# MACRO-ECONOMIC VARIABLES AND PERFORMANCE OF CORPORATE BONDS AT THE NAIROBI SECURITIES EXCHANGE, KENYA

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Full Length Research

## ABSTRACT

This study sought to determine the Macro economic variables and performance of corporate bonds at the Nairobi Securities Exchange in Kenya. The study was guided by four specific objectives which were to determine the effect of inflation, interest rate, exchange rate and government expenditure on the performance of corporate bonds at the NSE in Kenya. The study was guided by Efficient Market Hypothesis Theory, Trade off Theory and Arbitrage Pricing Theory. The study adopted a quantitative research design that is a longitudinal survey approach. The study was done by means of a census approach. The study focused on all the companies quoted in the Nairobi Securities Exchange that had issued corporate bonds in a fifteen years period (2001 to 2015). Secondary data was collected by means of a data collection form. Analysis of the secondary data was through descriptive procedures assisted by SPSS Version 21 software. Moreover, a Pearson correlation multiple linear regression analysis were conducted to establish the influence of each of the predictor variables on the response variable. Data was presented using graphical, pictorial representation, tables as well as percentages to show the degree of influence of macro-economic variables on the performance of corporate bonds. From the study, the Coefficient of Determination, R Square indicated that 58.60% of the variation in performance of corporate bonds was influenced by variation in macro-economic variables namely government expenditure, exchange rate, inflation and interest rate. To that effect, only 41.40% of the variation in performance of corporate bonds was unexplained by the factors that were included in the model. Multiple linear regression analysis findings demonstrated that inflation rates, exchange rates and commercial banks interest rates have a negative effect on performance of corporate bonds. Government expenditure, the regression output revealed, had a significant positive influence on performance of corporate bonds. Pearson correlation analysis results demonstrated an inverse relationship between three macro-economic variables; exchange rates, interest rates and inflation rates with performance of corporate bonds. Government spending showed a positive association with performance of corporate bonds. Recommendations were made for the government to strengthen its regulatory framework, majorly through monetary policy, to keep the macro-economic factors under check to reduce detrimental effects on performance of corporate bonds.

***Key Words:*** *inflation rate, interest rate, exchange rate, government expenditure, performance, corporate bonds*

## INTRODUCTION

Securities market is also referred to as an equity market; it serves an integral role in a market economy by provision of capital to firms, company ownership to main investors and the prospects of gains in accordance to the firm's future performance of secondary investors (Osoro, 2013). The Kenyan bond market plays a pivotal part in fostering economic development in the country through offering investment opportunities to both local and foreign investors and

financing government budget deficit. As at 2012, in terms of absolute value, the size of domestic bond markets in Kenya was approximately worth $ 6 billion which was about 16% of the GDP in 2012 (CBK, 2012; KNBS, 2013; Kenya Economic Update, 2012).

The benefit of corporate bonds to a developing economy like Kenya was exemplified by International Monetary Fund (IMF) (2012) by observing that debts from private sector absorb the pressures from the banking sector through credit risk diversification across the economies. These debts can also be utilized as a source of long-term funds for long-term investments. It also provides products for long-term investments for long-term savings hence lower costs of funding; enhancing flexibility of financial products so as to satisfy investors' needs and borrowers as well as efficient capital reallocation.

While the domestic bond market in Kenya is relatively small compared to world standards, it is ranked number three in sub-Saharan Africa after South Africa and Nigeria. This market continues to be instrumental particularly government bond that enables the government to raise finances locally to counter its fiscal deficits. But, like most of the bond markets in Africa, the bond market experiences problems such as poor performance, high volatility and inefficiencies (Ngugi & Agoti, 2014).

As stated by Ndung'u (2013), though Kenya's bond market is well diversified, it needs to be developed further. Bond demand and bank loans enhance capital flow in the market. By end of 2014, the percentage of corporate bond market capitalization to GDP was 2% while proportion of corporate bond turnover to cumulative bond market capitalization was 0.1%. This contradicts the percentage of equity market capitalization to GDP that was reported at 50% over similar period (CMA, 2014).

Performance in the secondary market is a crucial factor towards functioning bond markets because investors have to be able to liquidate their holdings in reasonable time without major costs (SaaraBackberg, 2014). Though 90% of the bonds issued in Kenya are government bonds, more companies are turning to the bond market to raise funds as put forth by Thiong'o (2012). This enables companies to avoid the high interest rates charged by banks and the widely incomparable efficacy of stock issues which would hardly register the same level of subscription relative to bonds. Companies that have ventured into local fixed income markets include KenGen, Centum Investments, Safaricom and Consolidate Bank of Kenya. Currently, there is an increasing interest in investors some of these are Safaricom Limited to an extent of oversubscription (Irving, 2012).

## CONCEPTUAL REVIEW

### Inflation Rate

Inflation has been captured by empirical literature as critically affecting critical determinants of financial and security markets across the globe. Only the scale of influence and degree of control of inflations in various jurisdictions make a difference. Dammon (2008) notes that inflation impacts capital framework as well as firm worth hence greater inflation forces bond holders to sell bonds in exchange for shares and hence firms' capital structure assessed as debt equity ratio, becomes lower. Baraza (2014) investigated inflation as one of the macro-economic variables affecting performance of stock market in Kenya and found that there is an inverse but insignificant association between inflation and security market performance. The study concluded that regulators including CBK need be proactive rather reactive relating to managing of the macroeconomic variables. Additionally, the study depicted that the macro economic variables as well as stock market performance declined right before, in and right after electioneering phases, terse political and poll structures can be put in place, and procedures supported to avert attainable alterations of macro-economic elements as well as stock market efficiency along with other economic variables.

### Interest Rate

Interest rates are able to influence the progress of an industry in a number of ways. First, increased interest rates prevent businesses from investing in new capital and development. On the flip side, reduction in interest rates are able to stimulate industries to develop, that can result in greater employment levels and development, more personal spending and higher GDP (Mohr, 2015).

Interest rates charged by the commercial banks have been cited as critical macro-economic influencers of performance of corporate bond. Banks can increase or decline the rates of interest to stimulate economic growth. This is referred to as monetary policy. When the company borrows funds for expansion and expansion of its business, high rates of interest will affect debt cost. This might mitigate company profits and stakeholder dividends. As a consequence, share prices will decline. When interest rates are high, investments that earn interest are attractive to investors than stocks (Githinji, 2013).

### Exchange Rate

The exchange rate in many countries is one of the critical price aspects in the economy since it regulates the balance of payments internationally (Levich, 2001). Investors opt for investment where rate of exchange is unstable since they the risks are minimal (exchange rate risk). Thus, Bhattacharyay (2011) opines that minimal reduced volatile exchange will drive bond market development. Bradley and Moles (2002) defined exchange rate as the price of a unit of the

domestic currency compared to foreign currency. Omagwa (2005) posit that exchange rates like any other commodity are explained by the law of demand and supply. Supply of currency is explained by changes in fiscal policies whereas currency demand is affected by a varied range of factors such as interest rates and inflation rates. Murthy and Sree (2003) argued that exchange rate enables comparison of prices of commodities quoted in diverse currencies.

Adetayo, Dionco and Oladejo (2004) explain that exchange rate variation is significant in determining a country's balance of trade. According to Omagwa (2005), fluctuations in exchange rates impacts on prices of imports directly thus inversely affecting a country's external sector. Murthy and Sree (2003) postulated that country's foreign debt is significantly affected by the fluctuations in exchange rates. The central bank typically under a fixed exchange rate system will set a par value between foreign and domestic currencies (Reid and Joshua, 2004).

## Government Expenditure

Government spending has an influence on economic activities and performance of stock market in a number of ways. Increased investments on resourceful activities like industrial production are vital in determining the ability of a nation to achieve economic growth. Greater budgeting discipline that will reduce wastage in government expenditure should be encouraged in the nation and the government should readdress its monetary policy that would give the private investor advantage by discouraging great government spending and sustaining low financial deficit (Winnyrose, 2013). According to Bureau of Economic Analysis (2010) government spending or expenditure excludes government consumption, investment and payments transfer. When accounting for national income, government acquisition of goods and services for current usage, to satisfy individual and collective society needs is categorized as government financial consumption expenditure. High inflation levels could impact negatively on firm profitability and affect input cost thus lowering the ultimate output demand. Eventually, consequence of inflation on the business is affected by nature of its processes including the competitive environment. Inflation might impact on erosion of real value of outstanding financial claims unlike the nominal value of those entitlements that might encounter receivables that have diminished real value; as such lenders are adversely affected by inflation whereas borrowers benefit (Myers, 2014).

## STATEMENT OF THE PROBLEM

The performance of corporate bonds in Kenya has mostly been less than satisfactory. Various studies indicate that bond market in Kenya is thin and underdeveloped. The bond market in Kenya accounts for below 10 percent of the entire dealings in bonds at the NSE. The Treasury bond market has always surpassed the corporate bond market in trading activity (Ngugi & Agoti, 2007). The corporate bonds market has experienced some volatility in issuances since 2011 with some private firms being reluctant to issue corporate bonds to finance their operations despite the availability of a stable yield curve and in its place preferring to raise funds through equity offers

and rights issues. This has resulted in sub-optimal economic productive capacity and financial system allocation inefficiency (World Bank Report, 2012; CBK, 2013, CMA, 2013, KNBS, 2012). This is in sharp contrast with the fact that, in terms of trading volumes, the NSE is the fourth largest securities exchange in Africa, and regarding market capitalization as a percentage of GDP, it is the fifth (CMA Bulletin, 2009). However, there has been concern that there is uncertainty on the real influencers of bond performance in the NSE. This is compounded by the fact that there has been oversubscription in recent bond issues indicating strong investor interest (Irving, 2012). Existing empirical literature seem to attribute the following factors to this stunted growth of corporate bonds including: domination of institutional investors in the market who choose an approach to buy and hold the issued bonds, a high and wobbly interest rate regime, information asymmetry among probable issuers, the crowding out effect of the government's domestic debt as well as the lack of a yield curve to price long term instruments (Ochenge, 2014). There are studies that have investigated influence of macro-economic factors on the performance of various aspects of the security exchange (Ngabirano, 2016; Baraza, 2014, Karanja, 2014; Wanjiru, 2015). However, these studies have some glaring gaps in relation to shedding clarity on the wholesome performance of corporate bonds that this study will seek to cure. First most of these studies targeted mostly the determinants of bond pricing, yields, maturity, subscription or characteristics of the issuing company. Most of the recent and comprehensive studies were focused on the treasury bonds and most recently infrastructure bonds. The few that were done on corporate bonds were primarily focused on the parameter of the issuing firms and not the general performance of corporate bonds. Invariably, the studies took a narrow time scope of five years unlike this study which will take a fifteen years span.

## GENERAL OBJECTIVE

The general objective was to investigate the effects of macro-economic variables on the performance of corporate bonds at the NSE, Kenya

## SPECIFIC OBJECTIVES

1. To determine the role of inflation rate on performance of corporate bonds at the NSE

2. To determine the influence of interest rates charged by commercial banks on performance of corporate bonds at the NSE

3. To establish the influence of exchange rates on performance of corporate bonds at the NSE

4. To assess the influence of government spending on performance of corporate bonds at the NSE

## THEORETICAL REVIEW

### Efficient Market Hypothesis Theory

Capital markets that trade in stock and bonds help in the discovery of prices, liquidity, reduction in transactional costs and transfer of risks. Development of capital markets is a key ingredient towards finance sector development since it supplements the functions of banking systems in steering economic development. Yartey and Adjasi (2007) posit that they aid in minimizing information cost by creating and sharing of information with firms ensuing into efficient markets whose prices reflect existing information. Efficient markets support domestic growth of economy. Apart from availing resources to investors, efficient markets channels financial resources into local market economies. The credit market has increased its activities in financing investments with deposits forming a significant proportion of their financial asset basket this is because the bond and equity markets have not been thriving as they should be (Ngugi et al., 2009).

Fama (1970) postulated efficient market hypothesis (EMH) theory that describes behaviours of a perfect market in which securities are held at the equilibrium and prices of securities (stock and bonds) are displayed as public information which can be accessed and acted upon immediately this has been announced. This is so because; securities that are priced fully and fairly call for quick action by the investors. In simple terms, the idea is to have a market whose price is a reflection of accurate indicators for apportionment of funds. This suggests that a market in which firms can craft investment decisions on production are able to choose securities that reflect ownership of firm undertakings with the supposition that security prices will show the available information. A market that prices portray available information is regarded to as an efficient market.

Various macroeconomic variables including inflation, money supply and exchange rate were determined as one the variables that affect performance of bonds by various researchers (Fama, 1981; Oriwa, 2012 and Mayasami and Sims, 2002). EMH enables us to make an inference that changes in these macroeconomic factors definitely have an effect on the corporate bond performance. The study is therefore geared towards determining the expected link among the various macroeconomic variables and the corporate bonds performance in Kenya.

### Trade off Theory

Modigliani and Miller (1963) note that trade-off theory maintains the firm's optimal ratio of debt is assessed by a trade-off between the costs involved and the benefits derived from borrowing, this holds the firm's assets and investment plans constantly. Static trade-off theory opines that firms that have large tangible assets have a higher debt to equity ratio. Firms that depend solely on opportunities for growth intangible assets might be exposed to distress cost. Firms that are exposed to business risks are uncertain about generating adequate income to optimize their debt

tax shield and thus issue less debt. Bruslerie and Latrous, (2012) argue that leverage is beneficial to shareholders provided they are compensated to a point where tax gains deductibility of interest counterbalances potential costs from bankruptcy.

Kraus and Litzenberger (1973) opine that optimal leverage depicts a trade-off amongst tax benefits of debt and deadweight bankruptcy costs. Myers (1984) explains that a firm that adopts a trade-off sets a ratio of debt to value and moves progressively towards its target. Target is achieved through maintaining a balance amidst debt tax shields against bankruptcy costs. A firm might reach a certain level of debt whereby the risks of bankruptcy become too high such that it cannot compensate for tax deductions. At this stage, the company starts to finance itself using sale of stocks. It is of importance to note that the level of trade-off is different in each and every company based on the level of risk tolerance of that particular company (Frank & Goyal, 2005).

## Arbitrage Pricing Theory

Arbitrage Pricing Theory (APT) was postulated through Stephen Ross (1976). He argues that it is theory of asset pricing that explains the return that is expected from an investment or a financial asset which can be modeled into a linear relationship of several macro-economic factors of where the level of correlation change in each variable as depicted by a beta coefficient. The rate of return from the model that is derived will be applied to get the price or an asset value correctly. Value of an asset is expected to be similar to the anticipated

APT concurs that while many dissimilar specific forces may impact on the return of an individual stock or bond, this impact may stop in well-defined portfolios. As such, this is the diversification principle that influences corporate bond. Chen, Roll and Ross (1986) were among the first authors that utilized macroeconomic factors as proxies for all the undefined variables in APT. These scholars tried to describe equity as an important function of macroeconomic variables. This is because economic factors for example Treasury bill, interest rates impact on anticipated dividends and the discount rate.

A conclusion was drawn that prices of stocks were affected systematically by economic factors such as exchange rate and interest, Roll and Ross (1995) indicate that the underlying premise of Arbitrage Price Theory is the cognition that only limited systematic factors impact on long-term aggregate returns of financial assets. APT disregards the various reasons that impact on daily price variability of stocks and bonds, and emphases on key factors that drive aggregates in huge portfolios. Through identification of these forces, an intuition recognition of their effect on portfolio returns in achieved. Return on assets largely dependent on expected or unexpected events.

Empirical findings depict a three or four factor model that can effectively capture the effect of systematic factors on bond market returns. These factors underlie economic forces that are the basic drivers of bond markets.

## EMPIRICAL REVIEW

Ringui (2012) examined the factors determining corporate bonds market development in Kenya. The study outcomes suggested political, macroeconomic and regulatory factors account fully in determining corporate bond market development in Kenya. Overall, the outcomes showed that a confluence of factors matters for the development of corporate bonds market in Kenya which included investor base, political environment of the country, regulatory framework, the burdensome nature of issuance process, size of the banking sector and various macro-economic factors.

Dokko (2009) discovered empirical backing for a variation in inflation produces wealth reallocation involving debtors and creditors. Booth et al. (2001) discovered that high inflation results in a lessening both long-term and total debt proportions in the developing world. Gajurel (2015) discloses that for the firms mentioned for Nepalese stock switches inflation which is badly associated with leverage ratio. While, Noguera (2011), investigation on the connection between inflation and capital structure discovered a good significant positive connection among inflation and capital leverage. Baraza (2014) investigated inflation as one of the macro-economic variables affecting performance of stock market in Kenya and found that there is an inverse but insignificant association between inflation and security market performance. The study concluded that regulators including CBK need be proactive rather reactive relating to managing of the macroeconomic variables. Additionally, the study depicted that the macro economic variables as well as stock market performance declined right before, in and right after electioneering phases, terse political and poll structures can be put in place, and procedures supported to avert attainable alterations of macroeconomic elements as well as stock market efficiency along with other economic variables.

Kim and Stock (2011) concentrated on the impact of interest rate volatility on business income spreads on both callable and non-callable bonds. The analysis held an assumption that if higher interest rate volatility increases a firm's debt instability, the business is a lot more apt to attain a serious risk for defaulting, therefore leading to a greater yield spread. They discovered that there is a positive association of interest rate volatility with yield spreads on non-callable bonds. The results from the study confirmed that the beneficial effect of interest rate volatility on yield spreads is actually weak on callable bonds. The outcome suggests there is an adverse relation among default spreads and call spreads. It was furthermore established that there is a connection amongst interest rate volatility and yield spreads is a lot more optimistic for junk bonds than for investment grade bonds. A study was also carried out by Henry, Olekalns and Suardi (2005) on level influences and uneven dynamics of short-term interest rate and equity return volatility in Australia. Focal aim of the research was to examine the association between equity returns and short-term interest rates. Evidence from the findings confirm that that short-term interest rate unpredictability summits with the rate of short term interest rates, while volatility of equity retorts irregularly to negative and positive shocks. Research indicate that interest rates impact

capital system choices. Harris and Jalilv (2014) in a study of United States of America (USA) Corporation obtained scans it recommended fiscal choices are actually firm and interdependent measurement, interest rate situations as well as stock price amounts impact pace of changes to capital system suggesting they affect it.

Wong and Leung (2008) surveyed exposure of international exchange of Chinese banks. The study revealed that foreign exchange as well as bank size visibility favorably correlates. The study discovered that appreciation of international exchange minimizes equity values thus hampering bank's efficiency. Lado (2015) investigated the association among inflation and exchange rate in South Sudan. The study concluded that depreciation currency negatively influences economic growth. Ebaidalla (2014) examined impacts of real exchange rate misalignment on economic performance in Sudan. The study revealed that economic policy significantly affects equilibrium exchange rate. Maina (2010) examined effect of exchange rate variability and investment in the electric power sub-sector in Kenya. Maina's findings showed that the investments were high in the power subsector when the exchange rates were stable as compared to times of high fluctuations.

Mwaniki (2012) examined the sensitivity of Kenya banks stock yields to exchange rate and interest rate changes. This study measured performance using stock returns in Kenya. The findings show that 73.2 % changes stock price of commercial banks listed in the NSE could be accounted for by changes in foreign exchange. Musyoki, Poklanyal and Pundo (2012) examined in Kenya the influence of real exchange rate volatility on economic growth and established exchange rate volatility positively impacts on GDP growth but is not significant in affecting GDP growth rate.

Maingi (2010) studied the effect of government expenditure on growth of the economy in Kenya from 1963 to 2008. On the basis of the empirical results, he concluded that the composition of government expenditure matters for growth of the economy. In the long-run, expenditure on economic affairs, defense, education, government investment, general administration and services and physical infrastructure have positive impacts on economic growth. In the short run health care, public order and national security had positive effects on growth of the economy, whereas, public debt servicing has negative impact on economic growth. Gikabia (2015) conducted a study in Kenya on public infrastructure bond financing and government spending. The research findings disclosed that there is a connection amongst amounts raised via infrastructure bonds and government spending. The nature of the relationship was a positive one in that increments in amounts collected via bond issued led to higher government spending in the study period. The study showed a positive association between total revenue collected and the amount of government expenditure. The study revealed that increments in inflation rates led to additional spending by the government. This can be attributed to the high cost of commodities during times of inflation.

## RESEARCH DESIGN AND METHODOLOGY

The study adopted a quantitative research design that is a longitudinal survey approach. The study was done by means of a census approach. The study focused on all the companies quoted in the Nairobi Securities Exchange that had issued corporate bonds in a fifteen years period (2001 to 2015). Secondary data was collected by means of a data collection form. Analysis of the secondary data was through descriptive procedures assisted by SPSS Version 21 software. Moreover, a Pearson correlation multiple linear regression analysis were conducted to establish the influence of each of the predictor variables on the response variable. Data was presented using graphical, pictorial representation, tables as well as percentages to show the degree of influence of macro-economic variables on the performance of corporate bonds.

## EMPIRICAL MODEL

A multiple regression model was applied to establish the relationship between the independent and dependent variables. To measure the main objectives, the multiple regression model employed was as follows;

$$Y = \beta_o + \beta 1 X1 + \beta 2 X2 + \beta 3 X3 + \beta 4 X4 + e$$

Where: Y= Corporate bonds performance; $\beta_o$= Intercept; X1= Inflation Rates; X2= Bank Interests; X3= Exchange Rates; X4= Government Spending; $\beta 1$, $\beta 2$, $\beta 3$, $\beta 4$= Coefficients; e= Error variable

The error term depicts other factors which influence the dependent variable which are not factored in this study.

## RESEARCH FINDINGS

This study was guided by four objectives that included inflation rate, interest rate, exchange rate and government spending. The findings are presented and analyzed on the basis of the research questions and specific objectives.

### Correlation of independent variables

According to Lin (2007) if the absolute value of Pearson correlation is greater than 0.8, collinearity is very likely to exist. The study adopted the Pearson correlation analysis to assess the direction, strength and nature of relationship that existed between the considered macroeconomic variables and corporate bonds performance. Table 1 presents the findings of the analysis.

**Table 1: Relationship between Macroeconomic Variables and Performance of Corporate Bonds**

|  |  | Performance of Corporate Bonds |
|---|---|---|
| Inflation Rate | Pearson Correlation | -.572** |
|  | Sig. (2-tailed) | .044 |
|  | N | 15 |
| Interest Rate | Pearson Correlation | -.402** |
|  | Sig. (2-tailed) | .014 |
|  | N | 15 |
| Exchange rate | Pearson Correlation | -.689** |
|  | Sig. (2-tailed) | .004 |
|  | N | 15 |
| Government Expenditure | Pearson Correlation | .555** |
|  | Sig. (2-tailed) | .036 |
|  | N | 15 |

**. Correlation is significant at the 0.01 level (2-tailed).

Study findings presented in Table 1 depict that three macro-economic variables (exchange rate, inflation rate and interest rate) have an inverse (negative) association with performance of corporate bonds. Government expenditure, the fourth macroeconomic variable analyzed showed a positive association with performance of corporate bonds. The Pearson correlation coefficient for inflation rate (r = -0.572, p = 0.044) demonstrates a strong, negative and statistically significant association with performance of corporate bonds. Moreover, there is strong association because the correlation co-efficient is more than 0.50. Additionally, the association is statistically significant because the p-value or is 0.044 is below the five percent significance level. These study findings agree with past studies by Oriwa (2012), Mayasami and Sims (2002) and Ngabirano (2016) who demonstrated that inflation has negative relationship with corporate bond performance.

## Regression Model Summary

The regression analysis served the purpose of determining the usefulness of the model in predicting performance of corporate bonds. The key output of the model summary table depicts the extent of variation in the response variable influenced by the predictors included in the model. Study findings regarding the summary of the regression model are presented in Table 2.

**Table 2: Regression Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|---|---|---|---|---|---|
| 1 | .765[a] | .586 | .420 | 1.64486 | 1.121 |

a. Predictors: (Constant), Government Expenditure, Inflation Rates, Interest Rates, Exchange Rates
b. Dependent Variable: Performance of Corporate Bonds

The study results presented in Table 2 indicate that the r squared (coefficient of determination) was 0.586. The inference from these results is that 58.60% of the change in corporate bonds performance (dependent variable) was influenced by variation in the macro-economic variables that were included in the study which comprised of exchange rate, interest rate, inflation and government expenditure (independent variables). This means that only 41.40 percent of the change in corporate bonds performance was unexplained by other variables that were excluded in the model. Therefore, a supposition was arrived at indicating that at least one of the macro-economic variables was a valuable predictor of corporate bonds performance (Seber & Lee, 2012). Moreover, Draper, Smith, and Pownell (1966) observed that for a regression model to be credible, it requires at least to explain above 30 percent of the variation in the dependent variable. The results share with Ngabirano (2016) who indicated that macro-economic variables are good predictors of corporate bond performance. The results further follow the suggestions of the efficient market hypothesis that assert that macro-economic variables affect performance of bonds (Yartey & Adjasi, 2007).

**Table 3: Regression Coefficients Output**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| | (Constant) | 1670.621 | 5.718 | | 2.922 | .015 |
| | Inflation Rates | -5.027 | 2.937 | -.083 | -.389 | .007 |
| 1 | Interest Rates | -2.804 | 3.146 | -.030 | -.121 | .019 |
| | Exchange Rates | -2.648 | 1.804 | -1.021 | -3.007 | .013 |
| | Government Expenditure | .238 | .156 | .469 | 1.530 | .016 |

a. Dependent Variable: Performance of Corporate Bonds

The multiple linear regression analysis output show that three macroeconomic variables analyzed; inflation rate, exchange rate and interest rate have a negative and statistically significant influence on performance of corporate bonds. Government expenditure, the fourth macroeconomic variable analyzed demonstrated positive and statistically significant effect on performance of corporate bonds. The statistical significance threshold for all the variables analyzed is considered met since all the associated p-values are below the 5% level of significance.

## Inflation Rates

The coefficient (-5.027) infers that a unit decrease (increase) in inflation would result to an increase (decrease) of 5.027 units in corporate bonds performance. The statistical significance threshold is met as the accompanying p-value (0.007) is below the five percent significance level. Therefore, inflation rate is a suitable predictor of performance of corporate bonds. The results agree with past studies by Oriwa (2012), Mayasami and Sims (2002) and Ngabirano (2016) who indicated that inflation has an inverse influence on corporate bond performance.

## Interest Rates

The coefficient (-2.804) indicates that a unit increase in interest rates would result to 2.804 unit's deterioration in performance of corporate bonds. The influence is regarded to be statistically significant as the accompanying p-value (0.019) is below the 5% level of significance. Therefore, interest rates are a useful predictor of performance of corporate bonds. The study results agree with past empirical works by Ringui (2012), Kim and Stock (2011) and Ngabirano (2016) who indicated that commercial banks interest rates have a negative effect on corporate bond performance.

## Exchange Rates

The coefficient (-2.648) shows that a unit increase in exchange rates would result lead to 2.648 units' decline in performance of corporate bonds. The statistical significance threshold is observed as the accompanying p-value (0.013) is below the 5% level of significance. As such, exchange rates are a useful predictor of performance of corporate bonds. The study agrees with Oriwa (2012), Mayasami and Sims (2002), and Ngabirano (2016) who indicated that exchange rate has negative effect on corporate bond performance.

## Government Spending

The coefficient of (0.238) illustrates that increasing government spending by one unit would result to an improvement of 0.238 units in corporate bonds performance. This is a positive effect that is regarded as statistically significant because the accompanying p-value of 0.016 is below the 5% level of significance. As such, government spending is a useful predictor of performance of corporate bonds. The study agrees with past empirical orientations by Maingi (2010) and Mitchell (2005) who indicated that increased government spending would enhance corporate bond performance.

In summary, the results demonstrated that all the independent variables (macro-economic variables) under total reward system (inflation rates, interest rates, exchange rates and government expenditure) were useful predictors of performance of corporate bonds. This agreed with theoretical foundations of the efficient market hypothesis which postulates that macro-economic variables affect performance of bonds (Yartey & Adjasi, 2007).

## CONCLUSIONS

The study made the following conclusions based on the study findings. First, the study was informed by the coefficient of determination that the macroeconomic variables assessed formed a good model in predicting performance of corporate bonds at Nairobi Securities Exchange.

On inflation, the study concluded that the inflationary conditions and trends were highly unpredictable in the economy. From regression analysis results, a conclusion was made that

inflation has a significant, negative effect on performance of corporate bonds. From the coefficients, a unit increase in inflation would lead to an approximate five times unit decrease in performance of corporate bonds. Further, the study concludes that rate of inflation was inversely related with performance of corporate bonds.

On interest rates, a conclusion was made based on regression analysis results indicated that interest rates were useful in predicting performance of corporate bonds. A unit increase in interest rates would lead to an approximate three times unit deterioration in performance of corporate bonds. Further, a conclusion was made on the existence of an inverse relationship between interest rates and performance of corporate bonds.

On exchange rates, study findings led to the conclusion that there was a significant effect of exchange rates on performance of corporate bonds. Moreover, the study concludes that a one unit increase in exchange rates would result to approximately three times unit decline in performance of corporate bonds. Moreover, the study concluded that there was a significant inverse relationship between exchange rates and performance of corporate bonds.

On government expenditure, based on regression analysis output, a conclusion was made that the level of government expenditure positively affects the performance of corporate bonds. A unit increase in government spending would lead to an approximated two times unit improvement in the performance of corporate bonds. Further, a conclusion was made on the premise of the Pearson correlation analysis output that government expenditure has a positive relationship with performance of corporate bonds.

## RECOMMENDATIONS

A recommendation is made to the government and economic planners to move to control the macro-economic factors in the economy and especially inflation, interest rates, and exchange rates which would have deteriorating effect on performance of corporate bonds. There is need for the government and its fiscal agents to regularly review the monetary policy to keep the state of inflation in the economy under check. The study makes recommendation on need by the government and regulatory agents, principally the central bank of Kenya to move to strengthen the interest rate regulatory framework. The high level of interest rates established in the Kenyan economy but also on overall economic performance. There is need to strengthen and not to think of abandoning the interest rate cap law established in 2016. An additional recommendation was made on need enhance Kenyan currency stability in order upscale not only the performance of corporate bonds but also of the economy as a whole. The government should apply monetary policy instruments to keep check on exchange rate fluctuations. On government expenditure, a recommendation is made for the government to ensure prudent only the level of corporate bond performance but also of economic growth. Options should be explored to prudently bridge the gap between budget and actual expenditure to address constant deficits observed.

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