PUBLIC DEBT AND THE FINANCIAL PERFORMANCE OF COMPANIES LISTED ON THE NAIROBI SECURITIES EXCHANGE

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ABSTRACT

The government borrows to fill the budget deficit. The effects of borrowing may be positive, negative, or zero. This study aimed to examine the effect of public debt on the companies listed on the Nairobi Securities Exchange and to ascertain how factors affecting public debt and the financial success of companies listed on the NSE are related. The study used secondary data from the Central Bank of Kenya and the Kenya National Bureau of Statistics. The association between the variables was determined using Ordinary Least Squares. The study found that public debt has a mild negative effect on the financial health of companies listed on the NSE. Limitations of the study included challenges in accessing data and the time taken in data collection is quite long. The recommendations from this study are that government should reduce the dependency on loans, policy makers can develop artificial intelligence tools for data collection, and consider sustainable borrowing.

Keywords: Public debt, gross domestic product, NSE, financial performance

Introduction

Background of the Statement

A country's economic performance can be determined by the interest rate, Gross Domestic Product (GDP), inflation rate, fiscal position, exchange rate, and debt position among other variables (Muturi & Kimathi, 2016). Public debt is key in determining the performance of a country, especially the less developed countries like Kenya. Outstanding domestic government debt as well as outstanding external debts determines the debt position of a country.

Public debt can be defined as an important source of resources that includes finances and capital that the government borrows to fulfil the budget deficit (Panizza & Andrea 2012). Public debt,

therefore, produces different effects on the growth of corporations as well as investments in the Nairobi Securities Exchange (NSE) depending on the source of the borrowing. For instance, borrowing enables the government to finance its development projects and activities, meet the budget deficit, provide resources for urgent and immediate needs, and to create a conducive environment for investments. However, it is notable that the government affects firms as it increases its deficit while profits expected by firms are reduced. This leads to the crowding-out effect of the private sector.

Additionally, (Krugman, 2010) suggests that the aftermath of government borrowing will be much felt by next generations. The aftermath comes in the form of a decrease in the income flow as reduced stores used stores in the private capital. The rise in government borrowing affects the rate of economic growth by discouraging private investments, increasing interest rates, and rising levels of taxes which lead to a reduction in the competitiveness of the industries.

Relationship between the Public Debt and Performance of Listed Firms

Government borrowing influences an array of macro-economic factors that are crucial in determining the financial performance of corporations in an economy. Studies have shown that excessive government borrowing would result in increased debt interest payments, raising of taxes to cover the principal and interest payments, crowding out in the private sector, and increased inflation (Cachetti & Zampolli 2011). The high-interest payments on the government debt mean that a higher portion of the tax revenues is used for debt repayment rather than other economic agents in the country. Higher taxation increases the prices of commodities and services while lowering the aggregate demand which negatively affects the financial performance of corporations, reduces the income earned by corporations, crowding out the effect, and increased inflation. The high borrowing may push interest rates higher as investors demand higher premiums for the bond yields to compensate for the risk of default arising from excessive borrowing countries in the Eurozone during 2011/2012, interest rates were pushed higher as most governments borrowed through issuing bonds to the public rather than the Central Banks or Multinational Development Banks. Government borrowing from the private sector causes a crowding-out effect according to classical economists. (Panizza & Andrea 2012) argue that by lending to the government, fewer funds to invest and spend remain in the private sector which would likely lower the productivity of corporations.

According to the Central Bank of Kenya, as of 2018, Kenya's public debt stood at USD 49 billion which is 4.844 trillion Kenya shillings. This translates to 56.4% of the country's GDP which is a rise from 42.8% in 2008. The Central Bank continues to report that more than half of the nation's debt came from external sources. They can help improve economic growth.

However, principal and interest refund for the external debt are done in foreign currency thereby depleting foreign exchange reserves.

Figure 1.1: The historical market value of equity as a percentage of GDP in the Nairobi Securities Exchange.
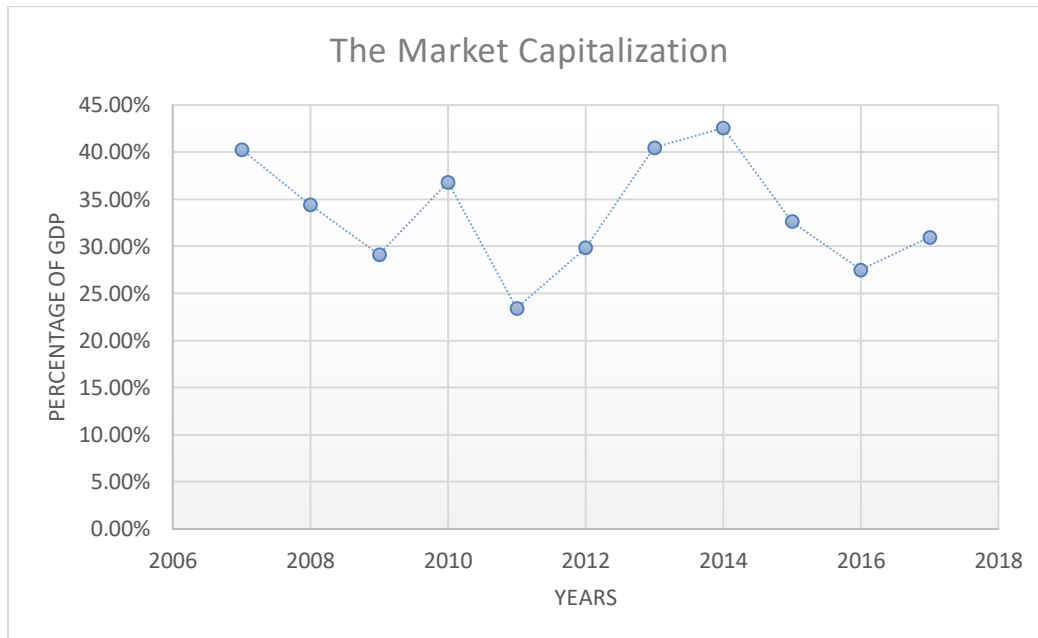

Few researchers have looked into the impact of government debt on the internal or external stock market performance of companies. The information above demonstrates that market capitalization as a percentage of nominal GDP has been reducing in Kenya. In 2014, this value was 42.573, 27.504 in, 2016, and 23.605 in 2018. Market capitalization was used in this study because it helps determine the value of a company.

Big companies have a high market capitalization. These are companies that have been around for quite some time and are major players in the industries that they are operating in investing in large companies do not necessarily result in increased return on investment. However, due to their stability, large companies can reward investors with consistent increases in share value and consistent dividend payments.

The NSE 20-share index has also been on a downward spree. In December 2014, the NSE 20 share index was 5113 points. This reduced to 4041 in December 2015. The value was 3,186 points in December 2016. In December 2019, the NSE 20-share index was 2654.390 points reducing further to 2337.030 points in February 2020. This can be seen in the figure below.

Figure 1.2: Market index
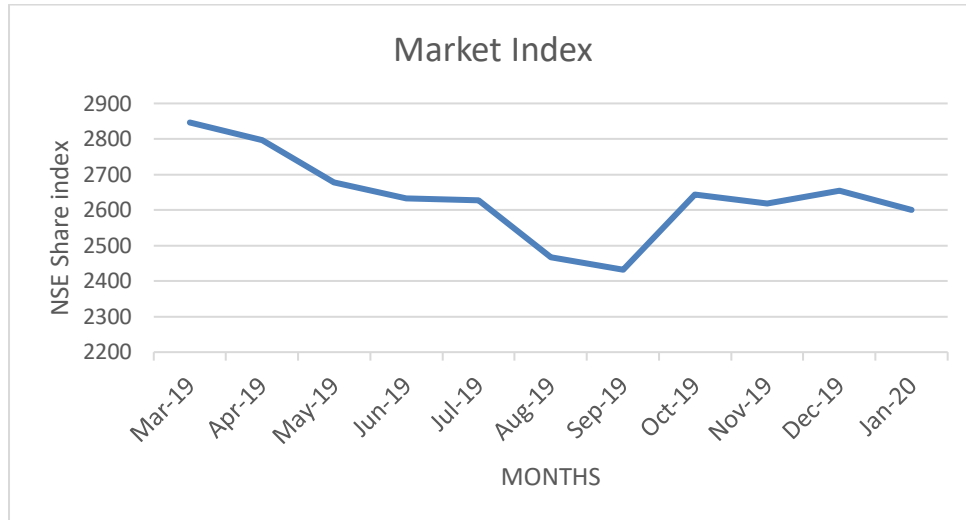
Source: Author

Statement of the Problem

Government borrowing increases the amount of money circulating in a country by increasing the levels of investments and savings. Consequently, through these increases in money circulation; investors, stakeholders, financial institutions, and the government who invest in companies listed on NSE expect a rise in the economic results of these companies. (Ngugi et al., 2009) argues that investors strive to provide a conducive environment for running businesses by availing all the financial requirements to run the business. Therefore, they expect excellent financial health results from these companies listed on NSE.

According to CBK, (2018) Kenya's public debt was 55.96% of GDP in 2017, 59.29% in 2018, and 62.10% in 2019. On the other hand, market capitalization as a percentage of GDP has been reduced from 42.57% in 2014 and 23.60% in 2018. Accordingly, the financial performance of companies listed on NSE will record either positive, negative, or constant results as a result of the public debt effect. This is because the debt crisis results in a crowding-out effect which is expected to affect the consumption of the companies which in turn affects the financial performance.

Studies by (Almajali et al., 2012; Ayako, Kungu, & Guthui 2015: Liargovas & Skandalis, 2008) have concluded that factors such as the firm's size, capital structure, fixed assets investments, and level of risk as well as identifying that both external and internal factors affect the

performance of these firms. Previous researchers have not focused on the crowding-out effect as a determinant of the economic performance of companies listed on NSE.

Additionally, Momanyi (2018) demonstrated a significant association between debt and the profitability of listed service and business enterprises. A statistically negligible and modest association between debt funding and dividend policy of companies listed on the NSE is found by Madeni (2017). According to Pradhan and Khadka (2017), short-term debt and bank profitability have a positive relationship while long-term debt has a negative relationship. Harelimana (2017) came to the conclusion that debt levels have a significant impact on bank profitability. Long-term borrowed finances and the financial success of businesses are found to be negatively correlated by Ikapel and Kajirwa (2017). Kwadwo, Nsiah, and Sekyere (2016) found a negative correlation between public debt and enterprises' financial performance.

Therefore, it is noteworthy that most studies are not on Kenyan firms to give incontestable results on the relationship between public debt and the financial performance of companies listed on the NSE. Furthermore, both local and international researchers have not established a consensus in their theoretical and observational arguments on the effect of public debt on financial performance thus the urge to look further into the area of study.

DATA ANALYSIS

Stationarity Test

According to Khan & Gill (2009), time series data in macroeconomics are vulnerable to non-stationarity, which leads to multiple of errors in regression results. Therefore, it is important to test stationarity of all the variables in order to avoid the issue of non-stationarity. Augmented Dicky Fuller (ADF) test is conducted to detect whether the variables are stationary or not. ADF is most preferred because in case there is autocorrelation, it will be taken care of according to Brooks (2008).

Table 4.1 Results of the unit root test comparison

Variables	LEVEL		1st DIFFERENCE	
	Intercept	intercept & Trend	Intercept	Intercept & Trend
Average_ROE	0.0038	0.0085	0.0002	0.0010
Debt to GDP ratio	0.0018	0.0076	0.0000	0.1497
Exchange rate	0.9560	0.1122	0.0111	0.0503
Expenditure to GDP	0.8951	0.0545	0.0010	0.007
Inflation rates	0.0630	0.1976	0.0001	0.0005

Source: Author's computation

Null hypothesis states that if the value of p is smaller or equal to 0.05, we reject the H_0.

H_0: There is a unit root. Therefore, the time series data in this case is stationary.

Co-integration test

The long-term relationship between the dependent and the independent variables is conducted using the Johansen Co-integration test. Johansen co-integration test is most recommended in this study because its results are more accurate, Brooks (2008).

The results obtained are as in the table below

Table 4.2 Unrestricted Co-integration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.009934	211.4420	95.75366	0.0000
At most 1	0.029603	111.0720	69.81889	0.0000
At most 2	0.018606	65.79447	47.85613	0.0005
At most 3	0.042718	35.34211	29.79707	0.0104
At most 4	0.000391	14.75751	15.49471	0.0644
At most 5	0.0101196	2.133797	3.841466	0.1441

Trace test indicates 0 co-integrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values
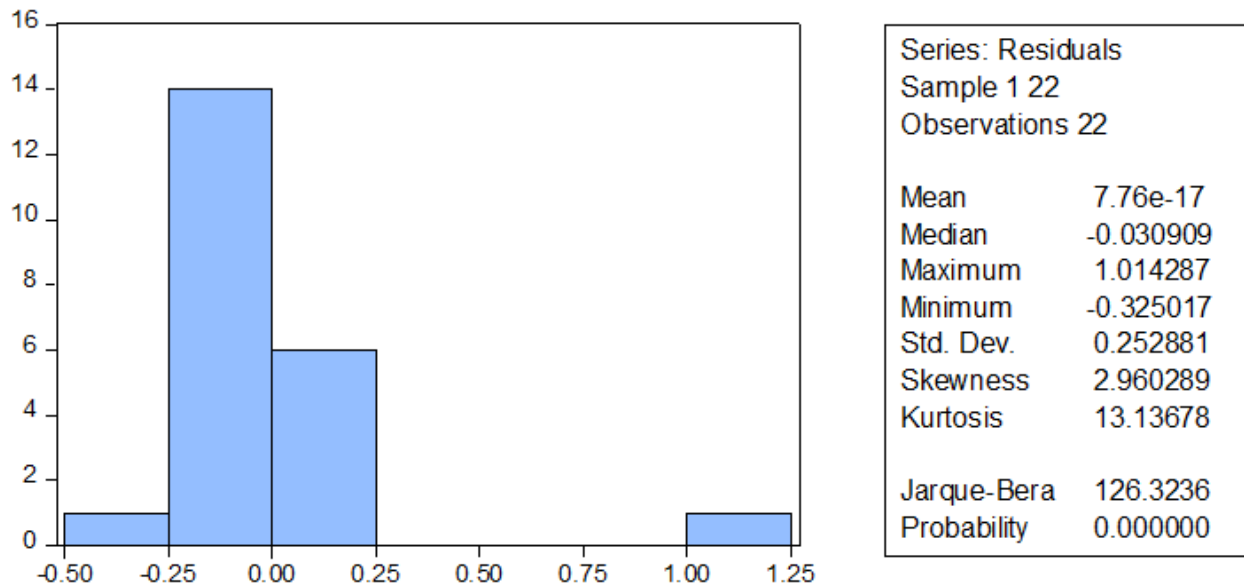Source: Constructed from study data

The study used Eigenvalue in decision making.

The null hypothesis is that there is no co-integration. Therefore, the study can proceed to run OLS regression analysis since there exists no co-integration among the variables.

Normality Test

Jarque-Bera test is most preferred in testing normality in this study because it tests whether the data have kurtosis and skewness matching a normal distribution.

Figure 4.3: Results of the Jarque-Bera test

Source: Constructed from study data

Null hypothesis is rejected if the probability is smaller or equal to 0.05.

H_0 The distribution is not normal

The results indicate a Jarque-Bera value of 126.3236 and probability statistic of 0.0000. Since the probability of 0.0000 is smaller than 0.05, the data is said to be normally distributed.

Heteroskedasticity

This study determined the existence of heteroscedasticity or homoscedasticity using Breusch-Pagan-Godfrey Test where null hypothesis is rejected if the statistical value is smaller than the critical value as provided in the table.

Table 4.4: Heteroskedasticity test

F-statistic	1.006490	Prob. F(5,16)	0.445
Obs*R-squared	5.263955	Prob. Chi-Square(5)	0.3845
Scaled explained SS	16.89586	Prob. Chi-Square(5)	0.0047

Source: Constructed from study data

From the above results, probability chi-square 0.0047 indicates that there is no heteroscedasticity since it is smaller than 0.05.

Correlation

Correlation matrix was used in this study to prove the existence of an association between two variables. This is shown when there is a strong negative correlation or a perfect positive correlation.

Table 4.5 Correlation

	AVERAGE ROE	DEBT-TO-GDP RATIO	EXCHANGE RATE	EXPENDITURE-TO-GDP	INFLATION RATES
AVERAGE ROE	1				
DEBT-TO-GDP RATIO	-0.13321	1			
EXCHANGE RATE	-0.3773	0.082771	1		
EXPENDITURE-TO-GDP	-0.04974	0.187271	0.075643	1	
INFLATION RATES	-0.02807	-0.01817	-0.40605	-0.04552	1
TAX-TO-GDP	-0.09348	0.983293	-0.07378	0.154298	0.089612

Source: Constructed from study data

There is no multicolleniearity among the variables.

Regression analysis

The study conducted a Regression analysis to establish how explanatory variables influence the independent variable.

The following results were obtained:

Table 4.6

Dependent Variable: AVERAGE_ROE
Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.779977	0.814443	2.185515	0.0431
DEBT_TO_GDP_RATIO	-0.025305	0.057407	-0.440795	0.0449
EXCHANGE_RATE	-0.014421	0.007579	-1.902682	0.0342
EXPENDITURE_TO_G DP	-0.004160	0.138780	-0.029975	0.9764
INFLATION_RATES	-0.017298	0.019174	-0.902188	0.0296

R-squared	0.191544	Mean dependent var	0.221388
Adjusted R-squared	0.001319	S.D. dependent var	0.284310
S.E. of regression	0.284123	Akaike info criterion	0.517894
Sum squared resid	1.372336	Schwarz criterion	0.765859
Log likelihood	-0.696839	Hannan-Quinn criter.	0.576307
F-statistic	1.006932	Durbin-Watson stat	2.376754
Prob(F-statistic)	0.431247		

Source: Constructed from study data

From the results obtained above, the relationship between the dependent and independent variables are explained by the values of probability. That is, if the probability of the independent variable is less than 0.05, then the independent variable explains the dependent variable in a good way and vice versa. From the above results, it is notable that all the variables save for expenditure to GDP ratio are significant at 5% confidence level.

R-squared and adjusted r-squared explain how fit the model is. The R-squared value from this result explains 19.15% relationship between dependent and independent variable. Therefore, its noteworthy that the rest of the variations in the financial health of companies is explained by 80.85% of variables not included in this model.

From the findings, the study came up with the following model:

$Y = 1.779977 - 0.025305X_1 - 0.014421X_2 - 0.004160X_3 - 0.017298X_4$

Where:

Y is the financial performance

X_1 is debt to GDP ratio

X_2 is exchange rate

X_3 is expenditure to GDP

X_4 is inflation rates

The aim of the study was to determine how public debt affects the financial health of companies listed on NSE and also to ascertain the relationship among factors affecting public debt and the financial success of companies listed on NSE. The variables used met all the conditions for normality and stationarity, therefore, there was no need of transforming the data.

The study found out that debt to GDP ratio has a negative and significant effect on the financial performance of companies listed on NSE. Abor (2005) investigated how debt to equity ratio of the companies listed on GSE affected their profitability and concluded that there was a positive relationship. This contradicts the findings in this study that debt to GDP ratio has a negative and significant relationship with the financial health of companies listed on NSE.

Similarly, Magaro and Abeywardhana (2017) conducted a study on the impact of loan capital on financial performance of companies listed on South Africa. The study established that debt has detrimental effects on the financial health of companies. This is in agreement with this study as both postulates a negative relationship between debt and financial performance of companies.

Kouladoum (2014) studied the impact of real exchange rates and external borrowing in Chad. The study found out that real exchange rates has positive effects on the external borrowing thus positively affects the financial success of companies. This is contrary to the findings in this study that exchange rates had a negative significant effect on the financial performance of companies listed on NSE.

Ayako, Githui, and Kungu (2015) studied the factors that affect the financial success of companies listed on NSE. They conclude that neither the size of the firm nor liquidity affected the financial performance of companies listed on NSE. This contradicts the results of this study that found out that exchange rate and inflation rates have a negative and significant effect on the financial health of the companies listed on NSE.

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Summary

This study focused on establishing the relationship between public debt and the financial performance of companies listed on NSE. This study was prompted by the rise in public debt

over the years and the shifts in public debt variables as a result of economic and socio political factors, changes in economic policies, and shifts in government among others.

The following objectives were adopted for this study; to determine how public debt affects the financial health of the companies listed on NSE and to ascertain how factors influencing public debt and the financial success of companies listed on NSE relate. The study was shadowed by the following theories; Keynesian theory of debt, debt overhang theories, Ricardian equivalence, and the crowding out effect neo classist theory.

This study adopted a descriptive research design. Secondary half year time series data of period 2007 to 2021 was collected from CBK and KNBS. However, for some variables only annual data was available, therefore, to obtain half year data, the annual data was extrapolated in excel. This was an important step in ensuring strong estimations as well as to avoid feigned results.

Several tests were experimented to obtain realistic and strong results. The study used descriptive statistics to visualize data and present the data in a more simplistic way that enabled meaningful understanding and interpretation of the data. Secondly, stationarity test was conducted to determine whether the data had a unit root or not. Augmented Dicky Fuller test was carried out at both level and first difference for both intercept and trend and intercept. From the results obtained, it was evident that the time series data in this case was stationary. Thirdly, co-integration test was conducted to demonstrate the long-term relationship between the independent and dependent variables. Johansen co-integration results indicated that there was co-integration among the variables.

Fourthly, normality test was carried out to establish if the time series data in this study was normally distributed or not. Jarque-Bera test was used to exhibit if the skewness and kurtosis of the data equated a normal distribution. Fifthly, heteroscedasticity test was experimented using Breusch-Pagan-Godfrey test and the results showed that there was no homoscedasticity. To prove that there exists an association among variables or not, correlation matrix was conducted. Multicollinearity occurs when the results are greater than 0.8, thus from the results it was established that there was no multicollinearity between the variables.

Lastly, regression analysis is carried out and the results indicate that the dependent variable is explained by the independent variable with R = 0.457026.

Conclusion

From the results and analysis, the outcome shows that public debt has a mild negative effect on the financial performance of companies listed on the Nairobi Securities Exchange. If extrapolated to the entire economy generally, public debt would have negative results on the

performance of the economy. Generally, an economy cannot do without public debt since CBK would be making monetary intervention to reign on inflation and raise revenue for investment in government projects like infrastructural developments, responding to emergencies like natural calamities, among others Dagar (2014). Significantly, high debt to GDP ratio would result in a strain in the performance of profit-making entities and generally the economy Makau (2008).

Policy Implementations and Recommendations

The study research recommend that the government should reduce the dependency on loans. This can be achieved by raising money through bond issuance. Therefore, when the government gets to a financial malaise, they can buy back the bonds. Bond issuance also facilitates public spending thus stimulates the economy by theoretically raising taxes from taxpayers and business people.

Secondly, the government should seek for alternative revenue raising models. Third recommendation is that policy makers should encourage the government to reduce cost of operations like funding bankrupt corporations, and corruption. Debt is inevitable, but the government can consider public borrowing that is sustainable.

Lastly, the policy makers can develop and apply artificial intelligence tools for data collection. This will enhance faster analysis and reduce the period of research.

Areas for further research

The study recommends further research on the impact of public debt on the financial performance of companies listed on NSE while isolating foreign components from local currency debt. Secondly, the study recommends further research on the effect of public debt on the financial wellbeing of companies factoring in other variables different from what the study used.

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