INFRUSTRUCTURE BOND MANAGEMENT AND PERFORMANCE OF GOVERNMENT SECURITIES IN KENYA

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Abstract: *Development and management of infrastructure bonds market widens the financing options for firms and enables the government to shift its domestic debt to longer-term securities. However, development of bonds market requires that certain conditions be in place. These include a developed money market, wider participation and protection of investors, reduced information asymmetry and an efficient trading system. The length of treasury bonds market is shorter than that of developed bonds markets, the trading system is not harmonized with intermediaries using different pricing models, and the regulatory framework is also weak to accommodate diversification of these bonds. The purpose of this study was to assess the influence of infrastructure bonds programmes management on the performance of government securities. The study unit of analysis was Kenya National treasury. The results indicate that the management of infrastructure bonds and their application do have great influence on the performance of government securities. The effect size of this variable is up to 84.9% on the yield of government securities in a financial market and this is statistically significant (p = .000<.05).*

Keywords: *Infrastructure Bonds, Performance of Government Securities, Bond Market*

Introduction

The 1980s and 1990s have seen developing countries embark on revitalizing capital markets to enhance mobilization of long-term capital. The evidence that long term capital is positively related to economic growth has justified this effort. Further, the recent need to meet the Millennium Development Goals (MDGs) demands mobilization of adequate financial resources, and this has kept the momentum for capital market development high. Bonds market is an alternative vehicle for mobilizing finance for both the government and the private sector in financing long term projects such as housing and infrastructure development, in addition to financing government deficit. An efficient bond Market is important for managing public debt and bank liquidity and for efficient conduct of monetary policy. The bond market links the issuers having long-term financing needs with investors willing to place funds in long-term interest bearing securities. A well-functioning bond market is essential to developing the capital market which in turn contributes to promoting a sound and deep financial system. Without a well-functioning bond market, the monetary transmission process of policy measures remain circumvented and the desired impact on the real economy remains incomplete leading to compromises with the effectiveness of monetary policy operations. Akhtaruzzaman & Habibur Rahman (2008) study in Bangladesh on efficiency of bond market and its critical role in supplementing the banking system to meet the requirements of the corporate sector for long-term capital investment and asset creation. The study revealed that the bond market can provide a stable source of finance when the equity market is volatile.

Ahmed Khalid (2007) studied the Bond Market Developments in Emerging Markets with a focus on prospects and challenges for Pakistan. The study explored the reasons for a slow development of bond market in emerging economies. The study findings revealed that Pakistan needs to satisfy a set of pre-requisites before some meaningful progress in domestic bond market development is made. Further, Ip-wing Yu, Laurence Fung and Chi-sang Taml (2007) studied on the degree of integration of sovereign (government) bond markets in Asia. It provided a survey of indicators and measures to monitor the development, progress and state of bond market integration in the region. The empirical results revealed a weak bond market integration in the region and very little progress since 2003.

Jonathan Batten and Yun-Hwan Kim (2000) study on expanding long-term financing through bond market development; the focus was on a post crisis policy in the Asian financial crisis. The findings revealed the need to diversify the source of long-term industrial financing, which historically is concentrated in the form of short-term bank borrowing where financing behavior historically entailed currency mismatches, financial inflexibility and vulnerability to external shocks. Kristine Forslund, Lycia Lima and Ugo Panizza (2011) studied on the determinants of the composition of public debt in developing and emerging market countries. The study used the dataset on the composition of public debt in developing and emerging market countries to look at the correlation between country characteristics and domestic debt share. The findings indicated a weak correlation between inflationary history and the composition of public debt. Development of Bond Market is pre-requisite not only for development of capital market, but also for development of economy of any country. Further without a functioning bond market, the monetary transmission processes of policy measures would be circumvented, and the desired impact on the real economy cannot be fulfilled, which compromises the effectiveness of monetary policy operations (IOSC, 2002; Mu, 2007).

The financial sector in Kenya is characterized by the dominating presence of commercial banks, accounting for 72.19% of domestic savings in the form of term deposits. Fixed income securities including non-transferable instruments constitute 27.81% of domestic debt. Corporate debentures are only less that 1.5% of the debt securities market. 25% of annual budget deficit which is financed from internal debt. Persistent revenue shortfall is forcing the Government to borrow that resulting in increased debt-servicing liability. The growth in socially responsible investment (SRI) has been notable. According to the 2016 Global Sustainable Investment Review in 2016, US$22.89 trillion of assets were professionally managed under responsible investment strategies worldwide which is an increase of 25% since 2014. Badia, Pina and Torres (2019) study on the financial performance of government bonds portfolios based on Environmental, Social and Governance criteria revealed that high- rated government bonds outperform the low ranked bonds under any cut off although differences are not statistically significant.

In recent years, multilateral financial institutions have praised Kenya's macroeconomic management, especially after the country was hit by both domestic and exogenous shocks in late 2000s. However, in the last couple of years, increased demand for financing infrastructure development, coupled with unpredictable external financing have exerted pressure on Kenya's fiscal position. Although Kenya's revenues reached about 19 percent of GDP in the fiscal year 2013/14, expenditures reached about 26 percent of GDP in the fiscal year. Consequently, the primary balance widened from a deficit of 3.4 percent of GDP to 4.1 percent of GDP during the period. Tax revenues accounted for 85.1 percent of total revenues. However, total government expenditure and net lending increased, resulting in an estimated financing requirement equivalent to 6.2 percent of GDP. Total public debt rose from 41.6 percent of GDP in June 2013 to 46.8 percent in June 2014, largely reflecting the issuance of the Sovereign Bond. The rising primary deficits and increased public debt should be carefully monitored to ensure that public debt remains sustainable.

Mbewa et al (2007) carried out a study on the development of the bond market in Kenya. The study was carried out through a situational analysis of the bonds market by examining the performance of the market, appropriateness of the institutional set up and the policy development. The study established that Kenya's bond market, at the time, was far from what can be referred to as a developed bond market. Among the factors that have contributed to this observation was lack of benchmark bonds, whose yields, can be used to efficiently price other financial instruments in the Market.

Statement of the Problem

Tax revenues declined to 13.6 percent of GDP in 2019/20 this reflect the economic slowdown and policy measures to address the shock, but also the gradual downward trend is observed since 2013/14. Kenya's revenue collection still remains low compared with the regional average. Infrastructure bond programme is highly successful new instrument with long maturity introduced in December 2009. This instrument, is exempt from withholding tax, purposely to finance identified priority projects in the infrastructure sector of the government. Having generally enjoyed strong access to the international capital markets, Kenya's position in terms of debt management operations are not reflected in the baseline. Increased borrowing requirements to finance investment in public infrastructure coupled with the stagnant foreign support to the budget has seen Kenya's public domestic debt rise to new levels in absolute terms over the last decade. The economy has also witnessed a series of shocks. Kenya's Medium Term Debt Management Strategy (MTDS) was formulated so that public debt is sustainable (Republic of Kenya, 2014). This has ensured that the country is able to service its debt in the short, medium and long-run without renegotiating or defaulting, and without having to undertake policy adjustments that are implausibly large from an economic and political standpoint (IMF, 2004). A sustainable debt provides confidence that the government will be able to borrow and pay potential creditors. Unsustainable debt levels, on the other hand, present risks to government expenditures on development and social programmes since a large proportion of tax revenue would be diverted to debt service this scenario necessitated the introduction of infrastructure bonds programme in Kenya. It is therefore unclear the extent to which the infrastructure bond management can be linked to the performance of government securities in the financial market. This study focus is on the influence of infrastructure bonds programme management and the performance of government securities

Theoretical framework

Efficient Market Hypothesis

Efficient Market Hypothesis is an information theory. This theory was put forward by Professor Eugene F. Fama, a 2013 Nobel Laureate, who was a Finance professor at Chicago University in the United States. According to Fama (1970), financial markets are characterized as being "informationally efficient". In the view of this theory, a proposition is made that no investor can over time achieve returns in excess of average market returns. Ideally this theory postulates that given time, information become available to investors and hence the returns are normalized. This theory has three major subsets: weak, semi strong and strong form efficiencies. The bond market is a complex one, that exhibit information asymmetry. Bond investors may have similar information at their disposal or some may be at an advantage. Thus, this theory provides a good impetus to the understanding of the bond market.

Technical Theory

This theory holds that the historical price patterns are expected in the future. This price patterns can be sub dividend into Primary movements which are long term in nature. Trend that represent a period greater than one

year, secondary movements which are seasonal variations in the share prices capturing periods covering several weeks and tertiary movements which refer to the daily changes in stock prices. The theory ignores the tertiary movements and uses the secondary movements to determine changes in primary movements. The ability to make commodity price forecasts is only the first step in the price decision making process. The second, and often more difficult step, is market timing. The market trend is simply the direction of market prices, a concept which is absolutely essential to the success of technical analysis. Identifying trends is quite simple; a price chart will usually indicate the prevailing trend as characterized by a series of waves with obvious peaks and troughs. It is the direction of these peaks and troughs that constitutes the market trend. Technical analysis includes the psychology of the market place. Patterns of human behaviour have been identified and categorized for several hundred years and are repetitive in nature. The repetitive nature of the marketplace is illustrated by specific chart patterns which will indicate a continuation of or change in trend.

Research Methodology

The study unit of analysis was Kenya National treasury. The target populations was 25 officials of CBK and Treasury department of Public Debt management. A sample design is a definite plan for obtaining a sample from a given population. For this study all the units of analysis and respondents in the sampling frame were included in the sample size. Therefore the sample size will be equal to target population; implying the adoption of census (saturated) sampling technique on the 25 officials of CBK and Treasury department of Public Debt management. The secondary data was obtained from CBK for the period between 2000 and 2022 period. Primary data was collected using questionnaires. The data collected was analyzed using descriptive and inferential statistics.

The regression model below was adopted

$$Y = \beta_0 + \beta_2 IBP_{2i} + \varepsilon \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \textbf{(EQUATION 1.1)}$$

Where: Y= Yield of Government Securities

IBP_{2i} = Volume of infrastructure bonds in Kenya shillings

Results

The study established the influence of infrastructure bonds programme management and the performance of government securities. The data collected was analyzed and presented as in tables below

Table 1: Model Summary[b]

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | Durbin-Watson |
					R Square Change	F Change	Sig. F Change	
1	.849[a]	.720	.717	.04130794	.720	215.252	.000	.066

a. Predictors: (Constant), Infrastructure Bond Programme

b. Dependent Variable: Yield of Government Securities

The results in table above reveal a strong and positive association between the infrastructure bond programme management and yield of government securities (r = .849[a]). This is almost a perfect association between the

two variables in this study. It is observed that infrastructure bond programmes can explain up to 72% of the variation in yield of government securities (r^2 = .720), this explanatory variable infrastructure bond management can be relied with accuracy and preciseness in the prediction of performance of government securities up to 71.7% (adjusted r^2 = .717) and it is statistically significant (p =0.000<0.05). Therefore the result out of this variable in the model can be relied on in the prediction.

Table 2: ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.430	1	.430	215.252	.000[b]
	Residual	.167	98	.002		
	Total	.598	99			

a. Dependent Variable: Yield of Government Securities

b. Predictors: (Constant), Infrastructure Bond Programme

The result in *Table 2* indicate that the variables used in the model are reliable and significant in the prediction of performance of government securities. Therefore the study results from the model are true as the assumptions are true and not violated by the data. Further the usefulness of this model and its accuracy on the prediction and explanation of the dependent variable by the predictor variable (debt monitoring) is significant (F = 215.252, p .000<.05).

Table 3: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.066	.008	-	8.292	.000
	Infrastructure Bond Programme	9.572	.000	.849	15.882	.000

a. Dependent Variable: Yield of Government Securities

The regression model below was adopted

$Y = \beta_0 + \beta_2 IBP_{2i} + \varepsilon$ …………………………………………….…………… (*equation 1*)

Where: Y= Yield of Government Securities

IBP $_{2i}$ = Volume of infrastructure bonds in Kenya shillings

Substituting the unstandardized beta coefficients the model changes to:

$Y = 0.066 + 9.572\ IBP_{2i}$ ……………………………………….………………………… (equation 2)

This result indicate that a unit increase in infrastructure bond programme causes 9.572 units increase in yield of government's securities. Therefore the management of infrastructure bonds and their application do have great influence on the performance of government securities. The effect size of this variable is up to 84.9% on the yield of government securities in a financial market and this is statistically significant (p = .000<.05).

The results concurs with Ndung'u (2013), study that a government running a deficit budget may cover the short in its budget by floating government bonds. Government bonds are one of the safest income generating investments to investors since the risk of default associated with them is nearly non-existence except in extreme cases of recession. Bonds remain an important means for raising capital for the government (Becker and Ivashina, 2011). Similarly Irving (2010), notes that a secured bond is less risky when compared to an unsecured bond. On the other hand an unsecured bond is that which has no collateral security attached to it. Thus, unsecured bond is issued by bodies that are trusted to repay the principal and the interest as and when they fall due. Therefore a government infrastructure bond is less risky and hence its yields are high.

The Central Bank of Kenya (2016), indicates that the Kenyan government issues bonds whose maturity period range from one to thirty years. The government of Kenya issued bonds of various classes. Fixed coupon bonds bear predetermined interest rates that are paid twice per year on the face valued during the life of the bond. Also, the government does issue infrastructure bonds whose proceeds are meant for use in specific projects as specified in the bond prospectus. The zero coupon bonds have fixed interest and the holder's return is only the discount amount equivalent to the yield quoted and are mostly short term in nature(CBK,2016). It is important to state that bond investors are more inclined on the coupon rate bonds. The management of this type of bond will have a significant influence on the yield associated with performance of government securities.

Conclusion

Government bond yield is a critical area of knowledge for both bond investors and the government. The rate of return of the government bond is crucially beneficial to the investor, since it is the rate of return on their investment. On the other hand, the government needs to be aware of the trends in its yield to be able to price any new issuance of bonds appropriately. Public debt management is instrumental in ensuring stable financial markets and robust economic growth. It is important in Kenya in the process of establishing and managing the country's public debt to raise funds for government projects and to service the existing government debts at the lowest cost possible. Therefore the management of infrastructure bonds and their application do have great influence on the performance of government securities.

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