to control interest rates charged by commercial banks through setting of treasury bills rate. This was reflected in the interest rates charged by commercial banks.

During the period under review, share prices were very volatile. This volatility was contributed by several factors- both internal and external. The main external factor were demand and supply of shares as share prices depended on volumes of trade at any given point. Investors would look for shares, which were well priced and invest them with a view to making a “kill” from the transactions. This would immediately lead to high demand of the stocks leading to decline in prices and vice versa.

On internal factors, investors were concerned with the management of particular banks. Foreign banks appeared to be better managed and their shares sought for, by investors more than those of the local banks. This was due to government influence, as they were the majority shareholders of the big local banks such as Kenya Commercial Bank (KCB), National Bank of Kenya (NBK) and Housing Finance Company of Kenya (HFCK). Majority
shareholders reacted to capital structure of the said banks. In the situation where debt financing was high as was the case in NBK and KCB, investors were conscious of making heavy investment in those banks. Institutional investors, however, sought for banks with strong capital base whereas individual investors hunted for banks with high dividend rate and capital gain. This was in line with the findings of Ndung’u (1999), Fama (1006) and Davidson (1999).
5.4 Conclusions

5.4.1 Degree of Correlation Between Nominal Interest Rates With Share Prices.

The results of this study have shown that there is high correlation between nominal interest rates and share prices. Any adjustment on nominal interest rates had a direct impact on prices stocks of shares of commercial banks quoted at the NSE.

5.4.2 Assessing the Behaviour of Nominal Interest Rates and Share Prices

The study revealed that any adjustment on nominal interest rates had a direct impact on share prices of stocks of the commercial banks quoted at the NSE.

5.4.3 Determining the Factors that Affect Nominal Interest Rates and Share Prices of Stocks of Commercial Banks Quoted at the NSE

5.4.3.1 Interest Rates.

The results of this study had indicated that adjustments of nominal interest rates were affected by inflation, which was very high during the period under review. Other factors that affected interest rates were basic interest rate through treasury bills rate, Balance of Payment and economic performance of the country.

5.4.3.2 Share Prices.

The study had shown that politics, management, capital structure, divided policy and directors’ share dealings affected prices of shares of commercial banks quoted at the NSE.
5.5.0 Recommendations

5.5.1 Recommendations For Improvements

Given the findings of this study, the discussions advanced and conclusions drawn, the following recommendations were put forward to further improvement of nominal interest rates and share prices of commercial banks quoted at the NSE.

5.5.1.1 The Degree of Correlation Between Interest Rates and Share Prices.
Correlation between interest rates and share prices should be maintained in the country as any significant disparity can cause huge capital outflow out of the country both in terms of real money and divestment in shares to other areas of the economy. The Central Bank of Kenya should take lead in monitoring interest rates.

5.5.1.2 Assessing the Behaviour of Nominal Interest Rates and Share Prices.
The Since most of the factors that affect nominal interest rates, namely inflation, basic interest rate and BOP, does affect share prices, the behaviour of these factors should be monitored closely by the government so as to avoid capital outflow out of the country which would have a direct impact on share price. This can be maintained by a close supervision by Central Bank of Kenya. The Central Bank should endeavour to control basic rate through cash ratio and treasury bills among others.

5.5.1.3 Determining the Factors That Affect Nominal Interest Rates and Share Prices.
Investors in commercial banks quoted at the NSE should be able to use both fundamental and technical analysts method of evaluating the performance of shares quoted at the NSE before making a decision to invest in any of the bans, whether local or foreign owned.

5.5.2 Recommendations For Further Study
The research focused on establishing whether there was any correlation between nominal interest rates and share prices of commercial banks quoted at the Nairobi Stock Exchange. A further research could be conducted on,
(a) The impact of nominal interest rates on share prices of other Non-Bank Financial institutions (NBFI) such as insurance companies, Building societies and Small-scale enterprises, which is a booming business in Kenya today and the results compared with those of the banks quoted at the NSE.

(b) The effect of share price of commercial banks quoted at the NSE on inflation.
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*Davis, John (1987), Correlational research methodology*


Fama, E. (June 1976) *Short-term interest Rates as prediction of inflation*. American Economic Review (pp; 427-68)


banking survey.


*NSE fact sheet*, 2002


Webster Inc.

APPENDIX 1

BANKS QUOTED AT THE NAIROBI STOCK EXCHANGE

1. Barclays Bank of Kenya Ltd.
2. CFC Bank
3. Diamond Trust Bank (k) Ltd.
4. Housing Finance Ltd.
5. Kenya Commercial Bank Ltd.
7. National Industrial Bank Ltd.
8. Standard Chartered Bank Ltd.

Source: An extract from NSE fact sheets, 2002
APPENDIX 2

COLLECTION DATA FORM

Share Prices and Nominal Interest rates
January 1995-December 2002

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## Share Prices and Nominal Interest Rates Data

January 1995-December 2002

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