

**THE RELATIONSHIP BETWEEN STOCK RETURNS AND BOND  
RETURNS IN THE NAIROBI STOCK EXCHANGE**

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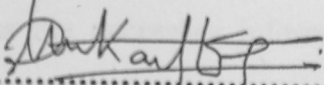
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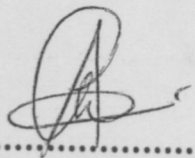
## Declaration

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

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

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## CHAPTER TWO

### 2.0 LITERATURE REVIEW

#### 2.1 Capital Markets

#### 2.2 The Role of the Stock Exchange in the Economy

#### 2.3 Stock Markets

#### 2.4 Bond Markets

#### 2.5 Investment in Africa and East Africa

#### 2.6 Regulatory Framework for the Stock Markets

## CHAPTER THREE

### 3.0 RESEARCH METHODOLOGY

#### 3.1 Introduction

#### 3.2 Research Design

#### 3.3 Data Collection

#### 3.4 Data Analysis

## Table of Contents

Declaration.....	i
Acknowledgement.....	ii
Table of Contents .....	iii
Acronyms.....	vi
Abstract.....	vii
SUMMARY OF FINDINGS CONCLUSIONS AND RECOMMENDATIONS.....	27
<b>CHAPTER ONE.....</b>	<b>1</b>
<b>1.0 INTRODUCTION .....</b>	<b>1</b>
1.2 Statement of the Problem .....	5
1.3 Objective of the Study .....	6
1.4 Importance of the Study .....	6
<b>CHAPTER TWO.....</b>	<b>8</b>
<b>2.0 LITERATURE REVIEW .....</b>	<b>8</b>
2.1 Capital Markets .....	8
2.2 The Role of the Stock Exchange in the Economy.....	8
2.3 Stock Returns.....	10
2.4 Bond Returns .....	12
2.5 Movement in Stock and Bond Returns.....	13
2.6 Relationship between Stocks and Bonds Returns .....	15
<b>CHAPTER THREE.....</b>	<b>17</b>
<b>3.0 RESEARCH METHODOLOGY.....</b>	<b>17</b>
3.1 Population.....	17
3.2 Sample .....	17
3.3 Data Collection.....	17
3.4 Data Analysis.....	17



LIST OF TABLES

<b>CHAPTER 4</b> .....	<b>19</b>
<b>4.0 DATA ANALYSIS AND DISCUSSION</b> .....	<b>19</b>
<b>CHAPTER 5</b> .....	<b>27</b>
<b>5.0 SUMMARY OF FINDINGS CONCLUSIONS AND RECOMMENDATIONS</b> .....	<b>27</b>
5.1 Summary of Findings and Conclusions.....	27
5.2 Limitations of the Study .....	28
5.3 Recommendations .....	28
5.4 Suggestions for Further Research.....	28
<b>REFERENCES</b> .....	<b>29</b>
<b>APPENDIX I</b> .....Bond Returns 1999-2003 .....	<b>34</b>
<b>APPENDIX II</b> .....	<b>46</b>
<b>APPENDIX III</b> .....	<b>49</b>

## LIST OF TABLES

Table No	Title	Page
Table 4.1	Correlation between Stock Returns and Average of all Bonds	20
Table 4.2	Correlations between Stock Returns and Various Bond Returns	23
Table 4.3	Correlations between Stock Returns and Various Bond Returns	24
BCC	Banco Portland Cement Company Limited	
DTK	Danward Trust of Kenya Limited	
FUGAT	First wa East Africa Limited	
WVK George	Williamson Kenya Limited	
KALIT	Kakuzi Limited	
KCB	Kenya Commercial Bank Limited	
KQ	Kenya Airways Limited	
KPLC	Kenya Power and Lighting Company Limited	
NIC	National Industrial Credit Limited	
NMG	Nairobi Machs Group	
NSE	Nairobi Stock Exchange	
SASINI	Sasini Tea and Coffee Ltd	
STAN CHART	Standard Chartered Bank Ltd	
SHENA	Shena Hotels	
TOTAL	Total Kenya Ltd	
UCHUMI	Uchumi Supermarkets Ltd	
WTK	Williamson Tea Kenya Limited	

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## Acronyms

BAMB	Bamburi Portland Cement Company Limited
BAT	B.A.T Kenya Limited
BBK	Barclays Bank Limited
B BOND	Brook Bond Limited
BOC	Boc Kenya Limited
DTK	Diamond Trust of Kenya Limited
FIREST	Firestone East Africa Limited
GWK George	Williamson Kenya Limited
KAKUZI	Kakuzi Limited
KCB	Kenya Commercial Bank Limited
KQ	Kenya Airways Limited
KPLC	Kenya Power and Lighting Company Limited
NIC	National Industrial Credit Limited
NMG	Nation Media Group
NSE	Nairobi Stock Exchange
SASINI	Sasini Tea and Coffee Ltd
STAN CHART	Standard Chartered Bank Ltd
SERENA	Serena Hotels
TOTAL	Total Kenya Ltd
UCHUMI	Uchumi Supermarkets Ltd
WTK	Williamson Tea Kenya Limited

## **Abstract**

Capital markets represent a fundamental element of the financial system of any modern economy and they play an important role in the allocation of capital within the economy. Therefore public authorities responsible for economic policy as well as private sector agents who are active in the capital markets have a vested interest in capital markets that are both efficient and stable.

The availability of financial capital is a prerequisite for development and transformation of any nation's economy hence many African countries have invested in developing capital markets as institutions for mobilizing external capital inflow and domestic savings. The development of domestic capital markets provides an opportunity for greater funds mobilization, improved resource reallocation and provision of relevant information for investment appraisal (Black et al 1988).

The Kenya stock market just like many developing countries is an important avenue for resource mobilization in terms of savings mobilization and resource allocation. How well the stock market plays its role of saving mobilization and efficient resource allocation will depend on how well the investors perceive the performance of the economy as indicated by the index.

The study looks at the relationship between stocks returns and bond returns for the period 1999 to 2003. It also utilizes the method of correlation coefficient to determine the relationship between the movement between the stock and bond returns. Bond returns are categorized as corporate, government fixed, and government floating. A comparison is also established between average of government bonds and average of all bonds.

The relationship between stock returns and individual bond returns is found to be insignificant within the year however over the years there is a very strong negative relationship, which means that in the short run there is no significant relationship however in the long run the relationship is negative and very strong as measured by the coefficient of determination. The study shows that bond returns explain stock returns in the long run.



## CHAPTER ONE

### 1.0 INTRODUCTION

#### 1.1 Back Ground

The Kenya capital market like many developing countries is an important avenue for resource mobilization in terms of savings mobilization and resource allocation. How well the capital market plays its role of saving mobilization and efficient resource allocation will depend on how well the investors perceive the performance of the economy. Stock and bond returns tend to rise and fall in response to changes in the environment, as stability in the environment will be depicted by stable or increasing share price returns. Understanding the factors driving the market may facilitate informed investor efforts while at the same time achieving share price stability (Mandaza, 2002).

Stivers and Licheng (2002) observe that stock and bond returns are positively correlated. However, the unconditional correlation is small. A second body of research has tried to understand the co-movements between the stock and bond markets ( Barsky, 1989; Fama and French, 1989; Shiller and Beltratti, 1992). Changes in return co-movements might be due to changing fundamentals (Campbell and Ammer, 1993), or pricing influences related to time-varying economic uncertainty.

Stocks and bonds have very different risk-return characteristics. In general, while stocks are more volatile than bonds over the long run, stocks are expected to yield higher returns than bonds. By varying the mix of stocks and bonds in a portfolio, an investor can achieve their desired level of risk exposure. However, the level of risk in a portfolio depends not only on the risks of individual assets, but also on the co-movements of the individual assets in the portfolio.

Stocks are influenced by many other factors in the economy the direction of influence underlying the asset-pricing literature being the traditional one – from the economy to the stock market. A similar focus is found in the literature, which explores the response of aggregate stock prices and therefore returns to the (expected) inflation rate as indicated by the early work of Bodie (1976), Fama and Schwert (1977), Jaffe and Mandelker (1976) and Nelson (1976) as quoted by black (2000). Similar studies assess the response of the stock market (often, but not always, at an aggregate level) to other macro variables such as those,

which capture monetary and fiscal policy shocks (Pearce and Roley, 1985, Jain, 1988, Aggarwal and Schirm, 1992, and Singh, 1993) as quoted by (Black, 2000). Alternatively it can be seen as an extension to the macroeconomic level of the work on the relationship between stock prices and dividends initiated by Campbell et al (1987).

Investors are greatly concerned with the value, which their investments will bring, thus the question of stock returns is very important. Stock returns are the gains, which an investor will derive from any stock, which include capital gains and dividends. The risk or likelihood of future returns is also important to the investor. Merton (1973) shows that risk-averse investors demand extra compensation for bearing extra risk, ceteris paribus. Following Merton (1980), the behavior of assets returns is related to the properties of the financial markets in two distinct ways. First, asset returns directly depend on how well the financial system carries out its main functions: the facilitation of the trading, hedging and diversification of risk, the provision of liquidity, the monitoring of managers and exertion of corporate control. For instance, shortage of liquidity may exaggerate asset price movements. Higher transaction costs may require a higher gross rate of return. Surprisingly, these issues have not received any serious attention before. Secondly financial markets, price assets indirectly through macroeconomic fundamentals and the relationship between macroeconomic performance and financial development has been the subject of a substantial body of recent research. A presumption seems to have emerged that financial development leads to higher economic growth (Bacchetta and Caminal, 2000). The truth is that there are a multitude of factors impacting on the market on any given day, hour, or even minute, from corporate earnings releases to political news, to general market sentiment to and economic data.

One of the most significant harbingers of stock returns is that of newly released economic data. Significant economic indicators of relevance to stock market investors are that of inflation, exchange rate, interest rates and gross domestic product (GDP) (Jason, 2000). Inflation is perhaps the most significant indicator for securities markets because it determines the erosion of the real value of the investment, and the necessary rate of return to compensate the investor for this erosion (Jason, 2000).

Companies and governments issue bonds to fund their day-to-day operations or to finance specific projects. When an investor buys a bond, the investor is loaning their money for a certain period of time. In turn, the company or government promises to pay interest every

year or half yearly and to pay the principal at "maturity," when the loan comes due or at "call" if the bond is of the type that can be called earlier than its maturity. (Ibbotson, 2000). The term of the bond is another factor that affect bond returns the longer the maturity of the bond, the greater the impact on price, all other factors remaining constant. The longer the term of the bond the greater the risk that will be experienced by the investor thus the investor will demand more returns for the risk. (Ibbotson, 2000). A similar relationship also exists with the amount of the yield on the bond. All other factors being remaining constant, the lower the coupon rate, the more volatile the bond will be due to changes in the economic rates. In some stock exchanges where the markets are more developed, bonds are classified in terms of quality and given certain ratings depending on their risk. These ratings are given by certain independent bodies. The lower the quality of the bond, the more volatile the bond returns are expected to be.

Both stocks and bonds are claims of future cash flows. According to the present value model, their current prices should be equal to the present value of future cash flows, subject to the appropriate discount rates, which consist of the real interest rate, inflation expectations, and a premium for holding a risky asset. *Ceteris paribus*, an increase (decrease) in the expected future discount rates for both stocks and bonds should cause both stock prices and long-term bond prices to fall (rise), resulting in a positive correlation between returns on outstanding stocks and long-term bonds. (Kwan,1996). Other things are however not always constant. For example, the discount rate for stock may be different from the discount rate for bonds. This would be the case if their risk premiums were different. Furthermore, the dividend stream that is discounted for a stock is fundamentally different from the coupon stream that is discounted for a long-term bond, and that also can lead to differences in their prices.

One difference relates to the effect of inflation. An inflation shock would affect bond prices much more than stock prices because the nominal value of the coupon is fixed. An inflation shock would dampen the real value of the bond's coupon stream. The nominal value of the stock dividend stream, in contrast, rises in response to an inflation shock, leaving the real value of the dividend stream fairly stable. Another difference relates to the sources of interest rate changes. Suppose interest rates fall because the market gets information that future economic activities, and therefore corporate profits, are going to be low such information would also drive stock prices down, because it would imply eventually lower dividends. The



effect on bond prices would be just the opposite, bond prices would rise because the fixed coupon stream is discounted at a lower rate. Thus, the relation between stocks and bonds depends on what underlying economic variables are driving asset prices.

A market is considered efficient if all the information is reflected in the stock price. Experts are divided about whether markets are efficient as well as the degree of market efficiency. The truth may lie between two views that the market may not be completely efficient but not extremely inefficient. There are three basic definitions of market efficiency; weak form efficiency, semi-strong form efficiency and strong form efficiency, These three definitions are primarily concerned with determining the degree to which markets are efficient (Sarnat, 1994). The weak form hypothesis asserts that all historical data in particular historical rates of returns, are reflected in the price of a stock thus one cannot use time series or past performance to discern a pattern of price change to predict a stocks future rate of return. Weak form efficiency implies that stock changes behave like a random walk or a process with no memory.

The semi strong hypothesis asserts that all public information is reflected in the stock price. The publicly available information ranges from time series of past data and forecast of future earnings to the health of the C.E.O. Thus, if an investor hears rumors in the press of friction between members of the firm's board of directors it would be late for an investor to make an abnormal profit based on the information.

The strong form hypothesis is the most stringent of the hypothesis. It asserts that all information, both public and private, is reflected in the current price of the stock. For example insiders may have information about the future earnings of the company. According to this hypothesis they cannot make abnormal profits since this information is already reflected in the price of the stock. It is important to understand how information flows from the company to the public. The public is supposed to learn about significant new information through news announcements. The reality is that the information usually makes it out before the news is released thus rumor plays a big part in the flow of information, particularly today when technology allows for the rapid and wide dissemination of information. Those close to a company often have access to privileged information that they act upon by buying and selling stock in the market. The ramification of this is that investors who wait for news to make



investment decisions often get into stocks long after the information contained in the news has already been priced in. "Buy on rumor, and sell on news", is a saying that has grown popular because it is often the case that stocks move up in anticipation of positive news and then sell off when expectations have been answered by the news release. (Sarnat, 1994).

Previous research has shown that an individual firm's stock return volatility rises after stock prices fall. Two popular explanations of this finding are the leverage effect and time-varying risk premiums. The leverage effect predicts that a decrease in a firm's stock price reduces the value of equity, and therefore, increases the debt ratio of the firm. As a result, the risk associated with the firm increases, causing higher stock return volatility. The time-varying risk premium argues that an expected increase in stock return volatility increases the risk of holding the stock. To compensate for the additional risk, investors require a higher expected risk premium. As a consequence, an immediate stock price decline should be observed prompting investors to shift to bonds. If price and quantity are two fundamentals in a financial demand and supply system, then the importance of trading volume and its information content should not be ignored when the financial market interactions are studied. (Chen and Zhou, 2001).

## **1.2 Statement of the Problem**

The capital market has been acknowledged all over the world as vital for long-term economic growth. A strong positive correlation exists between the level of sophistication of a country's capital market and its level of economic growth and development (Levine, 1997). Countries with well-developed capital markets generally tend to enjoy higher economic growth and development than those with underdeveloped capital markets.

The potential in the Kenyan capital market is far from being fully utilized. There is a lot of un-invested capital that could be tapped into the capital market either by long term investors or speculators as evidenced by the over subscription of initial public offers (I.P.Os). Investors in stock and bonds are interested in return on their investments. Stock prices however, vary and this has implications on the stock returns. Interest rates on bond on the other hand also vary and in addition the rate of inflation directly affects the real bond returns. Investors are interested in taking a position such that when stock prices decline and therefore returns decrease, they would consider shifting their investment to bonds if the expected return from

bonds is higher. Investors will be wooed to put their money in the stock exchange by information and studies that are carried out to enlighten investors on the stock market. Stocks and bonds are both capital market products and change in bond return is likely to have implications on stock returns and vice versa.

Studies on the relationship between stock returns and bond return in different parts of the world have shown positive correlation or positive co-movement while others have shown negative relationships. Some of the relationships have changed with time due to changes in the economic fundamentals. Shiller and Beltratti, (1992) using annual data from the U.S during the period 1948-1989 showed small positive co-movement between stocks and bond returns. Stock and bond returns tend to move in opposite directions when expected future inflation varies. (Campbell and Ammer, 1993). However the relationship between stock returns and bond returns in the Kenyan stock market is not known since no known study has been under taken to establish the relationship between stock returns and bond returns in the Nairobi Stock Exchange.

### **1.3 Objective of the Study**

To determine the relationship between stock returns and bond returns in the Nairobi Stock Exchange.

### **1.4 Importance of the Study**

Understanding stock and bond market co-movements has important practical implications in several stake holders and market players this include:

#### **Portfolio Managers**

Resource allocation between stocks and bonds is one of the fundamental decisions that portfolio managers and individual investors must make. Information on the relationship of stock returns and bond returns is important in making the decision on how much funds to allocate to stock as opposed to bonds in order to maximize returns and minimize risk.

#### **Investors**

Understanding volatility linkages and conditional correlation also has a role in risk management and derivative valuation improving investor information enhances the ability to make well-informed investment choices. Thus if more and more investors make better

choices the market will allocate funds to the best investment and thus enabling the primary purpose of investment advisors in portfolio selection. They are able to advise their clients on the best portfolio combination to invest in, both bonds and stocks.

### **Academicians**

The pursuit of knowledge is a major human endeavor, information on the relationship of stock returns and bond returns helps to improve the existing academic body of knowledge. Exploration into an area of study helps scholars better understand the topic and answer questions related to that area of research. Knowledge of any area of study helps reduce the mystery surrounding that area and hence increases the participation of individuals in this case in the stock exchange.

### **Stock Exchange and other Regulators.**

Understanding the relationship between stock and bond returns will help regulators formulate policies that will be important in improving the market for example the need for easy access to information to help market players make the right or better decisions.

Morison (1993), showed that funds raised in emerging markets enable firms to decrease their own reliance on debt finance and to increase overall efficiency. Capital markets are essential for promoting more utilization and waste of resources in an economy faced with declining real value of its currency. Capital markets represent a fundamental element of the financial system of any modern economy and they play an important role in the allocation of capital within the country. Therefore public authorities responsible for economic policy as well as private sector agents who are active in the capital markets have a vested interest in capital markets that are both efficient and sound.

### **2.2 The Role of the Stock Exchange in the Economy**

The Stock Exchange is a market that deals with the exchange of securities issued by publicly owned companies, organized bodies and the Government. The major role that the stock exchange has played, and continues to play in many economies is that it provides a source of debt financing. The very fact that institutions with surplus funds have a market where they can invest their funds is a significant factor in their decision to invest.



## CHAPTER TWO

### 2.0 LITERATURE REVIEW

#### 2.1 Capital Markets

The availability of financial capital is a prerequisite for development and transformation of any nation's economy hence, many African countries have invested in developing capital markets as institutions for mobilizing external capital inflow and domestic savings. The development of domestic capital markets provides an opportunity for greater funds mobilization, improved resource reallocation and provision of relevant information for investment appraisal (Black et al, 1988). Although stocks and bonds represent long-term finance from the point of view of the firms receiving the funds they need, these may not necessarily be long-term investments on the part of the individual members of the public who acquire them. The reason is that stocks and bonds can be freely traded among members of the public after issue by the firm. The "market" in which existing stocks and bonds are exchanged is referred to as the stock market. This is in contrast with the capital market in which new capital is raised that is new stocks and bonds are sold.

Murinde (1993) showed that funds raised in emerging markets enable firms to decrease their over reliance on debt finance and to increase overall efficiency. Capital markets are essential for preventing under utilization and waste of resources in an economy faced with declining real value of its currency. Capital markets represent a fundamental element of the financial system of any modern economy and they play an important role in the allocation of capital within the economy. Therefore public authorities responsible for economic policy as well as private sector agents who are active in the capital markets have a vested interest in capital markets that are both efficient and stable.

#### 2.2 The Role of the Stock Exchange in the Economy

The Stock Exchange is a market that deals with the exchange of securities issued by publicly quoted companies, corporate bodies 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 saving. The very fact that institutions exist where savers can safely invest their money and in addition earn a return is an incentive to people to consume less and save more.



The stock exchange improves the access to finance of different types of users by providing the flexibility for customization. This is made possible as the financial sector allows the different users of capital to raise funds in ways that are suited to meeting their specific needs. For example, established companies can raise short-term finance through commercial paper while small companies can raise long-term capital by selling shares. The Government and even municipal councils can raise funds by floating various types of bonds as an alternative to foreign borrowing. The stock exchange assists in the transfer of savings to investment in productive enterprises as an alternative to keeping the savings idle.

It should be appreciated that in as much as an economy can have savings, the lack of established mechanisms for channeling those savings into activities that create wealth would lead to misallocation or waste of those savings. Therefore, even if a culture of saving were to be encouraged, the lack of developed financial markets may lead to economic stagnation. Stock markets promote higher standards of accounting, resource management and transparency in the management of business. This is because financial markets encourage the separation of owners of capital, on the one hand, from managers of capital, on the other. This separation is important because of the recognition of the fact that people who have the money may not necessarily have the best business ideas, People with the best ideas may not have the money and because the two need each other, the stock exchange becomes the all-important link. (Ibbotson, 2000).

The stock exchange provides investors with an efficient mechanism to liquidate their investments securities. The very fact that investors are certain of the possibility of selling out what they hold, as and when they want, is a major incentive for investment as it guarantees mobility of capital in the purchase of assets. Dewotor (2001) argues that a robust stock market assists in the rational and efficient allocation of capital, which is a scarce resource. The fact that capital is scarce means systems have to be developed where capital goes to the most deserving user. An efficient stock market sector will have the expertise, the institutions and the means to prioritize access to capital by competing users so that an economy manages to

realize maximum output at least cost. This is what economists refer to as the optimum production level. If an economy does not have efficient financial markets, there is always the risk that scarce capital could be channeled to non-productive investments as opposed to productive ones, leading to wastage of resources and economic decline.

### 2.3 Stock Returns

The study of economic variables is very important. Economic problems have repercussions on other investment variables and are the main causes of investor worries. The stock market becomes bearish when economic troubles emerge. Domestic macroeconomic factors influences stock price movements in the stock exchange, such as extreme variations in exchange rates and high inflation, can have significant effects on stock price indices (Choudry, 2001 as quoted by Jennifer and Bruce, 2001). Buying a stock is riskier, than putting your money in the bank or investing in the 91-day treasury bills. This means that investors will demand a higher average return on stocks to compensate for the greater uncertainty and chance of loss. Thus higher interests rate in the 91 day Treasury bill will attract more investors to invest in the government bills than in the stock exchange. Past studies have shown that interest rates have a significant impact on stock returns. (Pearce and Roley, (1985) and Hashiem, Zadah and Taylor, (1988) found causal impacts of interest rate on stock returns. Dwyer and Herfer, (1990) used changes in interest rates, unexpected changes in industrial production and changes in the exchange rate of five industrial countries using monthly data from 1973 to1987 and found that only domestic interest rates had significant relationship with stock returns. Mwega, (1990) justified the use of treasury bills as a proxy of interest rate by arguing that the tendering system which involves selling of the Treasury bill to the highest bidder make the treasury bill rate a better indicator for money market conditions. Ndungu, (1996) showed that the relationship between treasury bills and stock returns is negative.

Inflation is perhaps the most significant indicator for securities markets because it determines the erosion of the real value of the investment, and the necessary rate of return to compensate the investor for this erosion. Studies in the past have shown that inflation is a significant determinant of stock returns (Lee et al, 2000 and Chen et al, 1986). Canover, (1997) and Schwert, (1981) identified inflation rate as an explanatory variable for returns. Kagume,

(1991) found inflation to have a negative but significant effect on stock returns. In Kenya the major causes of inflation has been drought, which has caused prices of consumer goods to be very high. Theory has explained that a change in the exchange rates would affect a firm's foreign operation and overall profits, which in turn, would affect its stock prices.

The nature of the change in stock prices would depend on the multinational characteristics of the firm. Conversely, a general downward movement of the stock market will motivate investors to seek for better returns elsewhere. This decreases the demand for money, pushing interest rates down, causing further outflow of funds and hence depreciating the currency. (Ramasamy and Yeung, 2001). Aggarwal, (1981) found a significant positive correlation between the US dollar and US stock prices. Exchange rate depreciation has adverse effects on industries that depend on imported raw materials, as their costs will rise. On the other hand, exporters benefit since they receive more money. It is noted from many authors that stock prices are ultimately determined by shareholders expectation of a future income stream in form of dividends .The fundamental approach argues that investors value the dividends the stock will pay. The value of this dividend stream should be the value of the stock. The value of the dividend stream itself, which, given the uncertainty of its future, entails an educated guess about what the firm will pay at some later date. It is by nature a forward-looking, expected-value calculation that buyers must make. The fundamental price of a stock may thus fluctuate for two reasons, namely expectations about dividends may change, or the required rate of return may change. That is, future cash flows may vary, or the way investors' value those flows may vary. It is common knowledge that slow dividend growth may depress a stock's price, but it is also true that uncertainty about those dividends or an increase in bond and bank rates can have the same effect. Studies by Chen, Roll, and Ross, (1986) identified statistically significant relationship between stock market returns and dividend yield.

Dividends are not just declared, but have to be declared out of earnings either current or retained. This makes earnings growth more fundamental than dividend growth. The optimist maintains that increased earnings will eventually result in larger dividends, justifying today's high stock prices. The optimist focuses on earnings growth. If growth remains strong, the dividends may likewise stay at a consistently high level, since investors expect earnings to



continue rising. It is argued in the bird in hand theory that investors would rather have their income in dividend now rather than later (retained earnings). However the tax rate on dividends could be so much higher than capital gains tax, which could lead to preference of retained earnings. In Kenya capital gains tax is zero, while that of dividends is 5% for residents and 10% for non-residents thus it is a major factor to consider as an investor. Tsuyoshi (1997) showed that there is a relationship between earnings per share and stock returns.

With the GDP used as a key indicator of economic activity and future economic prospects, any significant change in the GDP, either up or down, can have a major effect on stock market investors' sentiment. If investors believe that the economy is improving, and corporate earnings improving along with it, then they are more likely to bid stock prices to higher levels, leading to improvement on stock returns. Improvement in the economic environment shows that the company can be able to make more profits and thus be able to pay more dividends to the investors boosting the returns on the stock. Mukherjee et al (1997) related stock price returns and output or GDP growth. Mandaza (2002) showed that the changes in GDP are reflected in the Zimbabwean stock returns while other researchers have concluded that changes in the GDP must be reflected in the stock returns of companies. Keran (1971) as quoted by Zhanje (2001) concluded that growth in the GDP is a significant determinant in the stock returns in Canadian Stock Market.

#### **2.4 Bond Returns**

A bond's price reacts conversely to the movement in interest rates. As interest rates move up, the value of a bond tends to move down. As interest rates go down- (say to spur on economic conditions) values on already issued bonds will go up. Usually, longer-term interest rates are higher than shorter-term interest rates and it is thought to reflect the higher "inflation-risk premium" that investors demand for longer term bonds. A small or negligible difference between short and long-term interest rates occurs when interest rates increase due to higher inflation expectations and tighter monetary policy. When the difference between long and short-term interest rates is large, which is thought to reflect a "loose" monetary policy, it means that credit and money is readily available in an economy. This situation usually

develops early in the economic cycle when a country's monetary authorities are trying to stimulate the economy after a recession or slowdown in economic growth (Theo, 2001).

Tight monetary policy results in short term interest rates being higher than longer-term interest rates. This occurs as a shortage of money and credit drives up the cost of short-term capital. Longer-term rates stay lower, as investors see an eventual loosening of monetary policy and declining inflation. This increases the demand for long-term bonds, which lock in the higher long-term interest rates. Bonds can be better-analyzed one against the other through duration since duration is a measure of a bond's price sensitivity to changes in interest rates. It is a measure of market risk. Litterman and Scheinkman, (1991) find that on the basis of a principal component analysis, that US bond returns are mainly determined by three factors, which correspond to level, steepness, and curvature movements in the term structure.

## **2.5 Movement in Stock and Bond Returns**

A study by Shiller and Beltratti (1992) examines whether the observed relation between changes in stock and long-term bond returns is consistent with the implications of the present value model. Time-series econometric methods were used to forecast future discount rates and future dividend growth rates. The forecasted values of discount rates and dividend growth rates are substituted into the present value model to infer the "theoretical" prices for stocks and bonds if prices were set according to the present value relationship. Using annual stock data for the U.S.A during the period 1948 to 1989, they estimated that the present value model implies only a small positive co-movement between stock and bond returns. They found that the theoretical correlation between stock and long-term bond returns under the premise of the present value model is a mere 0.06. The low theoretical correlation suggests that the discount rates for stocks and bonds do not move in tandem, so neither do the expected future cash flows for stocks and bonds. Interestingly, the observed correlation between stock and long-term bond returns is 0.37, which is quite small in economic terms, but higher than what the present value model implies. One interpretation of this difference between the theoretical and observed correlation is that the stock market "overreacts" to the bond market, or vice versa. But an "overreaction" would imply that there is something "irrational" in the behavior of financial markets. Rather than asserting that the financial market exhibits

irrational behavior, an alternative interpretation is that a somewhat different approach to implementing the present value model is needed. Specifically, one could refine the methodology in order to look more closely at the forces that drive stock and bond prices and their dynamics. Once these forces are better identified, one can then study the relation between stocks and bonds by appealing to the underlying economic forces.

Campbell and Ammer (1993) studied what moves stock and bond markets using monthly data for the period 1952 to 1987. They focused on the excess returns earned in holding stocks and bonds, that is, the returns over what would have been earned if people had invested their money in a highly liquid, virtually risk-free instrument like the one-month T-Bill. Campbell and Ammer (1993) found that about 70 percent of the variance of excess stock returns was attributable to the "news" about future risk premiums for holding stocks and about 15 percent of the stock return variance was attributable to "news" about future dividends. Real interest rates were found to play a relatively minor role in the variation of stock returns and inflation expectations even less of a role. They found similar results using raw data of returns, rather than excess returns. It is interesting to note that these results also suggest that U.S. stocks display "excess volatility," in the sense that returns have a standard deviation much greater than the standard deviation of news about future dividend growth. However, it remains unclear what economic forces drive expected future stock returns. (Kwan, 1996).

Turning our attention to bonds, during the period 1952 to 1979, almost all the variation in bond returns can be accounted for by news about future inflation. When the data for the 1980s also was included, in addition to inflation news, news about future risk premiums for holding bonds were equally important in accounting for variations in bond returns. However, their findings indicate that when investors learn that long-run inflation will be higher than they expected, they also tend to learn that risk premiums for holding bonds will be lower than they expected. That is, news about future risk premiums for holding bonds and news about future inflation are found to be negatively correlated. Therefore, the two types of news tend to have offsetting effects on bond price variability because the capital loss from higher expected inflation is partly offset by a capital gain from lower expected future bond returns. As a result, the additional source of variation due to future bond returns does not increase the overall



variation of long-term bond returns. Real interest rates again were found to play a minor role in the variation in bond returns. As for the co-movement between stocks and bonds, while Campbell and Ammer (1993) reported that stock and bond returns are positively correlated, the correlation was small. Over the full sample, the two asset returns had a modest positive correlation of 0.20. The low correlation is due to the balance among several offsetting factors. First, stock and bond returns tend to move in opposite directions when expected future inflation varies. An increase in long-run expected inflation is bad news for the bond market but good news for the stock market. This effect by itself would lead to large negative co-movement between bond and stock returns. Second, during the period 1973 to 1987, real interest rate changes tended to result in stock and bond returns moving in the same direction. Third, stock and bond returns move in the same direction when expected future risk premiums for holding stocks and bonds change. This effect by itself would lead to a large positive co-movement between stock and bond returns. Combining all three effects accounts for the small positive correlation between stock and bond returns. The correlation increases from the earlier time period to the later one when the real interest rate and expected future asset return effects become stronger relative to the inflation effect (Kwan, 1996). All investors want to make money in the stock market that they do so by selling stock at a price higher than what they buy it for. To make money in the stock market, investors need to understand what causes prices to change. By having an appreciation of the elements that motivate stock price change, it is possible to anticipate the direction and velocity of price movements.

## **2.6 Relationship between Stocks and Bonds Returns**

Linkages and conditional correlation has roles in risk management and derivative valuation. Campbell and Ammer (1993) considered traditional fundamentals and discuss several factors behind the correlation between stock and bond returns. First, variation in real interest rates may induce a positive correlation between stock and bond returns since the prices of both assets are affected by changes in the discount rate. Second, variation in expected inflation may induce a negative correlation between stock and bond returns since increases in inflation are bad news for bonds and ambiguous news for the stock market. Third, common movements in future expected returns may induce a positive correlation between stock and

bond returns. The net effect in their monthly return sample over 1952 to 1987 is a small positive correlation between stocks and bonds.

Fleming, Kirby, and Ostdiek (1998) considered two distinct effects when evaluating volatility linkages between the stock and bond markets. First, common information may affect expectations and the valuation of both the stock and bond markets. Second, there may be a cross-market hedging effect, where cross-market hedging refers to changes in the demand for bonds, based on information events that alter expectations about stock returns. This change in demand for bonds may occur even if there are no changes in expectations about interest rates. They estimate a model that takes both these effects into account and find that information linkages in the stock and bond markets may be greater than previously thought. In a related study, Busse, (1999) and Fleming, Kirby, and Ostdiek, (2001) as quoted by veronesi, (1999) provide evidence that volatility timing has economic value. The idea that uncertainty about the economic state may impact return dynamics is suggested in Veronesi, (1999). In Veronesi (1999), the economy is modeled as a two-state economy where the drift in future dividends shifts between unobservable states. During times of higher uncertainty about the state, new information may receive relatively higher weighting, which may induce time-varying volatility and volatility clustering.

In Veronesi, (2001), the idea of “aversion to state-uncertainty” is introduced. In the paper, the economy may exhibit structural breaks, which generate time-variation in investors’ belief about the dispersion in the distribution of the underlying drift rate of dividends. Regarding bonds and stock volatility, he states, “Intuitively, aversion to state uncertainty generates a high equity premium and a high return volatility because it increases the sensitivity of the marginal utility of consumption to news. In addition, it also lowers the interest rate because it increases the demand for bonds from investors who are concerned about the long-run mean of their consumption.”

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## CHAPTER THREE

### 3.0 RESEARCH METHODOLOGY

#### 3.1 Population

The population of interest is the fifty-four (54) companies listed in the stock exchange as at 31<sup>st</sup> December 2003 and all bonds listed on the same date.

#### 3.2 Sample

A convenient sample of 20 companies, which constitute the NSE 20 Share Index, was surveyed. The 20 companies included in constituting the NSE 20 share index are large in size and trade in huge volumes of shares as compared with the other listed companies. All the bonds listed at the Nairobi Stock Exchange were included in the study, encompassing treasury bonds and corporate bonds.

#### 3.3 Data Collection

Secondary data in form of share prices and bond prices from Nairobi Stock Exchange was used. Data for a period of five years, 1998 to 2003 was used since very few bonds were listed prior to 1998.

#### 3.4 Data Analysis

This paper analyzes the relationship between stock returns and bond returns.

Correlation analysis was used to relate the monthly stock returns and various bond returns. The bonds under investigation were categorized into: government fixed rate bonds, government floating rate bonds and corporate bonds.

Stock returns of each company was estimated using

$$R_e = \frac{P_1 - P_0 + D}{P_0}$$

$R_e$  – Stock returns

$P_1$  – closing price

$P_0$  – opening price

D - Dividends

Return being change in stock price (capital gains) and dividends in relation to price at a time of reference (Original price). The weekly returns were averaged to come up with monthly returns.



The relationship between stock returns and government fixed rate, government floating rate, and corporate bonds was established. Returns in bonds will be taken to be both increase or decrease in bond prices as well as interest paid on the bonds.

Bond returns were estimated using,

$$B_e = B_1 - B_0 + I$$

$B_e$

– Bond Returns

$B_1$  – Closing Price

$B_0$  – Opening Price

$I$  – Interest Paid

Correlation analysis was used to establish the relationship and will take the form:

$$r = \frac{n\sum xy - \sum x \sum y}{\sqrt{\{n\sum x^2 - (\sum x)^2\}} \sqrt{\{n\sum y^2 - (\sum y)^2\}}}$$

Where  $r$  is the correlation co-efficient (product moment correlation co-efficient).

$y$ , is the stock returns.

$x$ , is the various bond returns categories that will be used in comparison with stock returns

viz. government fixed rate bonds, government floating rate bonds and corporate bonds.

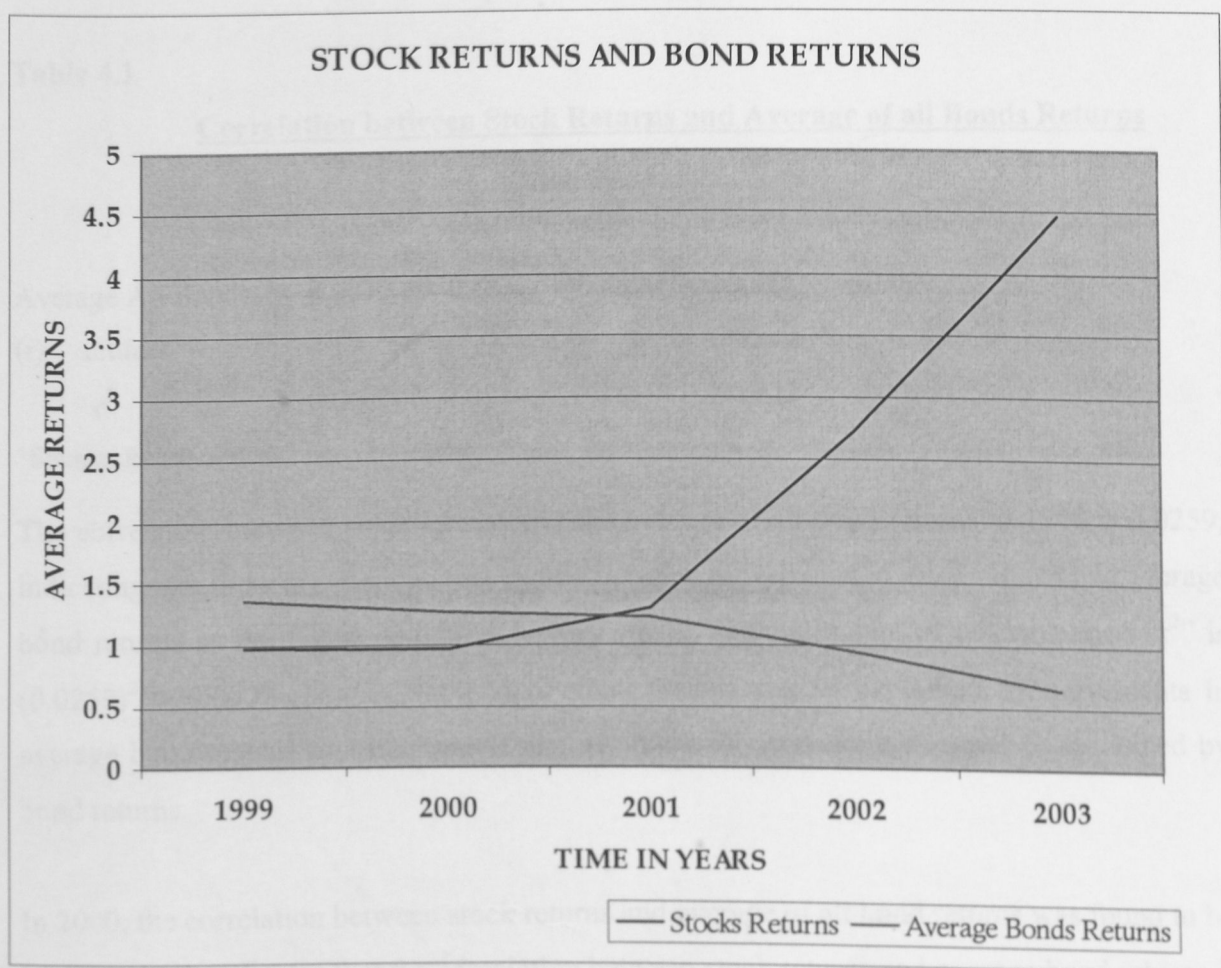
$n$  is the population of the variables under consideration.

The coefficient of determination will also be computed that is  $r^2$ .

## CHAPTER 4

### 4.0 DATA ANALYSIS AND DISCUSSION

The method of correlation, finding “ $r$ ” expresses the degree of association between two variables. When measuring correlation, it does not matter which variable is dependent and which is independent. The values of “ $r$ ” are between  $-1$  and  $+1$ , thus the greater the correlation, the closer the value of “ $r$ ” is to  $+1$ , indicating a greater degree of association. If the value of “ $r$ ” is  $+1$ , it means that there is perfect direct relation between  $x$  and  $y$ . If “ $r$ ” is  $-1$ , this means that there is perfect inverse relation between  $x$  and  $y$ . If “ $r$ ” is  $0$ , that means there is a complete lack of association between the two variables.



From the diagram above, it can be seen that the stocks and bond returns are moving in a negative direction, over the years. As stock returns are increasing, bond returns are slowly decreasing in the long run. The correlation between the stock and bond returns in the long run is  $-0.991$ , which indicates that they are moving in an almost perfect negative direction in relation to one another.

The coefficient of determination " $r^2$ " measures the proportion of total variations that can be explained by the variations in  $x$ . The correlations between stock returns and bond returns within the year are outlined below:

**Table 4.1**

**Correlation between Stock Returns and Average of all Bonds Returns**

		<u>Correlation (r) and <math>r^2</math></u>				
		1999	2000	2001	2002	2003
Average All Bonds	(r) returns	0.0259	-0.285	-0.485	-0.285	-0.099
	$r^2$	0.0007	0.081	0.235	0.0812	0.0098

Source: *Research Data*.

The correlation between stock returns and the average of all bond returns in 1999 is 0.0259, indicating that there is almost no association between movements in stock returns and average bond returns as the figure of 0.0259 is very small. The coefficient of determination " $r^2$ " is  $(0.0259)^2 = 0.0007$ . That is, 0.07 % of stock returns can be explained by movements in average bond returns in 1999, which implies that stock movements cannot be explained by bond returns.

In 2000, the correlation between stock returns and average of all bond returns was found to be  $-0.285$ , which indicates that the association between stock returns and average bond returns is negative and very low, meaning that though the movements are in different directions the correlation of stock and bond returns are insignificant. The coefficient of determination " $r^2$ " is  $(-0.285)^2 = 0.081$ , indicating that 8.1 % of stock movements in the year 2000 can be



explained by movements in average bond returns in the same year. This figure though slightly higher than that of 1999 is still insignificant.

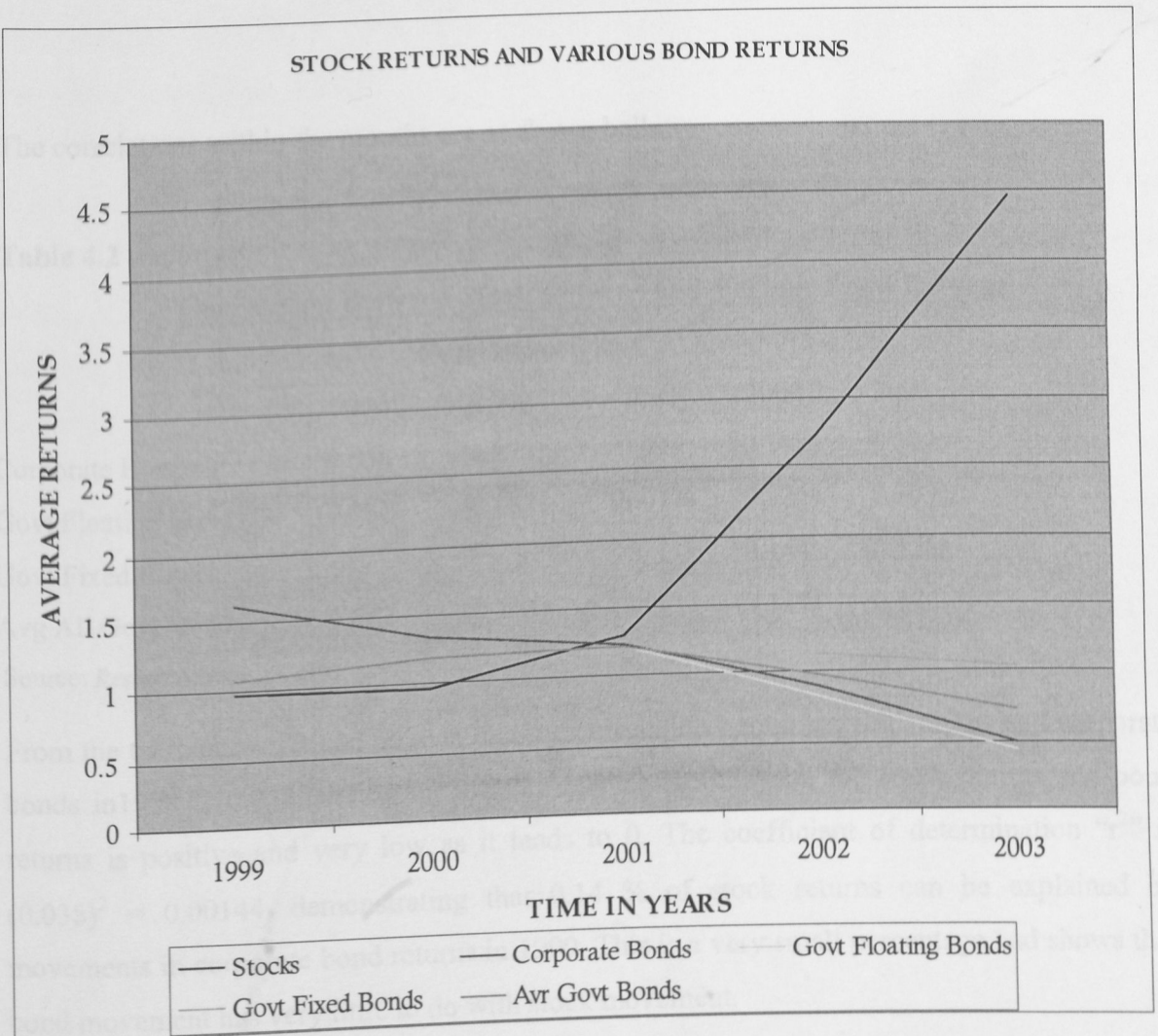
From table 4.1, it can be seen that the correlation between stock returns and average of all bond returns in 2001 is -0.485, indicating that the association between stock returns and government floating rate bond returns is negative and low. This is an increase in the inverse relation from the previous year. The coefficient of determination " $r^2$ " is  $(-0.485)^2 = 0.235$ , demonstrating that 23.5 % of stock return movements can be explained by movements in average of all bonds returns in 2001.

The correlation between stock returns and average of all bond returns in 2002 was found to be -0.285, indicating that the association between stock returns and government floating rate bond returns is negative and low. The coefficient of determination " $r^2$ " is  $(-0.285)^2 = 0.081$ , demonstrating that 8.1 % of the movement in stock returns can be explained by movements in average of all bond returns in 2002. This figure is similar to that of year 2000.

In 2003, the correlation between stock returns and average of all bond returns is 0.099, indicating that the association between stock returns and government floating rate bond returns is positive and very low. This figure also shows that there is insignificant association between the movement of stock returns and bond returns. The coefficient of determination " $r^2$ " is  $(0.099)^2 = 0.0098$ , demonstrating that 0.98% of stock returns movements can be explained by the movements in the average of all bonds returns in 2003. This is similarly very low.

From the above analysis, it can be seen that there has been little association or relationship between stock returns and bond returns within the months in the years. However, if the association is examined over the whole period of five years the relationship is almost perfect negative. It can be noted therefore that the relationship between stock returns and bond returns over the short run is very low. However in the long run, there is a strong negative relationship.

### STOCK RETURNS AND VARIOUS BOND RETURNS



From the diagram above, it can be seen that the stocks and various bond returns are moving in an almost perfect negative direction. Stock returns are increasing while bond returns are slowly decreasing over the years. The correlation between the stock returns and corporate bond returns is  $-0.95423$ , while the correlation between stock and government floating bonds is  $-0.97762$ . All this figures indicate a very strong negative relation between stock and corporate bond returns and also with government floating bonds. Government fixed bond returns are only recorded in two years, so the trend cannot be established and thus not included.

The correlations within the months are as shown bellow:

**Table 4.2**

**Correlation Between Stock Returns and Various Bond Returns.**

	Correlation (r)				
	1999	2000	2001	2002	2003
Corporate Bonds	0.038	(0.273)	(0.099)	(0.548)	0.307
Govt Floating Bonds	(0.082)	(0.303)	(0.071)	(0.523)	0.309
Govt Fixed Bonds				0.144	(0.120)
Avg All Govt Bonds	0.082	(0.303)	(0.071)	(0.119)	0.220

Source: *Research Data.*

From the table above, it can be seen that the correlation between stock returns and corporate bonds in 1999 is 0.038, indicating that the association between the stock returns and bond returns is positive and very low as it tends to 0. The coefficient of determination " $r^2$ " is  $(0.038)^2 = 0.00144$ , demonstrating that 0.14 % of stock returns can be explained by movements in corporate bond returns in 1999. This is a very small percentage and shows that bond movement has very little to do with stock movement.

The correlation between stock returns and government floating bond returns in 1999 is -0.0821, indicating that the association between the stock returns and government bond returns is negative and very low as it tends to 0. This means that there lacks an association between stocks and bond return. The coefficient of determination " $r^2$ " is  $(0.0821)^2 = 0.0067404$ , demonstrating that 0.67 % of stock return movements can be explained by movements in government floating bond returns in 1999, which is also very small.

From the table 4.2 above, the correlation between stock returns and corporate bonds in 2000 is -0.273, indicating that the association between the stock returns and bond returns is negative and low. The coefficient of determination " $r^2$ " is  $(-0.273)^2 = 0.074529$ ,



demonstrating that 7.45 % of stock returns movements can be explained by movements in corporate bond returns in 2000.

From table 4.2, the correlation between stock returns and government floating bonds in the year 2000 is -0.3031. This figure indicates that the movement or association between stock returns and government floating rate bond returns is negative and low. The coefficient of determination " $r^2$ " is  $(-0.3031)^2 = 0.0918696$ , meaning that 9.18 % of stock movements can be explained by movements in government floating bond returns in 2000.

In 2001, the correlation between stock returns and corporate bonds is -0.222. The association between the stock returns and bond returns is negative and low as is indicated by the figure -0.222. The coefficient of determination " $r^2$ " is  $(-0.222)^2 = 0.049284$ , meaning that as low as 4.92 % of stocks return can be explained by corporate bond returns in 2001.

The correlation between stock returns in 2001 and government floating bonds in 2001 is -0.165, indicating that the movement or association between stock returns and government floating rate bond returns is negative and low. The coefficient of determination " $r^2$ " is  $(-0.165)^2 = 0.027225$ , demonstrating that 2.72 % of stock returns movements can be explained by government floating bond returns in 2001.

**Table 4.3**

**Correlation Between Stock Returns and Various Bond Returns.**

	<u>Coefficient of determination (<math>r</math>)<sup>2</sup></u>				
	1999	2000	2001	2002	2003
Corporate Bonds	0.001	0.075	0.049	0.300	0.094
Govt Floating Bonds	0.007	0.092	0.027	0.274	0.095
Govt Fixed Bonds	-	-	-	0.021	0.014
Avg All Govt Bonds	0.001	0.081	0.235	0.014	0.048

Source: *Research Data.*

From table 4.2, the correlation between stock returns in 2002 and corporate bonds in 2002 is -0.548, indicating that the association between the stock returns and bond returns is negative and substantial. The coefficient of determination " $r^2$ " is  $(-0.548)^2 = 0.300304$ , demonstrating that 30.03 % of stock movements can be explained by movements in corporate bond returns in 2002.

In the year 2002, the correlation between stock returns and government floating bonds is -0.523, implying that the movement or association between stock returns and government floating rate bond returns is negative and substantial. The coefficient of determination " $r^2$ " is  $(0.523)^2 = 0.273529$ , meaning that 27.35 % of stock movements can be explained by movements in government floating bond returns in 2002.

The correlation of 0.144 between stock returns and government fixed bonds in 2002 indicates that the association between stock returns and government floating rate bond returns is positive and low. The coefficient of determination " $r^2$ " is  $(0.144)^2 = 0.020736$ , demonstrating that 2.07 % of stock movements in 2002 can be explained by movements in government fixed bond returns movements in 2002. This is also a very low association.

The correlation between stock returns in 2002 and average of all government bonds in 2002 is -0.1186, indicating that the association between the movement of the stock returns and average bond returns is negative and low. The coefficient of determination " $r^2$ " is  $(-0.1186)^2 = 0.014066$ , meaning that 1.41 % of stock movements can be explained by movements in average bond returns in 2002.

The correlation between stock returns in 2003 and corporate bonds in 2003 is 0.3068, indicating that the association between the stock returns and bond returns is very low. The coefficient of determination " $r^2$ " is  $(0.3068)^2 = 0.0941262$ , meaning that 9.41 % of stock movements can be explained by movements in corporate bond returns in 2003.

In the year 2003, the correlation between stock returns and government floating bonds is 0.309, indicating that the movement or association between stock returns and government floating rate bond returns is very low. The coefficient of determination " $r^2$ " is  $(0.309)^2 = 0.095481$ , demonstrating that 9.54 % of stock movements can be explained by movements in government floating bond returns in 2003.

The correlation between stock returns in 2003 and government fixed bonds in 2003 is -0.120, indicating that the movement or association between stock returns and government floating rate bond returns is very high. The coefficient of determination " $r^2$ " is  $(-0.12)^2 = 0.0144$ , meaning that 1.44 % of stock movements in 2003 can be explained by movements in government fixed bond returns movements in 2003.

The correlation between stock returns in 2003 and average of all government bonds in 2003 is 0.2197, indicating that the association or movement between the stock returns and average bond is positive and low. The coefficient of determination " $r^2$ " is  $(0.2197)^2 = 0.0482681$ , meaning that 4.83 % of stock movements can be explained by movements in average bond returns in 2003.

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## 5.0 SUMMARY OF FINDINGS CONCLUSIONS AND RECOMMENDATIONS

### 5.1 Summary of Findings and Conclusions

Stocks and bonds being the major items of trade in the Nairobi Stock Exchange have to be looked at in depth. How stocks affect bonds or vice versa is important to the players in the market. The study has been concerned with the relationship of stock returns and bond returns for the period 1999 to 2003. The bonds have been categorized into corporate bonds and government bonds. Government bonds have been categorized further into fixed and floating rate bonds.

This study has employed the use of correlation coefficient, which describes the association between movements of two variables in this case, stock and bond returns. It describes their movement either in the same direction positive association or in different direction negative association. This study has also employed the use of coefficient of determination, which shows how much the movement in one variable can be explained by the movements in the other in percentages. This coefficient shows the effect of one variable over another.

From the data collected, the number of corporate bond transactions are very few, as the number of corporate bonds listed are also few. Similarly the number of fixed rate government bonds listed were also very few, these only appearing in the last two years of the study. The results of the correlation between bond returns and stock returns of different years as measured in the course of different months from 1999 to 2003 show little or no relationship between stock and various bond returns, including the average of all bonds. However, the relationship in the long run, that is as measured over the five years, indicates that there is a strong negative relationship between stock returns and bond returns. This correlation indicates that bond returns have a great impact on stock returns in the Kenyan stock market in the same period (1999 to 2003).

## **5.2 Limitations of the Study**

Some of the listed categories of bonds, that is corporate bonds and government fixed bonds are very few in number and thus, their effect on the stock returns cannot be said to be significant. Secondly, the bond market is not as developed as the stock market as the number of bonds seems to rise significantly in the last years of this study that is in 2002 and 2003, thus more realistic associations can be adduced in those years as compared to the previous years. The time period of study is also short due to lack of significant information in the past years.

## **5.3 Recommendations**

The Nairobi Stock Exchange is not extensively researched and a lot of work needs to be done to provide information to stake holders, traders and the public at large. As seen earlier the stock exchange plays an important role in any countries development. A lot of information about this market needs to be known to attract more player and also for the existing player to commit more of their funds in the market to increase turnover. This study undertook to find the relationship between stock returns and bond returns .The results show that there is a fluctuating correlation between the stock returns and the average of all bond returns. Different stock exchanges show different types of relations.

## **5.4 Suggestions for Further Research**

Comparisons between our economy and other economies and stock exchanges to find out the reasons why the fluctuations are either positive or negative need to be done. A research on the macro-economic and other factors to find out the other causes of these fluctuations should also be done to shed more light on why there are these fluctuations. This is important to be able to determine in advance what to expect in the market scene.

A research on the effect of regime changes such as experienced in Kenya should be looked into and other major events to determine the effects of the event to the stock and bond prices.

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RETURNS IN PERCENTAGE

	BOND RETURNS 1999											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
EADB TB+0.75 (1999)	1.452	1.452	1.452	1.464	1.464	1.464	1.904	1.862	1.903	1.903	1.903	1.903
EADB TB+1.2 (1999)	1.398	1.398	0.954	1.374	1.374	1.374	1.850	1.850	1.850	1.850	1.850	1.903
Average Corporate Returns	1.425	1.425	1.203	1.419	1.419	1.419	1.877	1.856	1.877	1.877	1.877	1.903
<b>ONE YEAR BONDS</b>												
1 yr TBd S/1/99 (91 Day TB)	0.900	0.892	0.892	0.892	0.892	0.892	1.206	1.206	1.206	1.206	1.214	1.206
1 yrTBd 2/99 (91 Day MA, TB +0.25%)	0.840	0.813	0.813	0.813	0.840	0.843	1.273	1.349	1.273	1.273	1.399	1.408
1 yrTBd 3/99 (91 Day MA, TB +0.25%)	0.813	0.813	0.813	0.813	0.813	0.814	1.273	1.273	1.273	1.365	1.282	1.433
1 yrTBd S/2/99 (91 Day TB)	0.900	0.900	0.900	0.900	0.875	0.900	1.282	1.282	1.306	1.282	1.265	1.365
1 yrTBd1/99 (91 Day MA, TB +0.25%)	0.813	0.813	0.785	0.814	0.813	0.813	1.349	1.349	1.349	1.365	1.402	1.349
<b>TWO YEAR BONDS</b>												
2 yrTBd 2/98 (91 Day MA, TB+0.50%)	0.833	0.933	0.833	0.833	0.833	0.850	1.370	1.331	1.370	1.294	1.370	1.370
2 yrTBd 2/99 (91 Day MA, TB +0.25%)	0.813	0.813	0.813	0.813	0.813	0.813	1.349	1.349	1.349	1.349	1.433	1.340
2 yrTBd 3/98 (91 Day MA, TB+0.50%)	0.833	0.833	0.833	0.833	0.833	0.833	1.370	1.344	1.328	1.344	1.370	1.361
2 yrTBd 4/98 (91 Day MA, TB+0.50%)	0.833	0.833	0.833	0.831	0.833	0.833	1.294	1.294	1.294	1.294	1.332	1.370
2 yrTBd S/ 2/99 (91 Day TB)	0.900	0.900	0.900	0.900	0.900	0.900	1.282	1.282	1.282	1.282	1.282	1.282
2 yrTBd S/1/99 (91 Day TB)	0.900	0.900	0.900	0.900	0.919	0.900	1.282	1.282	1.261	1.206	1.206	1.206
2 yrTBd1/98 (91 Day MA, TB+0.50%)	0.933	0.933	0.938	0.933	0.931	0.933	1.370	1.294	1.544	1.294	1.294	1.344
2 yrTBd1/99 (91 Day MA, TB +0.50%)	0.933	0.933	0.933	0.933	0.968	0.933	1.294	1.294	1.294	1.313	1.294	1.294
2 YrTBd5/98 (91 Day MA, TB+0.50%)	0.933	0.909	0.933	0.933	0.978	0.933	1.294	1.294	1.294	1.294	1.294	1.294
<b>THREE YEAR BONDS</b>												
3 yr TBd S/ 2/99 (91 Day TB)								1.206	1.206	1.206	1.206	1.206
3 yrTBd S/1/99 (91 Day TB)								1.206	1.314	1.206	1.331	1.206
TBD 2/98 (91 Day MA TB +0.25%)	0.813	0.813	0.813	0.813	0.814	0.813	1.273	1.273	1.300	1.273	1.273	1.273
TBD 3/98 (91 Day MA, TB +0.25%)	0.813	0.813	0.898	0.813	0.813	0.923	1.273	1.273	1.283	1.292	1.274	1.273
TBd 4/98 (91 Day MA, TB +0.25%)	0.813	0.813	0.813	0.813	0.859	0.813	1.273	1.273	1.264	1.273	1.407	1.273
Average Government Floating Bond Returns	0.860	0.862	0.861	0.858	0.866	0.867	1.300	1.287	1.305	1.285	1.312	1.308

EADB- East African Development Bank  
 TB-Treasury Bills  
 TBd-Treasury Bonds  
 MA -Moving average  
 TB+0.25- Prevailing Treasury Bill Rate +0.25%  
 MA,TB+0.25-Moving Average Treasury Bill+0.25%  
 S/1/99 , 2/98 -Bonds Serial Number

fxd,FXD - FIXED  
 FR - FLOATING  
 yr-Year  
 zc - ZERO COUPON  
 MRM - Mabati Rolling Mills Bond  
 MTN - Medium Term Note

	BOND RETURNS 2000											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
East Africa Development Bank (TB+0.75%) 2003	1.754	1.754	1.776	1.783	1.727	1.726	0.888	0.888	0.857	0.888	0.888	0.888
Shelter Afrique Medium Term Notes	1.754	1.754	1.754	1.754	1.754	1.754	0.888	0.888	0.888	0.888	0.859	0.862
<b>Average Corporate Returns</b>	<b>1.754</b>	<b>1.754</b>	<b>1.765</b>	<b>1.768</b>	<b>1.740</b>	<b>1.740</b>	<b>0.888</b>	<b>0.888</b>	<b>0.872</b>	<b>0.888</b>	<b>0.873</b>	<b>0.875</b>
<b>ONE YEAR BONDS</b>												
1 yr TBd FR 1/2000 (91 Day MA, TB +0.25%)	1.310	1.294	1.244	1.386	1.374	1.310	0.822	0.841	0.900	0.822	0.822	0.822
1 yr TBd FR 1/99 (91 Day MA, TB +0.25%)	1.310	1.310	1.374	1.324	1.310	1.244	0.822	0.841	0.853	0.822	0.822	0.822
1 yr TBd FR 2/2000 (91 Day MA, TB +0.25%)	1.310	1.244	1.310	1.386	1.324	1.310	0.841	0.872	0.841	0.866	0.869	0.841
1 yr TBd FR 2/99 (91 Day MA, TB +0.25%)	1.310	1.310	1.374	1.310	1.294	1.310	0.841	0.871	0.841	0.872	0.841	0.841
1 yr TBd FR 3/2000 (91 Day MA, TB +0.25%)	1.310	1.244	1.310	1.310	1.374	1.341	0.841	0.841	0.871	0.841	0.841	0.841
1 yr TBd FR 3/99 (91 Day MA, TB +0.25%)	1.310	1.294	1.310	1.294	1.310	1.310	0.841	0.841	0.841	0.872	0.841	0.841
1 yr TBd FR 4/2000 (91 Day MA, TB +0.25%)	1.310	1.310	1.374	1.310	1.324	1.244	0.850	0.872	0.841	0.841	0.841	0.841
1 yr TBd FR 4/99 (91 Day MA, TB +0.25%)	1.310	1.310	1.341	1.294	1.310	1.310	0.841	0.841	0.850	0.871	0.866	0.841
1 yr TBd FR 5/2000 (91 Day MA, TB +0.25%)	1.310	1.310	1.244	1.341	1.374	1.310	0.841	0.866	0.841	0.872	0.841	0.841
1 yr TBd FR 6/2000 (91 Day MA, TB +0.25%)	1.310	1.244	1.310	1.324	1.310	1.294	0.872	0.871	0.841	0.841	0.872	0.841
1 yr TBd FR 7/2000 (91 Day MA, TB +0.25%)	1.310	1.294	1.324	1.244	1.341	1.310	0.841	0.850	0.841	0.866	0.871	0.841
1 yr TBd/s/ 1/99 (91 Day TB + 0.25%)	1.310	1.341	1.374	1.341	1.294	1.310	0.846	0.846	0.846	0.846	0.846	0.846
1 yr TBd/s/ 1/99 (91 Day TB)	1.692	1.692	1.720	1.675	1.692	1.692	0.825	0.825	0.825	0.825	0.825	0.825
1 yr TBd/s/ 2/99 (91 Day TB + 0.25%)	1.713	1.713	1.713	1.713	1.713	1.713	0.846	0.855	0.846	0.863	0.846	0.875
1 yr TBd/s/ 2/99 (91 Day TB)	1.692	1.692	1.760	1.756	1.756	1.692	0.825	0.825	0.825	0.851	0.825	0.825
1 yr TBd/s/ 3/99 (91 Day TB + 0.25%)	1.713	1.713	1.713	1.713	1.675	1.713	0.846	0.846	0.846	0.846	0.846	0.846
1 yr TBd/s/ 3/99 (91 Day TB)	1.692	1.756	1.692	1.692	1.692	1.692	0.825	0.825	0.851	0.825	0.825	0.825
1 yr TBd/s/ 4/2000 (91 Day TB + 0.25%)	1.713	1.713	1.675	1.727	1.713	1.713	0.846	0.855	0.846	0.846	0.875	0.846
1 yr TBd/s/ 4/2000 (91 Day TB)	1.692	1.692	1.692	1.756	1.749	1.692	0.825	0.851	0.825	0.851	0.825	0.825
1 yr TBd/s/ 5/2000 (91 Day TB + 0.25%)	1.713	1.739	1.713	1.713	1.675	1.788	0.855	0.863	0.846	0.875	0.863	0.855
1 yr TBd/s/ 6/2000 (91 Day TB + 0.25%)	1.713	1.675	1.713	1.739	1.675	1.739	0.863	0.846	0.875	0.855	0.846	0.846
1 yr TBd/s/ 7/2000 (91 Day TB + 0.25%)	1.713	1.754	1.698	1.713	1.698	1.698	0.878	0.888	0.922	0.888	0.919	0.919
<b>TWO YEAR BONDS</b>												
2 yr TBd FR 1/2000 (91 Day MA, TB +0.50%)	1.331	1.340	1.407	1.350	1.331	1.331	0.888	0.919	0.888	0.888	0.888	0.888
2 yr TBd FR 1/98 (91 Day MA, TB+0.50%)	1.331	1.331	1.331	1.331	1.407	1.331	0.913	0.919	0.888	0.888	0.888	0.888
2 yr TBd FR 1/99 (91 Day MA, TB +0.50%)	1.331	1.331	1.407	1.331	1.331	1.331	0.888	0.888	0.919	0.878	0.919	0.919
2 yr TBd FR 2/2000 (91 Day MA, TB +0.50%)	1.331	1.331	1.331	1.407	1.331	1.331	0.888	0.888	0.888	0.922	0.888	0.888
2 yr TBd FR 2/98 (91 Day MA, TB+0.50%)	1.331	1.342	1.331	1.331	1.331	1.331	0.922	0.913	0.919	0.888	0.919	0.888
2 yr TBd FR 2/99 (91 Day MA, TB +0.50%)	1.331	1.407	1.331	1.331	1.407	1.331	0.919	0.919	0.913	0.888	0.888	0.888
2 yr TBd FR 3/2000 (91 Day MA, TB +0.50%)	1.331	1.340	1.331	1.407	1.331	1.331	0.878	0.888	0.919	0.919	0.888	0.888



CONT

## BOND RETURNS 2000

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2 yr TBd FR 3/99 (91 Day MA, TB +0.50%)	1.331	1.407	1.331	1.362	1.331	1.331	0.919	0.922	0.888	0.878	0.919	0.922
2 yr TBd FR 4/2000 (91 Day MA, TB +0.50%)	1.331	1.407	1.331	1.407	1.340	1.331	0.913	0.888	0.922	0.919	0.888	0.888
2 yr TBd FR 4/98 (91 Day MA, TB+0.50%)	1.331	1.407	1.407	1.331	1.331	1.331	0.878	0.913	0.919	0.919	0.878	0.888
2 yr TBd FR 4/99 (91 Day MA, TB +0.50%)	1.331	1.331	1.331	1.407	1.331	1.331	0.871	0.872	0.861	0.861	0.872	0.873
2 yr TBd FR 5/98 (91 Day MA, TB+0.50%)	1.331	1.340	1.331	1.407	1.407	1.331	0.861	0.861	0.871	0.872	0.861	0.872
2 yr TBd FR 6/2000 (91 Day MA, TB +0.25%)	1.310	1.326	1.310	1.338	1.310	1.310	0.841	0.841	0.841	0.841	0.871	0.841
2 yr TBd/s/ 1/99 (91 Day TB)	1.692	1.692	1.692	1.692	1.692	1.692	0.825	0.836	0.825	0.825	0.825	0.825
2 yr TBd/s/ 1/99 (91 Day TB+0.50%)	1.733	1.705	1.802	1.733	1.733	1.733	0.867	0.883	0.867	0.950	0.867	0.931
2 yr TBd/s/ 2/99 (91 Day TB + 0.50%)	1.733	1.733	1.733	1.733	1.802	1.733	0.867	0.867	0.931	0.895	0.867	0.867
2 yr TBd/s/ 2/99 (91 Day TB)	1.692	1.692	1.743	1.692	1.590	1.692	0.825	0.853	0.825	0.825	0.825	0.825
2 yr TBd/s/ 3/99 (91 Day TB + 0.50%)	1.733	1.733	1.802	1.733	1.655	1.733	0.867	0.867	0.867	0.881	0.867	0.867
2 yr TBd/s/ 3/99 (91 Day TB)	1.692	1.692	1.692	1.802	1.692	1.692	0.825	0.825	0.825	0.825	0.825	0.825
2 yr TBd/s/ 4/2000 (91 Day TB + 0.50%)	1.733	1.705	1.733	1.733	1.705	1.733	0.867	0.881	0.867	0.867	0.881	0.867
2 yr TBd/s/ 4/2000 (91 Day TB)	1.698	1.698	1.698	1.698	1.698	1.698	0.831	0.831	0.831	0.831	0.831	0.831
2 yr TBd/s/ 4/2000 (91 Day TB)	1.698	1.698	1.698	1.698	1.698	1.698	0.831	0.831	0.831	0.831	0.831	0.831
2 yr TBd/s/ 5/2000 (91 Day TB + 0.50%)	1.733	1.733	1.705	1.733	1.633	1.733	0.867	0.867	0.931	0.931	0.867	0.931
2 yr TBd/s/ 6/2000 (91 Day TB + 0.50%)	1.733	1.733	1.703	1.733	1.733	1.733	0.867	0.931	0.881	0.867	0.881	0.867
2 yr TBd/s/ 7/2000 (91 Day TB + 0.25%)	1.713	1.713	1.713	1.713	1.743	1.713	0.846	0.846	0.862	0.846	0.857	0.846
<b>THREE YEAR BONDS</b>												
3 yr TBd 1/2000 (91 Day MA, TB + 0.65%)	1.260	1.269	1.291	1.343	1.229	1.260	1.260	1.288	1.291	1.260	1.288	1.260
3 yr TBd 1/99 (91 Day MA, TB + 0.65%)	1.260	1.231	1.169	1.287	1.260	1.289	1.260	1.299	1.260	1.288	1.260	1.260
3 yr TBd 1/99 (91 Day TB)	1.692	1.680	1.692	1.692	1.692	1.692	0.825	0.837	0.825	0.825	0.825	0.825
3 yr TBd 2/99 (91 Day MA, TB + 0.65%)	1.343	1.343	1.343	1.343	1.343	1.343	0.874	0.874	0.874	0.885	0.874	0.874
3 yr TBd 2/99 (91 Day TB)	1.692	1.723	1.692	1.675	1.692	1.692	0.825	0.825	0.856	0.834	0.825	0.825
3 yr TBd/s/ 1/99 (91 Day TB + 0.65%)	1.343	1.343	1.343	1.723	1.343	1.343	0.874	0.990	0.874	0.890	0.874	0.874
3 yr TBd/s/ 1/99 (91 Day TB)	1.692	1.692	1.692	1.692	1.723	1.692	0.825	0.834	0.825	0.856	0.825	0.825
3 yr TBd/s/ 2/99 (91 Day TB + 0.65%)	1.343	1.375	1.343	1.343	1.343	1.343	0.874	0.874	0.874	0.874	0.874	0.874
3 yr TBd/s/ 2/99 (91 Day TB)	1.692	1.692	1.756	1.675	1.692	1.723	0.825	0.825	0.825	0.825	0.834	0.825
3 yr TBd/s/ 3/99 (91 Day TB + 0.65%)	1.343	1.343	1.343	1.343	1.343	1.343	0.874	0.890	0.874	0.874	0.890	0.874
3 yr TBd/s/ 3/99 (91 Day TB)	1.692	1.675	1.692	1.723	1.692	1.692	0.825	0.825	0.834	0.825	0.825	0.825
3 yr TBd/s/ 3/99 (91 Day TB)	1.692	1.675	1.692	1.723	1.692	1.692	0.825	0.856	0.825	0.834	0.856	0.825
3 yr TBd/s/ 4/2000 (91 Day TB)	1.692	1.692	1.675	1.692	1.723	1.692	0.825	0.856	0.825	0.834	0.856	0.825
3 yr TBd/s/ 5/2000 (91 Day TB + 0.65%)	1.343	1.343	1.723	1.343	1.343	1.343	0.874	0.874	0.874	0.874	0.874	0.890
3 yr TBd/s/ 5/2000 (91 Day TB + 0.65%)	1.343	1.343	1.343	1.312	1.343	1.343	0.874	0.890	0.874	0.890	0.874	0.900
3 yr TBd/s/ 6/2000 (91 Day TB + 0.65%)	1.343	1.343	1.343	1.312	1.343	1.343	0.874	0.890	0.874	0.890	0.874	0.900
3 yr TBd/s/ 7/2000 (91 Day TB + 0.25%)	1.713	1.713	1.682	1.713	1.687	1.713	0.846	0.846	0.846	0.846	0.846	0.846
<b>Average Government Floating Bond Returns</b>	<b>1.498</b>	<b>1.501</b>	<b>1.513</b>	<b>1.519</b>	<b>1.502</b>	<b>1.498</b>	<b>0.869</b>	<b>0.880</b>	<b>0.877</b>	<b>0.878</b>	<b>0.873</b>	<b>0.871</b>

BOND RETURNS 2001

APPENDIX I

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
East Africa Development Bank (TB+0.75%) 2006	1.293	1.293	1.302	1.352	1.266	1.293	1.135	1.135	1.135	1.135	1.135	1.135
Safaricom Medium Term Notes 2006	1.293	1.293	1.293	1.293	1.293	1.293	1.293	13.620	13.620	13.620	13.620	13.620
Shelter Afrique Medium Term Notes	1.293	1.293	1.293	1.293	1.293	1.293	1.293	13.620	13.620	13.620	13.620	13.620
<b>Average Corporate Returns</b>	<b>1.293</b>	<b>1.293</b>	<b>1.296</b>	<b>1.312</b>	<b>1.284</b>	<b>1.293</b>	<b>1.240</b>	<b>9.458</b>	<b>9.458</b>	<b>9.458</b>	<b>9.458</b>	<b>9.458</b>
<b>ONE YEAR BONDS</b>												
1 yr TBd FR 1/2000 (91 Day MA, TB +0.25%)	1.274	1.274	1.293	1.301	1.215	1.274	1.140	1.158	1.118	1.123	1.128	1.028
1 yr TBd FR 1/99 (91 Day MA, TB +0.25%)	1.274	1.333	1.255	1.348	1.243	1.317	1.079	1.038	1.040	1.043	1.022	1.079
1 yr TBd FR 2/2000 (91 Day MA, TB +0.25%)	1.274	1.301	1.243	1.274	1.293	1.274	1.079	1.079	1.123	1.079	1.079	1.079
1 yr TBd FR 2/2001 (91 Day MA, TB +0.25%)	1.274	1.274	1.215	1.274	1.333	1.301	1.079	1.118	1.079	1.079	1.079	1.079
1 yr TBd FR 2/99 (91 Day MA, TB +0.25%)	1.348	1.293	1.274	1.293	1.274	1.274	1.079	1.079	1.079	1.079	1.123	1.079
1 yr TBd FR 3/2000 (91 Day MA, TB +0.25%)	1.274	1.255	1.333	1.274	1.293	1.348	1.079	1.158	1.079	1.079	1.079	1.079
1 yr TBd FR 3/2001 (91 Day MA, TB +0.25%)	1.274	1.274	1.274	1.301	1.274	1.255	1.079	1.043	1.079	1.079	1.079	1.079
1 yr TBd FR 3/99 (91 Day MA, TB +0.25%)	1.274	1.301	1.274	1.274	1.215	1.293	1.079	1.079	1.079	1.079	1.079	1.079
1 yr TBd FR 4/2000 (91 Day MA, TB +0.25%)	1.348	1.274	1.274	1.333	1.274	1.274	1.079	1.118	1.158	1.079	1.079	1.123
1 yr TBd FR 4/2001 (91 Day MA, TB +0.25%)	1.348	1.274	1.274	1.333	1.274	1.215	1.079	1.079	1.043	1.079	1.079	1.079
1 yr TBd FR 4/99 (91 Day MA, TB +0.25%)	1.274	1.274	1.274	1.333	1.274	1.274	1.079	1.158	1.079	1.158	1.118	1.079
1 yr TBd FR 5/2000 (91 Day MA, TB +0.25%)	1.274	1.215	1.301	1.274	1.301	1.243	1.079	1.158	1.079	1.079	1.079	1.079
1 yr TBd FR 6/2000 (91 Day MA, TB +0.25%)	1.274	1.274	1.274	1.333	1.255	1.293	1.079	1.079	1.118	1.123	1.158	1.123
1 yr TBd FR 7/2000 (91 Day MA, TB +0.25%)	1.274	1.293	1.293	1.274	1.293	1.274	1.079	1.128	1.079	1.043	1.022	1.079
1 yr TBd FR 8/2000 (91 Day MA, TB +0.25%)	1.274	1.274	1.333	1.348	1.293	1.274	1.079	1.079	1.022	1.158	1.079	1.079
1 yr TBd/S/ 1/99 (91 Day TB + 0.25%)	1.251	1.269	1.282	1.310	1.225	1.251	1.093	1.033	1.149	1.093	1.161	1.093
1 yr TBd/S/ 2/99 (91 Day TB + 0.25%)	1.251	1.221	1.234	1.251	1.251	1.269	1.093	1.093	1.033	1.144	1.042	1.093
1 yr TBd/S/ 3/2001 (91 Day TB + 0.25%)	1.251	1.269	1.251	1.234	1.251	1.234	1.093	1.093	1.144	1.093	1.093	1.093
1 yr TBd/S/ 3/99 (91 Day TB + 0.25%)	1.251	1.225	1.251	1.251	1.310	1.251	1.093	1.033	1.093	1.093	1.149	1.093
1 yr TBd/S/ 4/2000 (91 Day TB + 0.25%)	1.251	1.310	1.221	1.269	1.282	1.269	1.093	1.093	1.093	1.149	1.093	1.093
1 yr TBd/S/ 4/2001 (91 Day TB + 0.25%)	1.251	1.251	1.269	1.234	1.251	1.251	1.093	1.149	1.161	1.093	1.149	1.161
1 yr TBd/S/ 5/2000 (91 Day TB + 0.25%)	1.282	1.251	1.269	1.225	1.221	1.269	1.093	1.093	1.149	1.033	1.093	1.093
1 yr TBd/S/ 6/2000 (91 Day TB + 0.25%)	1.282	1.269	1.269	1.225	1.221	1.269	1.093	1.093	1.149	1.033	1.093	1.093
1 yr TBd/S/ 7/2000 (91 Day TB + 0.25%)	1.251	1.251	1.251	1.282	1.310	1.251	1.033	1.093	1.144	1.093	1.161	1.093
1 yr TBd/S/ 8/2000 (91 Day TB + 0.25%)	1.251	1.234	1.251	1.269	1.269	1.251	1.093	1.093	1.033	1.093	1.033	1.144
1 yr TBd/S/ 9/2001 (91 Day TB + 0.25%)	1.251	1.251	1.221	1.251	1.310	1.221	1.093	1.161	1.149	1.093	1.093	1.093
1 yr TBd/S/ 9/2001 (91 Day TB + 0.25%)	1.251	1.269	1.251	1.225	1.269	1.282	1.093	1.093	1.093	1.033	1.093	1.093
<b>TWO YEAR BONDS</b>												
2 yr TBd FR 1/2000 (91 Day MA, TB +0.50%)	1.293	1.302	1.200	1.319	1.328	1.293	1.135	1.056	1.153	1.141	1.072	1.156
2 yr TBd FR 1/98 (91 Day MA, TB+0.50%)	1.293	1.308	1.293	1.293	1.293	1.293	1.109	1.134	1.183	1.049	1.131	1.069
2 yr TBd FR 1/99 (91 Day MA, TB +0.50%)	1.293	1.293	1.319	1.293	1.308	1.293	1.041	1.072	1.056	1.032	1.153	1.062
2 yr TBd FR 2/2000 (91 Day MA, TB +0.50%)	1.293	1.293	1.293	1.302	1.200	1.302	1.100	1.135	1.100	1.100	1.072	1.100
2 yr TBd FR 2/99 (91 Day MA, TB +0.50%)	1.293	1.293	1.328	1.293	1.293	1.293	1.100	1.153	1.109	1.056	1.100	1.100
2 yr TBd FR 3/2000 (91 Day MA, TB +0.50%)	1.293	1.293	1.302	1.293	1.293	1.293	1.100	1.049	1.153	1.109	1.100	1.135
2 yr TBd FR 3/98 (91 Day MA, TB+0.50%)	1.293	1.293	1.319	1.293	1.200	1.293	1.100	1.056	1.183	1.141	1.131	1.100
2 yr TBd FR 3/99 (91 Day MA, TB +0.50%)	1.293	1.302	1.293	1.308	1.293	1.200	1.100	1.100	1.134	1.135	1.072	1.134

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2 yr TBd FR 4/2000 (91 Day MA, TB +0.50%)	1.293	1.293	1.308	1.293	1.200	1.293	1.100	1.100	1.153	1.183	1.141	1.183
2 yr TBd FR 4/98 (91 Day MA, TB+0.50%)	1.293	1.200	1.293	1.319	1.293	1.319	1.100	1.135	1.100	1.109	1.056	1.100
2 yr TBd FR 4/99 (91 Day MA, TB +0.50%)	1.293	1.293	1.293	1.328	1.293	1.293	1.100	1.100	1.134	1.153	1.131	1.156
2 yr TBd FR 5/2000 (91 Day MA, TB +0.50%)	1.293	1.293	1.308	1.293	1.200	1.293	1.100	1.056	1.109	1.134	1.049	1.153
2 yr TBd FR 5/98 (91 Day MA, TB+0.50%)	1.293	1.293	1.293	1.302	1.293	1.200	1.100	1.100	1.141	1.183	1.135	1.131
2 yr TBd FR 6/2000 (91 Day MA, TB +0.25%)	1.272	1.288	1.272	1.310	1.272	1.272	1.079	1.079	1.079	1.079	1.079	1.079
2 yr TBd FR 7/2000 (91 Day MA, TB +0.50%)	1.293	1.321	1.293	1.321	1.356	1.293	1.100	1.100	1.109	1.183	1.069	1.100
2 yr TBd/S/ 9/2001 (91 Day TB + 0.50%)	1.293	1.217	1.277	1.321	1.293	1.293	1.100	1.141	1.100	1.135	1.049	1.069
2 yr TBd/S/ 1/99 (91 Day TB+0.50%)	1.293	1.356	1.233	1.293	1.293	1.321	1.135	1.100	1.153	1.100	1.134	1.100
2 yr TBd/S/ 2/99 (91 Day TB + 0.50%)	1.293	1.293	1.293	1.293	1.293	1.293	1.100	1.100	1.100	1.131	1.056	1.100
2 yr TBd/S/ 3/2001 (91 Day TB + 0.50%)	1.293	1.293	1.293	1.293	1.293	1.233	1.100	1.056	1.100	1.109	1.100	1.183
2 yr TBd/S/ 3/99 (91 Day TB + 0.50%)	1.293	1.321	1.293	1.233	1.293	1.293	1.100	1.069	1.135	1.100	1.100	1.049
2 yr TBd/S/ 3/99 (91 Day TB + 0.50%)	1.293	1.293	1.233	1.293	1.217	1.293	1.100	1.156	1.049	1.134	1.135	1.100
2 yr TBd/S/ 4/2000 (91 Day TB + 0.50%)	1.293	1.293	1.293	1.321	1.293	1.293	1.100	1.100	1.109	1.153	1.131	1.100
2 yr TBd/S/ 4/2001 (91 Day TB + 0.50%)	1.293	1.293	1.321	1.293	1.217	1.321	1.100	1.135	1.100	1.056	1.069	1.156
2 yr TBd/S/ 5/2000 (91 Day TB + 0.50%)	1.293	1.233	1.217	1.293	1.293	1.233	1.100	1.100	1.049	1.100	1.056	1.100
2 yr TBd/S/ 6/2000 (91 Day TB + 0.50%)					1.293	1.293	1.141	1.100	1.141	1.134	1.109	1.100
2 yr TBd/S/ 7/2000 (91 Day TB + 0.25%)	1.272	1.272	1.306	1.297	1.272	1.333	1.079	1.079	1.079	1.079	1.079	1.079
2 yr TBd/S/ 8/2001 (91 Day TB + 0.50%)	1.293	1.293	1.293	1.293	1.293	1.293	1.100	1.100	1.156	1.134	1.131	1.100
<b>THREE YEAR BONDS</b>												
3 yr TBd 1/2000 (91 Day MA, TB + 0.65%)	1.305	1.333	1.336	1.246	1.336	1.343	1.113	1.082	1.172	1.057	1.170	1.074
3 yr TBd 1/99 (91 Day MA, TB + 0.65%)	1.305	1.305	1.336	1.305	1.305	1.305	1.113	1.113	1.113	1.113	1.113	1.113
3 yr TBd 2/99 (91 Day MA, TB + 0.65%)	1.305	1.343	1.305	1.305	1.305	1.305	1.113	1.113	1.113	1.113	1.113	1.057
3 yr TBd/S/ 1/99 (91 Day TB + 0.65%)	1.305	1.305	1.336	1.336	1.305	1.345	1.113	1.170	1.113	1.074	1.113	1.113
3 yr TBd/S/ 2/99 (91 Day TB + 0.65%)	1.305	1.246	1.336	1.343	1.305	1.305	1.113	1.082	1.113	1.057	1.113	1.113
3 yr TBd/S/ 2/99 (91 Day TB + 0.65%)	1.305	1.305	1.305	1.336	1.246	1.305	1.113	1.113	1.113	1.082	1.113	1.113
3 yr TBd/S/ 3/2001 (91 Day TB + 0.65%)	1.305	1.305	1.336	1.305	1.336	1.305	1.113	1.172	1.057	1.082	1.113	1.113
3 yr TBd/S/ 3/99 (91 Day TB + 0.65%)	1.305	1.305	1.336	1.305	1.305	1.336	1.113	1.172	1.113	1.074	1.172	1.057
3 yr TBd/S/ 4/2000 (91 Day TB + 0.65%)	1.305	1.246	1.305	1.305	1.305	1.336	1.113	1.172	1.113	1.082	1.057	1.113
3 yr TBd/S/ 4/2001 (91 Day TB + 0.65%)	1.305	1.305	1.336	1.343	1.305	1.336	1.113	1.113	1.113	1.082	1.057	1.113
3 yr TBd/S/ 5/2000 (91 Day TB + 0.65%)	1.305	1.305	1.336	1.336	1.305	1.305	1.113	1.082	1.113	1.057	1.113	1.170
3 yr TBd/S/ 6/2000 (91 Day TB + 0.65%)	1.305	1.305	1.343	1.305	1.305	1.305	1.113	1.057	1.113	1.172	1.082	1.113
3 yr TBd/S/ 7/2000 (91 Day TB + 0.25%)	1.272	1.272	1.328	1.306	1.333	1.272	1.079	1.079	1.079	1.079	1.079	1.079
3 yr TBd/S/ 8/2001 (91 Day TB + 0.65%)	1.305	1.353	1.264	1.361	1.363	1.364	1.113	1.113	1.074	1.113	1.113	1.113
3 yr TBd/S/ 9/2001 (91 Day TB + 0.65%)	1.305	1.346	1.345	1.305	1.368	1.305	1.113	1.170	1.113	1.113	1.113	1.113
<b>Average Government Floating Bond Returns</b>	<b>1.286</b>	<b>1.285</b>	<b>1.287</b>	<b>1.296</b>	<b>1.302</b>	<b>1.305</b>	<b>1.113</b>	<b>1.119</b>	<b>1.124</b>	<b>1.119</b>	<b>1.115</b>	<b>1.119</b>



BOND RETURNS 2002

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
E.A.D.B (TB+0.75%) 2003	0.967	0.985	0.983	0.967	0.976	0.967	0.818	0.738	0.782	0.826	0.890	0.782
E.A.D.B (TB+0.75%) 2006	0.967	1.134	1.013	0.883	0.967	0.911	0.799	0.782	0.826	0.782	0.782	0.782
Safaricom Medium Term Notes 2006									0.826	0.782	0.826	0.782
M.R.M (TB+1.25%) 2007	1.008	1.008	1.008	1.082	1.008	1.026	0.948	0.906	0.823	0.648	0.833	0.823
Shelter Afrique Medium Term Notes												
<b>Average Corporate Returns</b>	<b>0.588</b>	<b>0.626</b>	<b>0.601</b>	<b>0.586</b>	<b>0.590</b>	<b>0.581</b>	<b>0.513</b>	<b>0.485</b>	<b>0.486</b>	<b>0.451</b>	<b>0.501</b>	<b>0.477</b>
<b>ONE YEAR BONDS</b>												
1 yr TBd FR 1/2001 (91 Day MA, TB +0.25%)	0.925	0.943	0.934	0.925	0.944	0.925	0.703	0.721	0.703	0.667	0.703	0.603
1 yr TBd FR 2/2001 (91 Day MA, TB +0.25%)	0.925	0.925	0.943	0.925	0.925	0.980	0.703	0.703	0.703	0.714	0.703	0.703
1 yr TBd FR 3/2001 (91 Day MA, TB +0.25%)	0.925	0.925	0.953	0.925	0.925	0.978	0.703	0.714	0.603	0.703	0.703	0.595
1 yr TBd FR 6/2001 (91 Day MA, TB +0.25%)	0.925	0.925	0.925	0.925	0.944	0.953	0.703	0.703	0.703	0.703	0.603	0.703
1 yr TBd FR4/2001 (91 Day MA, TB +0.25%)	0.925	0.925	0.944	0.925	0.925	0.925	0.703	0.603	0.714	0.703	0.764	0.703
1 yr TBd/s/ 1/2002 (91 Day TB)	0.904	0.904	0.924	0.904	0.902	0.904	0.719	0.750	0.719	0.719	0.719	0.719
1 yr TBd/s/ 3/2001 (91 Day TB)	0.904	0.904	0.904	0.904	0.923	0.941	0.719	0.719	0.719	0.631	0.719	0.719
1 yr TBd/s/ 4/2001 (91 Day TB)	0.904	0.933	0.904	0.904	0.904	0.904	0.719	0.719	0.758	0.719	0.737	0.719
1 yr TBd/s/ 5/2001 (91 Day TB)	0.904	0.904	0.904	0.933	0.904	0.904	0.719	0.719	0.719	0.719	0.770	0.719
1 yr TBd/s/ 6/2001 (91 Day TB)	0.904	0.904	0.904	0.904	0.913	0.904	0.719	0.631	0.719	0.631	0.719	0.719
1 yr TBd/s/ 7/2001 (91 Day TB)	0.904	0.933	0.904	0.904	0.951	0.923	0.719	0.719	0.719	0.719	0.631	0.719
<b>TWO YEAR BONDS</b>												
2 yr TBd/S/ FR 1/2000 (91 Day MA, TB +0.50%)	0.919	0.919	0.919	0.974	0.928	0.919	0.724	0.724	0.724	0.724	0.724	0.724
2 yr TBd/S/ FR 1/2001 (91 Day MA, TB +0.50%)	0.919	0.919	0.892	0.892	0.919	0.864	0.724	0.724	0.724	0.724	0.724	0.724
2 yr TBd/S/ FR 2/2000 (91 Day MA, TB +0.50%)	0.919	0.919	0.873	0.919	0.900	0.919	0.724	0.735	0.724	0.724	0.724	0.724
2 yr TBd/S/ FR 2/2001 (91 Day MA, TB +0.50%)	0.919	0.919	0.919	0.919	0.919	0.955	0.724	0.724	0.724	0.753	0.724	0.724
2 yr TBd/S/ FR 3/2000 (91 Day MA, TB +0.50%)	0.919	0.956	0.892	0.873	0.919	0.919	0.724	0.724	0.743	0.724	0.724	0.724
2 yr TBd/S/ FR 4/2000 (91 Day MA, TB +0.50%)	0.919	0.919	0.919	0.892	0.919	0.919	0.724	0.724	0.724	0.724	0.724	0.724
2 yr TBd/S/ FR 4/99 (91 Day MA, TB +0.50%)	0.873	0.919	0.928	0.919	0.892	0.919	0.724	0.724	0.724	0.769	0.724	0.724
2 yr TBd/S/ FR 5/2000 (91 Day MA, TB +0.50%)	0.956	0.919	0.919	0.919	0.928	0.919	0.724	0.724	0.724	0.724	0.724	0.724
2 yr TBd/S/ FR 6/2000 (91 Day MA, TB +0.50%)	0.919	0.919	0.993	0.919	0.919	0.919	0.724	0.733	0.713	0.724	0.738	0.724
2 yr TBd/S/ FR 7/2000 (91 Day MA, TB +0.50%)	0.919	0.919	0.983	0.919	0.983	0.956	0.724	0.724	0.837	0.733	0.724	0.724
2 yr TBd/S/ 1/2002 (91 Day TB)	0.859	0.904	0.973	0.904	0.913	0.904	0.651	0.719	0.729	0.719	0.758	0.719
2 yr TBd/S/ 3/2001 (91 Day TB)	0.904	0.904	0.939	0.904	0.958	0.904	0.719	0.730	0.719	0.719	0.719	0.719
2 yr TBd/S/ 4/2000 (91 Day TB)	0.904	0.904	0.904	0.973	0.904	0.859	0.719	0.719	0.719	0.719	0.719	0.719
2 yr TBd/S/ 4/2001 (91 Day TB)	0.913	0.904	0.859	0.904	0.939	0.904	0.719	0.719	0.651	0.719	0.719	0.719
2 yr TBd/S/ 5/2000 (91 Day TB)	0.904	0.904	0.913	0.904	0.913	0.859	0.719	0.729	0.719	0.719	0.719	0.651
2 yr TBd/S/ 5/2001 (91 Day TB)	0.904	0.904	0.939	0.904	0.850	0.904	0.719	0.719	0.719	0.719	0.719	0.719
2 yr TBd/S/ 6/2000 (91 Day TB)	0.939	0.904	0.913	0.904	0.904	0.973	0.651	0.719	0.719	0.651	0.719	0.719
2 yr TBd/S/ 6/2001 (91 Day TB)	0.904	0.904	0.913	0.913	0.859	0.904	0.719	0.719	0.729	0.719	0.719	0.719
2 yr TBd/S/ 7/2000 (91 Day TB)	0.904	0.904	0.859	0.904	0.904	0.913	0.719	0.651	0.719	0.651	0.719	0.719
2 yr TBd/S/ 9/2001 (91 Day TB)	0.904	0.973	0.904	0.939	0.904	0.973	0.719	0.729	0.719	0.719	0.651	0.719

BOND RETURNS 2002

CONT

THREE YEAR BONDS

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3 yr TBd 1/2000 (91 Day MA, TB + 0.625%)	0.930	0.905	0.930	0.976	0.859	1.010	0.735	0.650	0.735	0.751	0.735	0.735
3 yr TBd 1/2001 (91 Day MA, TB + 0.625%)	0.930	0.940	0.930	0.930	0.905	0.930	0.735	0.735	0.735	0.650	0.735	0.735
3 yr TBd 1/99 (91 Day MA, TB + 0.65%)	0.932	0.991	0.932	1.124	0.932	0.932	0.737	0.808	0.737	0.737	0.737	0.737
3 yr TBd 2/2000 (91 Day MA, TB + 0.65%)	0.932	0.959	0.932	0.932	0.950	0.932	0.737	0.737	0.737	0.737	0.737	0.737
3 yr TBd 2/2001 (91 Day MA, TB + 0.625%)	0.930	0.930	0.930	0.905	0.930	0.930	0.735	0.735	0.650	0.770	0.735	0.735
3 yr TBd 2/99 (91 Day MA, TB + 0.65%)	0.932	0.932	0.991	0.932	0.932	0.932	0.737	0.737	0.737	0.751	0.737	0.737
3 yr TBd 3/2000 (91 Day MA, TB + 0.65%)	0.932	0.932	0.993	1.124	0.932	0.991	0.737	0.737	0.737	0.737	0.737	0.737
3 yr TBd 3/2001 (91 Day MA, TB + 0.625%)	0.930	0.930	0.930	0.905	0.930	0.930	0.735	0.724	0.785	0.735	0.650	0.735
3 yr TBd 4/2000 (91 Day MA, TB + 0.65%)	0.932	0.932	0.932	0.991	0.932	1.124	0.737	0.737	0.737	0.748	0.737	0.737
3 yr TBd/S/ 1/2002 (91 Day TB)	0.904	0.973	0.904	0.748	0.904	0.904	0.719	0.719	0.719	0.719	0.719	0.719
3 yr TBd/S/ 1/2002 (91 Day TB)	0.904	0.904	0.973	0.904	0.904	0.904	0.608	0.719	0.747	0.719	0.719	0.719
3 yr TBd/S/ 2/99 (91 Day TB)	0.904	0.904	0.973	0.904	0.904	0.973	0.719	0.734	0.719	0.719	0.719	0.719
3 yr TBd/S/ 3/2001 (91 Day TB)	0.904	0.904	0.904	0.973	0.748	0.904	0.719	0.719	0.719	0.719	0.719	0.719
3 yr TBd/S/ 3/99 (91 Day TB)	0.904	0.904	0.748	0.904	0.973	0.904	0.719	0.719	0.719	0.719	0.719	0.719
3 yr TBd/S/ 4/2000 (91 Day TB)	0.904	0.973	0.904	0.904	0.948	0.904	0.719	0.719	0.734	0.608	0.747	0.719
3 yr TBd/S/ 4/2001 (91 Day TB)	0.973	0.904	0.748	0.904	0.973	0.904	0.719	0.719	0.719	0.719	0.719	0.719
3 yr TBd/S/ 5/2000 (91 Day TB)	0.904	0.904	0.904	0.973	0.904	0.904	0.747	0.747	0.719	0.734	0.719	0.719
3 yr TBd/S/ 5/2001 (91 Day TB)	0.904	0.748	0.895	0.904	0.973	0.904	0.719	0.719	0.719	0.719	0.719	0.719
3 yr TBd/S/ 6/2000 (91 Day TB)	0.904	0.904	0.904	0.748	0.904	0.748	0.719	0.734	0.719	0.719	0.734	0.719
3 yr TBd/S/ 6/2001 (91 Day TB)	0.748	0.973	0.904	0.904	0.904	0.973	0.719	0.734	0.719	0.608	0.719	0.719
3 yr TBd/S/ 7/2000 (91 Day TB)	0.973	0.904	0.881	0.973	0.904	0.904	0.719	0.719	0.734	0.719	0.719	0.719
3 yr TBd/S/ 8/2001 (91 Day TB)	0.904	0.904	0.748	0.904	0.904	0.904	0.719	0.719	0.734	0.719	0.608	0.719
3 yr TBd/S/ 9/2001 (91 Day TB)	0.904	0.904	0.904	0.748	0.973	0.904	0.719	0.719	0.719	0.719	0.719	0.719
5yr TBd 1/2001 (91 Day TB + 0.75%)	0.967	0.967	0.967	0.967	0.967	0.967	0.782	0.782	0.782	0.782	0.782	0.782
6 yr TBd 1/2001 (91 Day TB + 0.80%)	0.975	0.975	0.875	0.975	0.975	0.975	0.790	0.790	0.800	0.790	0.848	0.790
6 yr TBd 1/2002(91 Day TB + 0.80%)	0.975	0.975	1.078	0.975	1.043	0.975	0.790	0.790	0.863	0.790	0.790	0.790
6 yr TBd FR 1/2001 (91 Day MA, TB +0.50%)	0.919	0.919	0.919	0.919	0.919	0.919	0.724	0.724	0.724	0.724	0.779	0.724
<b>Average Government Floating Bond Returns</b>	<b>0.916</b>	<b>0.922</b>	<b>0.916</b>	<b>0.921</b>	<b>0.922</b>	<b>0.926</b>	<b>0.721</b>	<b>0.723</b>	<b>0.728</b>	<b>0.717</b>	<b>0.723</b>	<b>0.720</b>

CONT

## BOND RETURNS 2002

APPENDIX I

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
<b>ONE YEAR BONDS</b>												
1 yr TBd FXT 1/2001 (Fxd at 14.5%)	1.208	1.208	1.208	1.292	1.126	1.245	1.208	1.237	1.208	1.208	1.208	1.208
1 yr TBd FXT 1/2002 (Fxd at 13%)	1.083	1.083	1.083	1.278	1.083	1.352	1.083	1.083	1.083	1.083	1.083	1.083
18 months TBd/S/FXT 1/2001 (Fxd at 14.5%)	1.208	1.228	1.233	1.208	1.236	1.208	1.208	1.208	1.208	1.208	1.208	1.208
18 months TBd/S/FXT 2/2001 (Fxd at 14.5%)	1.208	1.255	1.208	1.190	1.190	1.208	1.208	1.208	1.208	1.218	1.208	1.208
<b>TWO YEAR BONDS</b>												
2 yr TBd/S/ FXT 1/2001 (Fxd at 14.5%)	1.208	1.393	1.308	1.208	1.126	1.208	1.208	1.208	1.255	1.208	1.208	1.208
2 yr TBd/S/ FXT 1/2001 (Fxd at 14.75%)	1.229	1.229	1.229	1.256	1.229	1.229	1.229	1.229	1.229	1.229	1.229	1.229
2 yr TBd/S/ FXT 1/2002 (Fxd at 13%)	1.083	1.083	1.083	1.139	1.083	1.083	1.083	1.083	1.083	1.083	1.083	1.083
2 yr TBd/S/ FXT 2/2001 (Fxd at 14.25%)	1.188	1.188	1.258	1.188	1.218	1.188	1.188	1.157	1.188	1.220	1.188	1.188
2 yr TBd/S/ FXT 2/2001 (Fxd at 14.5%)	1.208	1.208	1.228	1.208	1.179	1.208	1.208	1.208	1.208	1.208	1.208	1.208
2 yr TBd/S/ FXT 2/2002 (Fxd at 13%)	1.083	1.083	1.096	1.083	1.096	1.083	1.083	1.128	1.083	1.083	1.083	1.083
<b>THREE YEAR BONDS</b>												
3 yr TBd FXD 1/2002(Fxd at 13%)	1.083	1.083	1.083	1.083	1.146	1.083	1.064	1.083	1.083	1.083	1.083	1.083
3 yr TBd Fxt 1/2002 (Fxd at 14.25%)	1.188	1.188	1.188	1.086	1.207	1.188	1.188	1.188	1.188	1.214	1.188	1.188
3 yr TBd FXT 1/2002 (Fxd at 14.5%)	1.208	1.208	1.208	1.208	1.208	1.208	1.208	(6.375)	1.208	1.208	1.208	1.208
3 yr TBd FXT 2/2002 (Fxd at 13%)	1.083	1.083	1.152	1.083	1.096	1.083	1.083	1.165	1.083	1.093	1.122	1.083
3 yr TBd Fxt 2/2002 (Fxd at 13.75%)	1.146	1.146	0.954	1.146	1.146	1.146	1.146	1.146	1.174	1.146	1.155	1.146
<b>FOUR YEAR BONDS</b>												
4yr TBd Fxt 1/2002 (Fxd at 14%)	1.167	1.167	1.186	1.167	1.167	1.167	1.167	1.167	1.167	1.167	1.185	1.167
<b>FIVE YEAR BONDS</b>												
5yr TBd FXD 1/2002 (Fxd at 13%)	1.083	1.251	1.083	1.083	1.102	1.083	1.083	1.083	1.104	1.083	1.083	1.083
5yr TBd Fxt 1/2002 (Fxd at 14.5%)	1.167	1.167	1.167	1.209	1.167	1.167	1.167	1.167	1.167	1.167	1.219	1.167
<b>SIX YEAR BONDS</b>												
6 yr TBd FXD 1/2002 (Fxd at 13%)	1.083	1.083	1.144	1.083	0.904	1.083	1.083	1.083	1.041	1.083	1.103	1.083
<b>Average Government Fixed Bond Returns</b>	<b>1.154</b>	<b>1.176</b>	<b>1.163</b>	<b>1.168</b>	<b>1.143</b>	<b>1.170</b>	<b>1.153</b>	<b>0.761</b>	<b>1.156</b>	<b>1.159</b>	<b>1.161</b>	<b>1.154</b>



	BOND RETURNS 2003											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Safaricom MTN 2006 (TB+1%)	0.782	0.782	0.809	0.782	0.782	0.819	0.212	0.243	0.212	0.181	0.212	0.212
Shelter Afrique MTN(TB+0.75%)	0.761	0.761	0.820	0.761	0.779	0.795	0.191	0.168	0.191	0.191	0.191	0.191
MRM(TB+1.25%) 2007	0.803	0.830	0.862	0.803	0.873	0.803	0.233	0.233	0.233	0.202	0.233	0.233
EADB(TB+0.75%) 2003	0.761	0.761	0.780	0.808	0.813	0.761	0.191	0.222	0.191	0.191	0.191	0.191
EADB(TB+0.75%) 2006	0.761	0.843	0.771	0.761	0.813	0.761	0.191	0.191	0.191	0.222	0.160	0.191
<b>Average Corporate Returns</b>	<b>0.773</b>	<b>0.795</b>	<b>0.808</b>	<b>0.783</b>	<b>0.812</b>	<b>0.788</b>	<b>0.203</b>	<b>0.211</b>	<b>0.203</b>	<b>0.197</b>	<b>0.197</b>	<b>0.203</b>
<b>ONE YEAR BONDS</b>												
1 yrTBd FR 6/2001 (91 Day MA, TB +0.25%)	0.705	0.705	0.731	0.705	0.705	0.705	0.182	0.195	0.182	0.348	0.182	0.705
1 yr TBdZC 1/2003	0.698	0.698	0.656	0.763	0.698	0.717						
1 yr TBdZC 2/2003	0.698	0.717	0.698	0.698	0.656	0.698						
1yr TBd/s/ 1/2002 (91 Day TB)	0.698	0.680	0.698	0.633	0.767	0.698	0.128	0.105	0.128	0.160	0.128	0.105
1yr TBd/s/ 2/2002 (91 Day TB)	0.698	0.698	0.698	0.710	0.698	0.698	0.128	0.128	0.128	0.128	0.160	0.128
1yr TBd/s/ 2/2002 (91 Day TB)	0.698	0.767	0.698	0.680	0.698	0.698	0.128	0.128	0.160	0.128	0.128	0.128
1yr TBd/s/ 3/2001 (91 Day TB)	0.698	0.767	0.698	0.698	0.698	0.633	0.145	0.105	0.128	0.160	0.128	0.128
1yr TBd/s/ 4/2001 (91 Day TB)	0.698	0.698	0.698	0.767	0.698	0.680	0.128	0.128	0.145	0.128	0.160	0.128
1yr TBd/s/ 7/2001 (91 Day TB)	0.698	0.680	0.698	0.698	0.710	0.698	0.128	0.160	0.128	0.145	0.105	0.128
<b>TWO YEAR BONDS</b>												
2yr TBd FR 1/2001 (91 Day MA, TB +0.50%)	0.663	0.663	0.673	0.663	0.663	0.663	0.140	0.171	0.169	0.125	0.140	0.140
2yr TBd FR 2/2001 (91 Day MA, TB +0.50%)	0.663	0.663	0.663	0.663	0.653	0.663	0.140	0.140	0.124	0.127	0.140	0.140
2yr TBd FR 7/2000 (91 Day MA, TB +0.50%)	0.663	0.625	0.663	0.637	0.673	0.663	0.140	0.140	0.112	0.140	0.160	0.140
2yr TBd ZC 1/2003												
2yr TBd/s/ 1/2002 (91 Day TB)	0.717	0.656	0.698	0.763	0.698	0.698	0.113	0.128	0.118	0.128	0.159	0.128
2yr TBd/s/ 2/2002 (91 Day TB)	0.698	0.698	0.746	0.698	0.698	0.698	0.128	0.138	0.128	0.128	0.113	0.128
2yr TBd/s/ 3/2001 (91 Day TB)	0.698	0.698	0.656	0.763	0.698	0.717	0.128	0.118	0.128	0.128	0.128	0.159
2yr TBd/s/ 4/2001 (91 Day TB)	0.698	0.717	0.698	0.698	0.656	0.698	0.128	0.113	0.128	0.118	0.128	0.128
2yr TBd/s/ 5/2001 (91 Day TB)	0.698	0.698	0.698	0.717	0.698	0.763	0.113	0.128	0.113	0.138	0.113	0.128
2yr TBd/s/ 6/2001 (91 Day TB)	0.698	0.698	0.656	0.698	0.698	0.717	0.128	0.159	0.113	0.128	0.118	0.113
2yr TBd/s/ 7/2000 (91 Day TB)	0.698	0.717	0.698	0.698	0.698	0.656	0.698	0.113	0.128	0.128	0.159	0.128
2yr TBd/s/ 9/2001 (91 Day TB)	0.698	0.656	0.763	0.698	0.698	0.698	0.128	0.128	0.113	0.138	0.128	0.128

BOND RETURNS 2003

APPENDIX I

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
<b>THREE YEAR BONDS</b>												
3yr TBd 1/2001 (91 Day MA, TB + 0.625%)	0.674	0.720	0.674	0.630	0.674	0.674	0.150	0.216	0.216	0.167	0.150	0.150
3yr TBd 2/1999 (91 Day MA, TB + 0.625%)	0.674	0.674	0.674	0.720	0.674	0.630	0.150	0.166	0.150	0.247	0.150	0.150
3yr TBd 2/2000 (91 Day MA, TB + 0.625%)	0.674	0.735	0.630	0.674	0.735	0.674	0.150	0.150	0.150	0.150	0.150	1.012
3yr TBd 2/2001 (91 Day MA, TB + 0.625%)	0.674	0.720	0.674	0.674	0.674	0.674	0.150	0.167	0.216	0.150	0.150	0.150
3yr TBd 3/2000 (91 Day MA, TB + 0.65%)	0.676	0.676	0.676	0.676	0.676	0.676	0.153	0.153	0.183	0.153	0.216	0.676
3yr TBd 3/2001 (91 Day MA, TB + 0.625%)	0.674	0.674	0.630	0.674	0.720	0.735	0.216	0.150	0.166	0.167	0.150	0.674
3yr TBd 4/2000 (91 Day MA, TB + 0.65%)	0.676	0.676	0.676	0.676	0.676	0.676	0.153	0.153	0.153	0.153	0.153	0.676
3yr TBd 5/2000 (91 Day MA, TB + 0.65%)	0.676	0.676	0.676	0.676	0.676	0.676	0.153	0.167	0.216	0.168	0.153	0.676
3yr TBd FR 1/2001 (91 Day MA, TB +0.50%)	0.663	0.663	0.663	0.663	0.663	0.663	0.140	0.109	0.181	0.140	0.140	0.140
3yr TBd FR 1/2001 (91 Day MA, TB +0.625%)	0.674	0.674	0.720	0.674	0.674	0.630	0.150	0.150	0.216	0.150	0.150	0.150
3yr TBd FR 2/2001 (91 Day MA, TB +0.50%)	0.663	0.663	0.663	0.663	0.663	0.663	0.171	0.157	0.168	0.157	0.166	0.140
3yr TBd FR 2/2001 (91 Day MA, TB +0.625%)	0.674	0.674	0.630	0.674	0.720	0.674	0.150	0.150	0.150	0.150	0.216	0.216
3yr TBd FR 3/2001 (91 Day MA, TB +0.50%)	0.663	0.663	0.663	0.663	0.663	0.663	0.140	0.168	0.140	0.140	0.140	0.140
3yr TBd FR 3/2001 (91 Day MA, TB +0.625%)	0.674	0.720	0.674	0.735	0.630	0.674	0.150	0.150	0.150	0.150	0.150	0.150
3yr TBd/s/ 1/2002 (91 Day TB)	0.698	0.768	0.698	0.682	0.759	0.698	0.128	0.159	0.157	0.128	0.191	0.128
3yr TBd/s/ 10/2001 (91 Day TB)	0.698	0.698	0.625	0.698	0.698	0.698	0.157	0.128	0.161	0.128	0.128	0.128
3yr TBd/s/ 11/2001 (91 Day TB)	0.698	0.698	0.759	0.698	0.698	0.674	0.128	0.191	0.128	0.157	0.161	0.128
3yr TBd/s/ 2/2002 (91 Day TB)	0.698	0.768	0.698	0.674	0.759	0.698	0.128	0.157	0.128	0.128	0.128	0.128
3yr TBd/s/ 3/2001 (91 Day TB)	0.698	0.698	0.698	0.698	0.768	0.698	0.206	0.128	0.157	0.154	0.128	0.128
3yr TBd/s/ 3/2002 (91 Day TB)	0.698	0.698	0.682	0.674	0.698	0.698	0.095	0.189	0.128	0.128	0.161	0.191
3yr TBd/s/ 3/99 (91 Day TB)	0.698	0.759	0.768	0.698	0.698	0.698	0.128	0.128	0.128	0.128	0.128	0.128
3yr TBd/s/ 4/2000 (91 Day TB)	0.698	0.698	0.674	0.682	0.698	0.768	0.128	0.157	0.157	0.157	0.161	0.128
3yr TBd/s/ 4/2001 (91 Day TB)	0.698	0.682	0.698	0.674	0.682	0.698	0.195	0.128	0.128	0.191	0.128	0.191
3yr TBd/s/ 5/2000 (91 Day TB)	0.698	0.698	0.698	0.759	0.768	0.698						
3yr TBd/s/ 5/2001 (91 Day TB)	0.698	0.768	0.698	0.698	0.768	0.698	0.128	0.068	0.128	0.195	0.128	0.128
3yr TBd/s/ 6/2000 (91 Day TB)	0.698	0.768	0.698	0.682	0.698	0.698						
3yr TBd/s/ 6/2001 (91 Day TB)	0.698	0.698	0.759	0.674	0.698	0.768	0.128	0.128	0.068	0.128	0.128	0.128
3yr TBd/s/ 6/2001 (91 Day TB)	0.698	0.698	0.698	0.698	0.768	0.698	0.128	0.128	0.191	0.195	0.128	0.128
3yr TBd/s/ 7/2000 (91 Day TB)	0.698	0.698	0.698	0.759	0.698	0.698						
3yr TBd/s/ 7/2001 (91 Day TB)	0.698	0.768	0.698	0.682	0.674	0.698	0.191	0.128	0.128	0.128	0.068	0.128
3yr TBd/s/ 7/2001 (91 Day TB)	0.698	0.698	0.698	0.698	0.698	0.698	0.128	0.068	0.128	0.128	0.128	0.128
3yr TBd/s/ 8/2001 (91 Day TB)	0.698	0.698	0.698	0.698	0.698	0.698	0.128	0.128	0.094	0.128	0.191	0.195
3yr TBd/s/ 9/2001 (91 Day TB)	0.698	0.682	0.759	0.698	0.698	0.698						

BOND RETURNS 2003

APPENDIX I

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
<b>FOUR YEAR BONDS</b>												
4yr TBd FR 1/2001 (91 Day TB + 0.70%)	0.757	0.711	0.735	0.757	0.781	0.757	0.218	0.187	0.301	0.219	0.187	0.187
<b>FIVE YEAR BONDS</b>												
5yr TBd FR 1/2001 (91 Day TB + 0.75%)	0.761	0.761	0.691	0.761	0.793	0.761	0.220	0.191	0.252	0.191	0.242	0.191
5yr TBd/s/ 1/2002 (91 Day TB)	0.698	0.698	0.668	0.698	0.668	0.698	0.128	0.128	0.154	0.128	0.159	0.128
<b>SIX YEAR BONDS</b>												
6yr TBd 1/2001 (91 Day TB + 0.80%)	0.765	0.765	0.813	0.765	0.765	0.765	0.195	0.212	0.195	0.195	0.195	0.195
6yr TBd 1/2002(91 Day TB + 0.80%)	0.765	0.765	0.765	0.765	0.796	0.765	0.195	0.195	0.195	0.224	0.195	0.195
6yr TBd FR 1/2001 (91 Day MA, TB +0.50%)	0.663	0.663	0.694	0.663	0.663	0.663	0.140	0.171	0.140	0.140	0.140	0.663
6yr TBd FR 1/2001 (91 Day MA, TB +0.80%)	0.688	0.688	0.688	0.688	0.719	0.688	0.165	0.165	0.165	0.191	0.165	0.688
Average Government Floating Bond Returns	0.707	0.716	0.707	0.709	0.716	0.708	0.142	0.141	0.147	0.150	0.144	0.221
<b>ONE YEAR BONDS</b>												
1 yr TBdFXD 1/2002 (Fxd at 10.75%)	0.896	0.896	0.896	0.932	0.932	0.943	0.896	0.896	0.896	0.896	0.896	0.896
1 yr TBdFXD 1/2002 (Fxd at 11.75%)	0.979	0.979	0.979	1.040	0.979	1.016	0.979	0.979	1.005	0.979	0.979	0.979
1 yr TBdFXD 1/2002 (Fxd at 13%)	1.083	1.072	1.083	1.113	1.083	1.083	1.083	1.114	1.083	1.083	1.083	1.083
1 yr TBdFXD 2/2002 (Fxd at 10.75%)	0.896	0.934	0.896	0.934	0.896	0.878	0.896	0.896	0.896	0.896	0.910	0.896
18 months TBd FXT 1/2001 (fxd at 14.5%)	1.208	1.311	1.208	1.137	1.208	1.253	1.208	1.208	1.238	1.208	1.208	1.208
18 months TBd FXT 2/2001 (fxd at 14.5%)	1.208	1.208	1.273	1.208	1.131	1.208	1.208	1.208	1.208	1.208	1.238	1.208
<b>TWO YEAR BONDS</b>												
2yr TBd FXD 1/2002 (fxd at 12%)	1.000	1.000	1.000	0.953	0.982	1.047	1.000	1.028	1.028	1.000	1.029	1.031
2yr TBd FXD 1/2002 (fxd at 13%)	1.083	1.122	1.083	1.074	1.083	1.083	1.083	1.114	1.083	1.083	1.083	1.083
2yr TBd FXD 1/2003 (fxd at 11.25%)	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.928	0.958	0.958
2yr TBd FXD 2/2002 (fxd at 11.25%)	0.938	0.899	0.938	0.885	0.938	0.938	0.938	0.907	0.938	0.938	0.912	0.938
2yr TBd FXD 3/2002 (fxd at 11.5%)	0.938	0.938	0.938	0.965	0.990	0.938	0.938	0.923	0.938	0.966	0.938	0.938
2yr TBd FXT 1/2001 (fxd at 14.75%)	1.229	1.229	1.276	1.229	1.256	1.229	1.229	1.229	1.229	1.229	1.261	1.229
2yr TBd FXT 2/2001 (fxd at 14.25%)	1.188	1.188	1.226	1.188	1.178	1.188	1.188	1.188	1.172	1.188	1.224	1.188
2yr TBd FXT 2/2001 (fxd at 14.25%)	1.188	1.188	1.135	1.226	1.188	1.188	1.188	1.188	1.157	1.188	1.188	1.188
2yr TBd FXT 2/2002 (fxd at 13%)	1.083	1.083	1.083	1.093	1.083	1.112	1.083	1.055	1.083	1.083	1.055	1.083
<b>THREE YEAR BONDS</b>												
3yr TBd FXD 1/2002 (fxd at 13%)	1.083	1.083	1.083	1.083	1.083	1.083	1.083	1.083	1.115	1.083	1.083	1.083
3yr TBd FXD 1/2003 (fxd at 12%)	1.000	1.000	1.046	1.043	1.018	1.018	1.120	1.033	38.417	1.031	1.031	1.000
3yr TBd FXD 2/2002 (fxd at 13%)	1.083	1.083	1.111	1.083	1.083	1.083	1.083	1.119	1.083	1.115	1.083	1.083
3yr TBd FXD 2/2002(fxd at 12.25%)	1.021	1.021	1.089	1.021	1.052	1.021	1.087	1.021	1.047	1.021	1.021	1.021
3yr TBd FXD 2/2003(fxd at 5.25%)	0.438	0.438	0.453	0.438	0.462	0.438	0.438	0.438	0.438	0.438	0.498	0.438
3yr TBd FXD 3/2002 (fxd at 12.25%)	1.021	0.974	1.021	0.998	1.021	1.089	1.021	1.080	1.021	1.080	1.021	1.021
3yr TBd FXD 3/2002 (fxd at 13%)	1.083	1.083	1.161	1.083	1.114	1.083	1.083	1.123	1.119	1.083	1.083	1.083
3yr TBd FXD 3/2003 (fxd at 4%)	0.333	0.333	0.348	0.333	0.343	0.333	0.333	0.414	0.333	0.364	0.333	0.333
3yr TBd FXT 1/2002 (fxd at 14.25%)	1.188	1.188	1.207	1.188	1.188	1.188	1.188	1.188	1.188	1.218	1.188	1.188
3yr TBd FXT 2/2001 (fxd at 13%)	1.083	1.083	1.083	1.083	1.122	1.083	1.083	1.112	1.083	1.083	1.083	1.083
3yr TBd FXT 2/2002 (fxd at 13%)	1.083	1.083	1.122	1.083	1.122	1.083	1.083	1.083	1.083	1.119	1.114	1.083
3yr TBd Fxt 2/2002 (fxd at 13.75%)	1.146	1.146	1.207	1.146	1.205	1.146	1.146	1.177	1.146	1.220	1.146	1.146



BOND RETURNS 2003

APPENDIX I

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
<b>FOUR YEAR BONDS</b>												
4yr TBd FXD 1/2002 (fxd at 13%)	1.083	1.083	1.113	1.083	1.108	1.083	1.083	1.099	1.083	1.083	1.083	1.083
4yr TBd FXD 1/2002 (fxd at 13.75%)	1.146	1.146	1.183	1.169	1.146	1.146	1.146	1.177	1.146	1.146	1.146	1.146
4yr TBd FXD 1/2003 (fxd at 12.5%)	1.042	1.066	1.042	1.074	1.042	1.074	1.042	1.042	0.933	1.068	1.042	1.042
4yr TBd FXD 2/2002 (fxd at 13.25%)	1.104	1.180	1.104	1.081	1.104	1.104	1.090	1.104	1.104	1.104	1.104	1.104
4yr TBd FXD 2/2003 (fxd at 9.5%)	0.792	0.792	0.792	0.792	0.759	0.792	0.828	0.792	0.756	0.792	0.792	0.792
4yr TBd FXD 3/2003 (fxd at 9.5%)	0.792	0.824	0.792	0.792	0.761	0.808	0.823	0.792	0.807	0.775	0.792	0.792
4yr TBd Fxt 1/2002 (fxd at 14%)	1.167	1.167	1.167	1.137	1.089	1.167	1.198	1.167	1.195	1.167	1.226	1.167
<b>FIVE YEAR BONDS</b>												
5yr TBd FXD 1/2002 (fxd at 13%)	1.083	1.083	1.103	1.083	1.113	1.083	1.083	1.114	1.083	1.052	1.083	1.083
5yr TBd FXD 1/2002 (fxd at 14%)	1.167	1.167	1.199	1.167	1.699	1.167	1.167	1.156	1.167	1.230	1.167	1.167
5yr TBd FXD 1/2003 (fxd at 13.50%)	1.125	1.158	1.125	1.156	1.125	1.125	1.125	1.156	1.125	1.125	1.141	1.125
5yr TBd FXD 2/2002 (fxd at 14%)	1.167	1.167	1.199	1.167	1.198	1.167	1.167	1.198	1.167	1.167	1.167	1.167
5yr TBd FXD 2/2003 (fxd at 11.50%)	0.958	0.958	0.989	0.958	0.989	0.958	0.958	0.958	0.958	0.987	0.958	0.958
5yr TBd FXD 3/2002 (fxd at 13.50%)	1.125	1.125	1.153	1.125	1.113	1.125	1.125	1.169	1.125	1.185	1.131	1.125
5yr TBd FXD 3/2003 (fxd at 5.50%)	0.458	0.458	0.465	0.498	0.489	0.458	0.458	0.487	0.490	0.492	0.458	0.458
5yr TBd FXT 1/2002 (fxd at 14.50%)	1.208	1.208	1.239	1.208	1.198	1.208	1.208	1.208	1.270	1.208	1.208	1.208
<b>SIX YEAR BONDS</b>												
6yr TBd FXD 1/2002 (fxd at 13%)	1.083	1.083	1.144	1.083	1.083	1.083	1.083	1.099	1.083	1.083	1.083	1.083
6yr TBd FXD 1/2002 (fxd at 14.25%)	1.188	1.188	1.188	1.188	1.213	1.188	1.188	1.188	1.188	1.213	1.188	1.188
<b>SEVEN YEAR BONDS</b>												
7yr TBd FXD 1/2003 (fxd at 13.75%)	1.146	1.146	1.177	1.146	1.146	1.146	1.146	1.177	1.146	1.177	1.146	1.146
7yr TBd FXD 2/2003 (fxd at 13.75%)	1.146	1.146	1.146	1.146	1.177	1.146	1.146	1.146	1.146	1.146	1.175	1.146
<b>EIGHT YEAR BONDS</b>												
8yr TBd FXD 2/2003 (fxd at 7%)	0.583	0.583	0.553	0.583	0.558	0.583	0.583	0.612	0.583	0.598	5.874	0.583
8yr TBd FXD 1/2003 (fxd at 12.50%)	1.042	1.042	1.073	1.042	1.073	1.042	1.042	1.042	1.068	1.042	1.042	1.042
<b>NINE YEAR BONDS</b>												
9yr TBd FXD 2/2003 (fxd at 12.75%)	1.063	1.063	1.093	1.063	1.063	1.063	1.063	1.094	1.063	1.063	1.063	1.063
9yr TBd FXD 1/2003 (fxd at 12.75%)	1.063	1.063	1.124	1.063	1.003	1.063	1.063	1.063	1.063	1.094	1.063	1.063
<b>TEN YEAR BONDS</b>												
10yr TBd FXD 2/2003 (fxd at 8.50%)	0.708	0.708	0.784	0.708	0.790	0.708	0.708	0.740	0.708	0.735	0.708	0.708
10yr TBd FXD 1/2003 (fxd at 13.25%)	1.104	1.104	1.104	1.130	1.104	1.104	1.104	1.113	1.104	1.104	1.136	1.104
<b>Average Government Fixed Bond Returns</b>	<b>0.946</b>	<b>0.950</b>	<b>0.963</b>	<b>0.949</b>	<b>1.140</b>	<b>0.952</b>	<b>0.951</b>	<b>0.957</b>	<b>1.618</b>	<b>0.955</b>	<b>1.047</b>	<b>0.947</b>

## RETURNS 1998 (RETURNS IN PERCENTAGES)

	BAMB	BAT	BBK	BBOND	BOC	DTK	EABL	FIREST	GWK	KAKUZI	KCB	KQ	KPLC	NIC	NMG	SAS	SCBK	SER	TOTAL	UCH	average
JAN	4.22	3.83	1.70	13.59	0.56	2.54	6.25	10.68	13.53	7.29	3.35	8.39	3.14	12.49	0.72	1.72	7.80	5.46	11.94	5.13	6.22
FEB	(7.34)	(0.16)	6.45	5.74	3.63	2.54	3.06	10.56	8.10	8.11	1.35	6.42	4.05	3.49	0.72	17.31	3.70	(0.92)	(2.05)	6.25	4.05
MAR	5.73	(4.17)	(10.38)	(0.41)	0.53	2.54	10.91	(21.25)	5.74	0.39	(6.15)	(0.50)	(4.55)	0.47	0.72	(12.43)	(5.68)	6.42	(6.32)	(4.55)	(2.15)
APR	(7.53)	(0.19)	(0.61)	-	(0.20)	2.79	1.10	(4.93)	4.17	-	1.59	1.61	(3.30)	(13.31)	0.72	(11.02)	0.65	(3.26)	(3.73)	1.28	(1.71)
MAY	10.21	2.08	9.91	3.04	1.33	2.66	4.30	3.31	-	(3.85)	0.12	0.89	4.79	12.49	0.72	4.40	0.65	9.39	(2.94)	7.50	3.55
JUN	0.18	0.93	0.90	5.83	1.31	(1.92)	6.13	3.31	(4.84)	5.00	(0.59)	3.13	2.99	0.60	0.72	(2.43)	(2.92)	2.48	3.02	-	1.19
JUL	(8.39)	0.93	(0.08)	3.76	10.97	(4.28)	15.03	3.31	(4.29)	0.70	0.12	6.61	2.63	(0.62)	0.72	(1.19)	0.71	2.67	0.50	-	1.49
AUG	0.18	4.26	3.56	2.07	0.53	0.29	0.11	(2.43)	0.77	1.72	0.12	(4.33)	2.63	(8.14)	4.20	(1.82)	0.71	1.42	0.51	-	0.32
SEP	(8.39)	5.14	0.92	0.34	2.00	2.94	(6.14)	(2.57)	0.77	(3.64)	(4.88)	2.32	(0.76)	0.74	2.78	2.82	0.83	1.42	(1.93)	1.19	(0.21)
OCT	0.22	5.83	2.49	(2.36)	1.23	0.29	3.32	(2.73)	0.77	-	0.14	3.04	2.45	0.74	1.53	(1.19)	5.38	0.17	(2.08)	2.38	1.08
NOV	2.08	1.67	1.43	(2.54)	0.51	0.28	3.13	0.42	-	-	(0.71)	3.04	(21.05)	(3.80)	2.32	(3.22)	(18.61)	5.44	(2.14)	(6.82)	(1.93)
DEC	2.08	19.85	15.26	5.91	0.51	5.29	20.71	3.75	1.09	2.61	7.56	6.34	3.88	18.74	8.19	0.12	8.40	17.67	16.78	9.46	8.71
TOTAL	(6.76)	40.00	31.53	34.97	22.91	15.95	67.90	1.41	25.80	18.33	2.04	36.95	(3.09)	23.90	24.10	(6.92)	1.62	48.34	11.55	21.83	20.62
AVR	(0.56)	3.33	2.63	2.91	1.91	1.33	5.66	0.12	2.15	1.53	0.17	3.08	(0.26)	1.99	2.01	(0.58)	0.14	4.03	0.96	1.82	1.72

## RETURNS 1999

	BAMB	BAT	BBK	BBOND	BOC	DTK	EABL	FIREST	GWK	KAKUZI	KCB	KQ	KPLC	NIC	NMG	SAS	SCBK	SER	TOTAL	UCH	average
JAN	0.23	(0.76)	(2.54)	(0.46)	3.19	7.12	2.73	12.76	1.25	0.16	1.16	(1.14)	2.53	(6.30)	(0.99)	0.06	(0.76)	7.74	1.60	0.57	1.41
FEB	(9.23)	22.88	(1.41)	2.72	(3.61)	2.27	10.15	(2.41)	0.86	1.24	(1.28)	0.71	0.90	(4.09)	1.58	(7.08)	8.01	3.65	(0.43)	7.74	1.66
MAR	0.28	0.47	(3.15)	2.70	1.14	(1.67)	4.74	(5.32)	(0.90)	(7.88)	(7.53)	2.72	(4.52)	19.38	(1.34)	(1.60)	4.48	(5.73)	(8.58)	2.55	(0.49)
APR	(4.72)	9.42	(1.14)	3.01	0.43	0.27	5.27	3.39	0.86	0.19	(3.66)	1.34	2.78	3.74	0.10	(0.82)	4.57	0.60	1.74	(1.50)	1.29
MAY	2.43	3.60	1.65	2.27	1.15	(1.73)	4.98	0.25	0.50	(0.68)	0.47	1.30	0.14	14.11	(5.12)	(0.82)	7.84	0.60	0.60	0.52	1.70
JUN	2.33	5.72	1.62	2.27	0.42	0.28	2.82	0.25	0.15	0.20	2.75	(1.72)	0.59	(6.30)	0.51	0.98	6.47	(2.98)	1.70	0.52	0.93
JUL	4.17	3.65	(4.69)	2.97	1.12	0.28	2.71	0.25	0.15	1.12	0.45	0.65	1.04	(0.89)	(1.43)	(1.68)	8.21	0.64	0.57	1.53	1.04
AUG	0.28	1.71	(4.69)	1.93	(4.75)	(8.06)	1.98	0.25	(8.78)	(1.64)	(6.20)	(2.24)	(4.35)	4.57	(6.08)	0.97	5.75	0.64	1.57	1.50	(1.28)
SEP	0.30	2.84	5.87	5.83	0.42	10.33	(2.88)	0.30	0.18	3.23	(2.03)	1.74	(4.33)	8.59	(3.06)	2.80	6.67	0.76	0.54	0.48	1.93
OCT	0.32	1.09	1.75	4.83	0.42	(1.81)	(4.12)	0.30	(1.99)	(1.21)	(4.59)	1.65	(7.19)	2.53	2.10	0.98	7.46	5.30	2.79	(7.98)	0.13
NOV	(1.54)	7.22	1.73	3.72	(0.30)	0.29	0.12	0.30	(5.57)	1.27	2.02	6.22	3.33	(0.92)	(1.76)	(2.75)	1.90	4.86	0.59	0.63	1.07
DEC	0.32	3.89	1.23	2.72	0.44	6.81	0.83	7.44	(1.39)	(3.97)	(4.98)	0.05	7.94	4.74	(0.36)	3.50	5.64	8.33	0.59	3.29	2.35
TOTAL	(4.85)	61.74	(3.77)	34.51	0.07	14.38	29.33	17.72	(14.68)	(7.97)	(23.41)	11.28	(1.14)	39.17	(15.85)	(5.45)	66.24	24.41	3.28	9.85	11.74
AVR	-0.4041	5.14465	-0.3138	2.87565	0.0059	1.19865	2.4441	1.47693	-1.2237	-0.6642	-1.9508	0.9404	-0.0951	3.26451	-1.3207	-0.4539	5.5202	2.03385	0.27372	0.82051	0.97863

## RETURNS 2000

	BAMB	BAT	BBK	BBOND	BOC	DTK	EABL	FIREST	GWK	KAKUZI	KCB	KQ	KPLC	NIC	NMG	SAS	SCBK	SER	TOTAL	UCH	average
JAN	2.16	(0.46)	2.89	2.50	0.46	(1.73)	(0.54)	0.52	0.22	3.44	9.17	(2.00)	0.72	0.93	1.08	6.71	4.32	1.09	5.38	0.63	1.87
FEB	0.24	15.29	10.14	0.48	(0.31)	6.20	2.46	(8.85)	(3.00)	(9.01)	0.78	(2.78)	(0.36)	0.93	2.57	(3.38)	19.85	1.09	20.58	4.38	2.86
MAR	2.16	(17.84)	(8.33)	4.94	(0.31)	(1.61)	0.18	4.86	0.24	0.24	(5.65)	2.70	(0.93)	4.81	(5.29)	1.95	(14.11)	7.34	(2.49)	1.74	(1.27)
APR	0.23	(1.34)	0.92	(4.07)	(0.32)	(3.52)	0.91	0.64	1.96	(1.85)	2.78	1.89	(2.81)	(0.89)	(2.09)	(5.19)	(1.10)	4.22	2.08	1.74	(0.29)
MAY	2.01	1.93	0.38	1.97	(7.01)	(7.80)	(0.54)	0.69	(3.36)	(1.99)	7.00	3.18	(15.78)	7.00	(9.38)	8.13	3.01	(1.91)	5.27	0.58	(0.33)
JUN	1.94	(1.40)	3.46	(0.66)	(2.36)	(2.14)	4.23	4.86	(1.03)	(1.99)	2.78	0.52	1.31	(8.04)	5.10	(2.15)	3.01	1.09	6.29	1.79	0.83
JUL	3.54	4.75	(0.20)	0.68	0.62	5.53	2.46	(3.21)	1.66	(0.52)	(6.25)	(4.00)	1.33	10.71	2.60	(0.90)	5.03	1.09	6.89	(1.74)	1.50
AUG	0.20	5.26	4.79	0.68	(3.79)	(4.75)	7.65	(3.47)	(3.14)	1.04	3.13	9.17	(3.53)	5.21	0.50	0.54	5.83	4.22	5.61	4.27	1.97
SEP	1.81	6.60	2.13	4.73	0.72	(8.06)	3.50	0.69	8.54	(3.89)	5.00	2.95	(0.74)	3.13	(4.80)	2.01	2.62	(1.91)	3.65	1.70	1.52
OCT	3.32	1.65	4.87	(5.49)	1.85	0.31	0.78	0.69	14.94	0.30	0.93	2.20	(3.03)	1.09	10.11	0.54	1.67	1.03	3.65	6.11	2.38
NOV	(1.29)	0.23	(7.39)	5.68	1.81	(2.81)	4.17	0.69	0.23	1.23	2.78	0.47	2.71	1.25	(6.51)	3.48	(2.88)	1.03	4.53	(3.50)	0.30
DEC	1.70	(4.24)	(0.21)	0.52	0.66	0.36	(1.12)	0.69	3.53	0.30	(4.46)	1.61	(4.17)	1.39	1.73	0.52	1.83	(1.91)	2.83	3.80	0.27
TOTAL	18.04	10.44	13.44	11.96	(7.99)	(20.02)	24.14	(1.18)	20.79	(12.70)	17.97	15.90	(25.27)	27.50	(4.37)	12.26	29.09	16.48	64.29	21.50	11.61
AVR	1.50308	0.86981	1.11976	0.9963	-0.665	-1.66845	2.0113	-0.0979	1.73225	-1.0582	1.49773	1.3248	-2.1055	2.29204	-0.3643	1.022	2.42444	1.37331	5.35744	1.79163	0.96781

## RETURNS 2001

	BAMB	BAT	BBK	BBOND	BOC	DTK	FIREST	GWK	EABL	KAKUZI	KCB	KQ	KPLC	NIC	NMG	SAS	SER	SCBK	TOTAL	UCH	average
JAN	1.65	1.01	1.60	1.72	(0.43)	0.24	(7.64)	2.57	1.64	-	(9.62)	2.41	-	0.74	4.03	(2.70)	0.57	(0.96)	(0.62)	4.44	0.03
FEB	(5.54)	(0.53)	6.39	3.23	(0.43)	4.10	(9.17)	2.02	8.21	(6.30)	9.52	0.69	16.25	(7.19)	5.56	3.39	3.70	39.06	(5.78)	(0.71)	3.32
MAR	(3.13)	(2.16)	1.48	(0.32)	0.70	(3.33)	1.04	(1.98)	2.22	(8.26)	(2.00)	(7.08)	(10.58)	(2.29)	(2.42)	(2.62)	0.54	15.35	9.40	(2.73)	(0.91)
APR	0.22	(0.59)	(2.95)	(0.34)	(1.68)	0.26	(5.21)	3.42	0.94	2.65	6.25	1.48	(6.10)	(2.44)	1.30	(4.29)	0.54	34.24	(8.91)	(1.88)	0.84
MAY	0.22	0.28	3.81	0.17	(9.26)	(3.59)	1.19	1.88	0.99	(2.42)	(14.81)	5.36	4.29	4.52	(7.54)	(4.29)	0.54	25.98	0.54	3.80	0.58
JUN	0.22	0.28	6.22	0.67	2.65	4.85	1.19	(0.56)	3.62	(2.69)	2.63	5.71	1.79	4.22	9.73	(1.49)	0.54	29.33	6.17	3.80	3.94
JUL	0.22	1.20	5.56	(1.29)	(0.66)	0.30	1.19	0.41	2.85	(1.20)	5.26	0.71	(3.45)	(5.42)	6.83	0.31	0.54	25.00	4.49	0.30	2.16
AUG	(3.47)	(0.68)	(1.04)	(0.83)	2.65	0.30	1.19	0.41	0.31	(2.69)	(9.52)	0.16	(8.93)	(9.76)	4.65	(13.99)	(2.40)	17.73	(9.72)	(4.24)	(1.99)
SEP	0.27	0.33	(1.75)	(2.48)	0.99	5.33	(11.46)	0.41	2.16	0.10	(5.88)	(3.01)	2.17	23.94	(0.47)	(2.08)	(2.55)	29.26	21.57	(3.42)	2.67
OCT	2.56	4.59	6.67	(2.08)	(2.35)	(4.67)	1.19	0.41	4.06	4.51	16.67	4.81	(8.00)	(2.29)	14.95	0.44	7.80	32.45	3.03	(2.34)	4.12
NOV	(2.08)	4.50	3.65	0.19	4.63	0.37	(5.21)	0.41	(0.94)	0.09	(12.50)	5.18	-	4.52	(2.44)	(2.19)	3.70	30.10	3.03	(2.48)	1.63
DEC	(2.43)	0.31	0.22	(9.81)	0.99	0.37	1.19	0.41	(0.97)	(1.26)	3.33	0.82	(2.50)	0.89	6.46	(2.45)	0.54	23.04	(86.67)	(1.11)	(3.43)
TOTAL	(11.27)	8.54	29.85	(11.20)	(2.19)	4.54	(30.50)	9.79	25.09	(17.46)	(10.67)	17.23	(15.06)	9.44	40.63	(31.97)	14.05	300.57	(63.47)	(6.57)	
AVR	-0.9392	0.71186	2.48727	-0.933	-0.183	0.378	-2.5413	0.81585	2.09043	-1.4554	-0.889	1.4362	-1.2547	0.78663	3.38612	-2.6643	1.17063	25.0477	-5.2896	-0.5478	1.08



## RETURNS 2002

	BAMB	BAT	BBK	BBOND	EABL	BOC	DTK	FIREST	WTK	KAKUZI	KCB	KQ	KPLC	NIC	NMG	SAS	SER	SCBK	TOTAL	UCH	average
JAN	1.82	2.13	11.53	(1.99)	3.02	(0.44)	2.41	3.33	(5.19)	-	3.13	5.37	(5.26)	1.11	1.65	0.26	3.17	11.04	(1.89)	0.13	1.77
FEB	1.82	2.08	0.47	(0.46)	3.60	1.21	(0.37)	6.90	0.08	-	2.94	(0.11)	-	1.04	3.88	0.28	0.54	(3.24)	0.83	(3.19)	0.92
MAR	1.82	(7.96)	(3.04)	1.14	2.23	(0.46)	1.46	(3.42)	(2.86)	(7.14)	(2.94)	1.24	(14.29)	(2.08)	17.47	0.28	0.54	(1.63)	42.85	(10.57)	0.63
APR	(1.30)	3.43	2.59	(4.43)	(0.33)	2.97	0.85	0.48	(3.10)	-	(3.33)	2.74	(5.00)	(8.89)	(0.47)	0.28	0.54	2.53	1.01	(6.94)	(0.82)
MAY	4.95	3.35	3.65	0.37	4.26	(0.46)	7.91	8.33	(2.18)	(1.67)	(10.71)	4.88	-	5.56	(16.87)	(3.06)	0.54	4.65	(16.85)	0.25	(0.16)
JUN	22.30	6.34	4.90	1.26	4.73	1.25	2.41	4.44	0.10	-	-	(0.78)	-	1.28	0.52	8.01	(2.40)	4.38	7.13	0.25	3.31
JUL	(2.95)	(3.63)	4.02	1.31	3.47	1.29	3.60	4.17	(2.40)	-	-	2.66	(6.90)	8.97	0.54	(3.27)	0.57	3.25	24.02	(2.86)	1.79
AUG	1.39	(3.63)	(0.66)	(0.53)	3.95	(0.51)	2.41	(3.14)	(2.99)	(15.22)	-	(0.12)	(3.52)	(2.22)	4.38	4.17	3.70	(2.43)	0.94	0.28	(0.69)
SEP	3.77	3.21	(0.71)	(3.51)	3.08	5.45	13.52	(1.56)	(3.19)	-	-	(2.44)	6.67	(5.56)	14.78	(3.27)	0.57	6.38	(2.11)	12.85	2.40
OCT	13.29	5.08	4.96	(3.81)	6.24	12.45	1.97	2.51	6.17	-	11.11	0.68	26.67	5.13	9.57	4.17	3.70	8.05	(2.24)	0.28	5.80
NOV	6.89	4.71	5.92	1.65	1.72	3.89	1.97	5.56	28.72	(3.33)	-	(4.31)	(5.00)	11.90	9.23	0.30	6.42	2.05	10.26	33.61	6.11
DEC	19.66	1.89	7.69	10.46	13.47	0.98	(2.58)	2.16	0.09	-	36.36	19.44	44.44	9.80	19.20	0.30	0.48	5.59	11.27	31.51	11.61
TOTAL	73.47	17.00	41.31	1.47	49.43	27.63	35.55	29.77	13.25	(27.36)	36.55	29.26	37.81	26.05	63.88	8.43	18.37	40.61	75.24	55.58	32.67
AVR	6.12267	1.41707	3.44231	0.12211	4.1188	2.30283	2.9626	2.48091	1.10433	-2.28	3.04601	2.4386	3.15094	2.17097	5.32345	0.70266	1.53069	3.38446	6.26962	4.63131	2.72

## RETURNS 2003

	BAMB	BAT	BBK	BBOND	BOC	DTK	FIREST	WTK	EABL	KAKUZI	KCB	KQ	KPLC	NIC	NMG	SAS	SER	SCBK	TOTAL	UCH	average
JAN	7.70	7.72	3.77	10.17	7.36	9.62	0.61	6.35	(2.64)	-	5.16	(8.05)	34.21	3.24	(1.33)	10.56	5.20	6.13	2.95	5.56	5.71
FEB	0.52	1.79	4.55	(1.43)	4.32	8.14	0.63	(1.86)	13.25	3.13	0.35	1.04	(8.33)	1.07	1.59	0.49	11.27	2.83	2.83	(1.67)	2.23
MAR	10.52	10.26	3.38	(1.47)	1.93	3.72	0.63	4.33	6.44	(3.13)	15.58	(0.63)	6.25	15.61	(1.96)	0.49	(5.22)	4.91	8.49	(1.72)	3.92
APR	13.65	9.56	7.01	-	9.16	6.23	(4.38)	9.02	10.63	16.67	98.46	2.90	9.26	(8.10)	11.67	0.49	11.27	13.49	4.03	(1.61)	10.97
MAY	(1.14)	4.53	3.95	(0.74)	(0.85)	8.23	26.81	6.44	(1.56)	7.14	(4.32)	(5.24)	4.69	(9.18)	0.86	18.14	3.90	2.70	8.46	3.33	3.81
JUN	10.05	5.19	(3.21)	10.45	3.54	2.66	(4.65)	(7.26)	4.32	(8.33)	(2.78)	0.96	(1.52)	12.48	2.95	(4.17)	(12.17)	1.59	0.58	-	0.53
JUL	2.76	9.26	3.06	3.09	0.59	(14.96)	6.96	5.07	7.14	-	(3.08)	2.50	1.52	(2.36)	3.33	0.42	20.46	1.59	(0.81)	(1.56)	2.25
AUG	12.04	20.90	(0.42)	13.10	5.85	19.11	(11.95)	(5.58)	7.63	20.00	0.19	7.71	(2.86)	19.81	22.70	(2.08)	(7.34)	6.43	0.60	(9.68)	5.81
SEP	(4.66)	6.77	22.49	0.68	5.05	11.12	8.86	0.36	17.55	(18.97)	11.82	22.50	14.71	(15.71)	2.40	(2.19)	16.33	21.06	6.31	12.50	6.95
OCT	2.23	0.63	0.48	0.70	8.86	(5.15)	(2.05)	0.36	7.76	27.78	(4.48)	(7.64)	(8.14)	12.49	3.45	17.13	0.32	3.83	(0.75)	6.00	3.19
NOV	0.71	18.41	20.01	5.63	10.12	10.23	5.11	0.36	10.15	(7.14)	9.35	4.17	27.78	12.49	4.14	(7.99)	9.26	12.66	0.55	-	7.30
DEC	10.22	3.33	(0.55)	(2.82)	0.67	(3.14)	0.52	(0.80)	(2.14)	-	0.14	1.31	7.69	(1.57)	1.80	0.42	(7.53)	2.14	0.55	7.41	0.88
TOTAL	64.59	98.34	64.52	37.36	56.61	55.82	27.08	16.81	78.52	37.15	126.41	21.54	85.25	40.28	51.60	31.70	45.74	79.38	33.79	18.55	53.55
AVR	5.38209	8.19531	5.37695	3.11344	4.7175	4.6518	2.257	1.40057	6.54324	3.09547	10.5339	1.795	7.10444	3.35651	4.30018	2.64144	3.81126	6.61461	2.81596	1.54606	4.46

## AVERAGE MONTHLY RETURNS 1999

## AVERAGE MONTHLY RETURNS 1999

		JAN	FEB	MAR	APR	MAY	JUN	JUL
var1	STOCKS	1.407	1.658	(0.488)	1.293	1.703	0.929	1.040
var2	BONDS corporate	1.425	1.425	1.203	1.419	1.419	1.419	1.877
var3	govt floating	0.860	0.862	0.861	0.858	0.866	0.867	1.300
var4	average	1.142	1.144	1.032	1.138	1.143	1.143	1.589
		AUG	SEP	OCT	NOV	DEC		
var1	STOCKS	(1.284)	1.930	0.132	1.068	2.354		
var2	BONDS corporate	1.856	1.877	1.877	1.877	1.903		
var3	govt floating	1.287	1.305	1.285	1.312	1.308		
var4	average	1.572	1.591	1.581	1.594	1.606		

		VAR1	VAR2	VAR1	Correlation	VAR1	VAR4
VAR1	Correlation	1.000	0.038	VAR1	Correlation	1	0.025855
	N	12	12		N	12	12
VAR2	Correlation	0.038	1.000	VAR4	Correlation	0.0258547	1
	N	12	12		N	12	12

		VAR1	VAR3
VAR1	Correlation	1	-0.0821
	N	12	12
VAR3	Correlation	-0.0821	1
	N	12	12

AVERAGE MONTHLY RETURNS 2000

		JAN	FEB	MAR	APR	MAY	JUN	JUL
var6	STOCKS	1.875	2.864	(1.269)	(0.291)	(0.331)	0.831	1.503
	BONDS							
var7	corporate	1.754	1.808	1.750	1.776	1.747	1.753	0.889
var8	govt floating	1.498	1.501	1.513	1.519	1.502	1.498	0.869
var9	average	1.626	1.655	1.631	1.648	1.624	1.626	0.879

		AUG	SEP	OCT	NOV	DEC
var6	STOCKS	1.971	1.520	2.377	0.296	0.268
	BONDS					
var7	corporate	0.888	0.888	0.938	0.929	0.875
var8	govt floating	0.880	0.877	0.878	0.873	0.871
var9	average	0.884	0.882	0.908	0.901	0.873

		VAR6	VAR7	VAR6	VAR9		
VAR6	Correlation	1.000	(0.273)	VAR6	Correlation	1	-0.2849
	N	12	12		N	12	12
VAR7	Correlation	(0.273)	1.000	VAR9	Correlation	-0.2848999	1
	N	12.000	12.000		N	12	12

		VAR6	VAR8
VAR6	Correlation	1	-0.3031
	N	12	12
VAR8	Correlation	-0.3031	1
	N	12	12



AVERAGE MONTHLY RETURNS 2001

		AVERAGE MONTHLY RETURNS 2001						
		JAN	FEB	MAR	APR	MAY	JUN	JUL
var11	STOCKS	0.034	3.324	(0.909)	0.844	0.583	3.944	2.157
	BONDS							
var12	corporate	1.299	1.302	1.320	1.321	1.299	1.312	1.150
var13	govt floating	1.286	1.285	1.287	1.296	1.302	1.305	1.139
var14	average govt	1.293	1.294	1.303	1.309	1.300	1.309	1.144
		AUG	SEP	OCT	NOV	DEC		
var11	STOCKS	(1.994)	2.671	4.120	4.120	(3.432)		
	BONDS							
var12	corporate	1.150	1.120	1.161	1.152	1.150		
	average govt							
var13	govt floating	1.119	1.124	1.119	1.115	1.119		
var14	average govt	1.135	1.122	1.140	1.134	1.135		

		VAR11	VAR12			VAR11	VAR14
VAR11	Correlation	1.000	(0.099)	VAR11	Correlation	1	-0.085391
	N	12.000	12.000		N	12	12
VAR12	Correlation	(0.099)	1.000	VAR14	Correlation	-0.0853914	1
	N	12.000	12.000		N	12	12

Correlations

		VAR11	VAR13
VAR11	Correlation	1.000	(0.071)
	N	12.000	12.000
VAR13	Correlation	-0.07123	1
	N	12	12

## AVERAGE MONTHLY RETURNS 2002

		JAN	FEB	MAR	APR	MAY	JUN	JUL	
var16	STOCKS	1.766	0.916	0.632	(0.819)		(0.155)	3.306	1.793
	BONDS								
var17	corporate	0.975	1.046	0.997	0.956		0.977	0.956	0.833
var18	govt floating	0.916	0.922	0.916	0.921		0.922	0.926	0.721
var20	govt fixed	1.154	1.176	1.163	1.168		1.143	1.170	1.153
var19	average govt	1.035	1.049	1.040	1.045		1.032	1.048	0.937
var21	average	1.01	1.05	1.03	1.02		1.01	1.02	0.90
		AUG	SEP	OCT	NOV	DEC			
var16	STOCKS	(0.688)	2.396	5.799	6.108		11.612	25.23	
	BONDS								
var17	corporate	0.801	0.811	0.767	0.817		0.794	3.99	
var18	govt floating	0.723	0.728	0.717	0.723		0.720	3.61	
var20	govt fixed	0.761	1.156	1.159	1.161		1.154	5.39	
var19	average govt	0.742	0.942	0.938	0.942		0.937	4.50	
var21	average	0.76	0.90	0.88	0.90		0.89	4.33	

VAR16	Correlation	VAR16	1.000	VAR17	(0.548)	VAR16	Correlation	VAR16	1	VAR21	-0.284495		
	N		12		12		N		12		12		
VAR17	Correlation		(0.548)		1.000	VAR21	Correlation		-0.284495		1		
	N		12.000		12.000		N		12		12		
VAR16	Correlation	VAR16	1.000	VAR18	(0.523)			VAR16	Correlation	VAR16	1	VAR20	-0.118611
	N		12		12						12	12	
VAR18	Correlation		(0.523)		1.000	VAR16	Correlation				-0.118611	1	
	N		12.000		12.000		N				12	12	
							VAR20	Correlation					
								N			12	12	
VAR16	Correlation	VAR16	1.000	VAR19	0.144								
	N		12		12								
VAR19	Correlation		0.144		1.000								
	N		12.000		12.000								

AVERAGE MONTHLY RETURNS 2003

		JAN	FEB	MAR	APR	MAY	JUN	JUL
var22	STOCKS	5.714	2.226	3.920	10.970		3.808	2.248
	BONDS							
var23	corporate	0.773	0.795	0.808	0.783		0.812	0.203
var24	govt floating	0.707	0.716	0.707	0.709		0.716	0.142
var27	govt fixed	0.946	0.950	0.963	0.949		1.140	0.951
var21	average govt	0.826	0.833	0.835	0.829		0.928	0.546
var27	average	0.809	0.821	0.826	0.814		0.889	0.432
		AUG	SEP	OCT	NOV	DEC		
var22	STOCKS	5.808	6.949	3.191	7.300		0.883	
	BONDS							
var23	corporate	0.211	0.203	0.197	0.197		0.203	
var24	govt floating	0.141	0.147	0.150	0.144		0.221	
var27	govt fixed	0.957	1.618	0.955	1.047		0.947	
var21	average govt	0.549	0.883	0.553	0.595		0.584	
var27	average	0.437	0.656	0.434	0.463		0.457	

Correlations

VAR22 Correlation	VAR22	VAR23	VAR22	Correlation	VAR22	VAR27
	1	0.306864			1	0.099007
N	12	12	N		12	12
VAR23 Correlation	VAR23	VAR24	VAR27	Correlation	VAR22	VAR26
	0.30686	1		0.0990074	1	0.2196992
N	12	12	N		12	12
VAR22 Correlation	VAR22	VAR24	VAR22	Correlation	VAR22	VAR26
	1.000	0.309			1	0.2196999
N	12	12	N		12	12
VAR24 Correlation	VAR24	VAR25	VAR26	Correlation	VAR22	VAR26
	0.309	1.000		0.2196992	1	1
N	12	12	N		12	12
VAR22 Correlation	VAR22	VAR25				
	1.000	(0.120)				
N	12	12				
VAR25 Correlation	VAR25	VAR26				
	(0.120)	1.000				
N	12	12				



## SUMMARY

### STOCK RETURNS AND VARIOUS BOND RETURNS

	1999	2000	2001	2002	2003	CORRELATION
Stocks	0.979	0.968	1.288	2.722	4.463	1.000
Corporate	1.631	1.333	1.228	0.894	0.498	-0.954
Govt Floating	1.081	1.190	1.208	0.821	0.434	-0.978
Govt Fixed				1.126	1.031	
Avg Govt	1.081	1.190	1.208	0.974	0.733	-0.951

### AVERAGE STOCK RETURNS AND AVERAGE BOND RETURNS

	1999	2000	2001	2002	2003	CORRELATION
Stocks	0.979	0.968	1.288	2.722	4.463	1.000
Average	1.356	1.261	1.218	0.947	0.654	-0.991