RELATIONSHIP BETWEEN MACRO-ECONOMIC FACTORS AND GROWTH OF EXTERNAL PUBLIC DEBT IN KENYA

CHRISANTUS KIPLANGAT

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DECLARATION

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

Signature ……. Date 20/11/2023……

Chrisantus Kiplangat

D61/85975/2016

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

Signature……. Date……..…

Dr. Ronald Chogii

Lecturer, Department of Finance and Accounting

University of Nairobi

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DEDICATION

I dedicate this study to the Divine for guiding me throughout this research endeavor, and furthermore, to my family and friends for their unwavering support throughout the study duration. I wish them abundant blessings and success in all their pursuits.

ABBREVIATIONS AND ACRONYMS

ANOVA:	Analysis of Variance
CBK:	Central Bank of Kenya
EAC:	East African Community
ECM:	Error Correction Method
FDI:	Foreign Direct Investments
GDP:	Gross Domestic Product
IMF:	International Monetary Fund
KNBS:	Kenya National Bureau of Statistics
KSh:	Kenyan Shilling
OLS:	Ordinary Least Squares
SPSS:	Statistical Package for the Social Sciences
USA:	United States of America
USD:	United States Dollar

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ABSTRACT

Excessive growth of external debt can constrain a government's ability to implement fiscal policies that promote economic growth and development. Governments may be forced to adopt austerity measures, reduce public spending, or increase taxes to meet debt obligations, which can stifle economic activity. High levels of growth of external debt can crowd out private sector borrowing. Increased growth of external public debt may lead debt servicing burden, may not contribute to economic growth, currency depreciation and increased inflation. The objective of the research was to determine the relationship between macro-economic factors and growth of external public debt in Kenya. The technique of descriptive research was applied for the research. The researcher made use of secondary data that that was available from CBK bank supervision report and which covered a 15-year duration from 2008 and June 2022. SPSS version 22 helped in data analyses and the outcomes were given in form of tables, regressions, correlations, ANOVA and T-test. It was concluded that inflation rate had a negative effect on growth of external public debt. Interest rate had a negative effect on growth of external public debt. Exchange rate had a positive effect on growth of external public debt. GDP growth rate had a positive effect on growth of external public debt while trade deficit had a positive effect on growth of external public debt. Exchange rate, GDP growth and trade deficit had a p values less than 0.05 and indication that the three variables had a significant effect on external debt. Inflation rate and interest rate had p values higher than 0.05 and hence the study didn't reject their specific null hypothesis of an insignificant effect on growth of external debt. It is recommended that the government should practice prudent fiscal management to ensure that government spending and deficits are kept in check. The government should consider issuing long-term bonds with fixed interest rates when market rates are low to reduce its external debt burden. The government should explore opportunities to renegotiate debt terms with creditors such as lower interest rates and extended maturities to reduce its debt level. The government should try to control its external public debt and only invest in the capital-based projects from the debt so that this may have impact positively on the economic growth and also the development of the country. The government should adopt policies geared towards export promotion to boost exports of goods and services.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Having sustainable economic development for any nation is important. For most of the developing economies, government expenditure is often financed through loans or debt. These nations borrow in a bid to reduce the gap existing between savings and investment in development projects (Ndoricimpa, 2020). A government may borrow from either the domestic market or the external market and this may have an impact on economic growth of the nation. If the government borrows funds from the external market, the economy's exchange rate suffers since it will be expected to pay the loan in terms of both the principle and the interest (Saheed, 2019). The existing association between the economy's growth and the public debt can be said to be the observation that very minimal economic growth in any country mostly results to a rise in the external public debt. If external public debt cannot be sustained then it is a risk towards the economy's growth since it has to be serviced and this servicing shows a high deficit in the account and can result to the debt overhang in a nation (Ajayi & Edewusi, 2020).

This study was anchored on Debt Overhang theory, Keynesian theory and Crowding Out theory. The Debt Overhang Theory proponent was Krugman (1988) who noted that there is a probability that future indebtedness will outgrow the nations' redemption capability. Increased payments of external interest may raise the deficits in the budgets of a nation, thus decreasing the public savings in case the private savings fail to rise to counterbalance the variance (Clements, 2019). John Maynard Keynes came up with the Keynesian theory in the 1930s. According to this theory, when a large group of people or firms take up some micro-economic level actions, the effect can lead to inefficient total macroeconomic results (Blaug, 1990). The proponent of the Crowding Out theory was

John Maynard Keynes who indicated that when the government increases its borrowing to fund its spending, it competes with private borrowers such as businesses and households for available funds in the credit market (Frey & Jegen, 2001).

1.1.1 Macro-Economic Factors

Mokhova and Zinecker (2014) defined macroeconomic factors as broad economic variables and indicators that influence the overall health, stability and performance of an entire economy rather than individual sectors or companies. Celebi and Honig (2019) put forth the viewpoint that the macroeconomic environment encompasses the entirety of components and dynamics within an economy, encompassing factors like output, income, and interrelationships among diverse economic sectors. These macroeconomic determinants pertain to aspects that hold relevance on a broader economic level, extending across regions or nations and influencing a substantial populace, rather than being confined to a select few individuals. Indicators of macroeconomic factors, such as economic output, unemployment, inflation, savings and investment, stand as pivotal markers that gauge the performance of an economy (Mohamed, 2020). Governments, businesses, and individuals make decisions based on their understanding of these factors, and policymakers use various tools to manage their impact and ensure stable economic growth (Celebi & Honig, 2019).

Doan Van (2020) defines inflation as a continual and lasting rise in the costs of goods and services over an extended period. This leads to a situation where an increased amount of money is competing for a limited supply of goods, resulting in a general escalation of prices. This, in turn, brings about a notable decline in available disposable income, impacting especially those with lower earnings. Interest rate, as outlined by Adaramola & Dada (2020), can be characterized as the expense expressed as a percentage of the principal amount borrowed, imposed by the lender upon the borrower for lending funds. For the

government when it borrows, interest stands as an expenditure, whereas for the lender, it serves as a source of revenue. Interest rates are typically assessed per month or per year and their magnitudes are influenced by, and directly correlate with, the risk associated with the borrower. Consequently, the sum borrowed should be directed toward activities or purposes that yield returns surpassing the lending rate, in order to yield economic viability (Doan Van, 2020).

According to Kalemli-Ozcan, Liu, and Shim (2021), the exchange rate is characterized as the quantity of local or domestic currency required for the acquisition of a single unit of foreign currency. The determination of the interest rate hinges on various factors, including the interplay between the demand and supply of foreign currency, the balance of the current account, trade balance, and the balance of the capital account. The exchange rate occupies a pivotal role within the framework of an open economy, which constitutes a vital component of the monetary transmission mechanism (Saheed, 2019). Gross Domestic Product (GDP) pertains to the assessed market value of all officially recognized final goods and services that are produced within a country over a specific timeframe (Bala, 2013). Celebi and Honig (2019) assert that GDP stands as the most widely employed macroeconomic gauge for quantifying the overall economic activity occurring within an economy. The growth rate of GDP serves as an indicator of the prevailing stage within the economic cycle. GDP is gauged through either the income approach or the expenditure approach. It holds the status of the broadest measure reflecting economic growth and output.

1.1.2 Growth of External Public Debt

External public debt refers to the total amount of money that a government or public institutions of a country owe to foreign creditors (Panizza, 2008). The growth of external

public debt refers to the increase in the amount of money that a country owes to foreign creditors, typically in the form of loans or bonds issued by the government (Clements, 2019). This debt arises when a government borrows funds from international sources, including foreign governments, international organizations such as the International Monetary Fund (IMF) or the World Bank and private financial institutions in other countries (Ndoricimpa, 2020). External public debt is an important indicator of a country's financial obligations to foreign entities and its ability to manage those obligations (Alshyab & Sandri, 2022). Several factors contribute to the growth of external public debt which include budget deficits, economic challenges, interest payments, currency depreciation, investor confidence, lack of domestic funding sources, terms of borrowing and natural disasters or external shocks (Aimola & Odhiambo, 2021).

Over many years, external public debt has continued to increase in Kenya. With regard to the Central Bank of Kenya government finance statistics, by the end of December 2019, external public debt had risen to KSh. 3.107 trillion from KSh. 2.724 trillion on 31st December 2018. The external public debt was at KSh. 3.793 trillion on 31st December 2020 and increased to KSh. 4.174 billion in 31st December 2021. The external public debt was at KSh. 4.673 trillion on 31st December 2022 (CBK, 2022). The macro-economic factors that may affect public debt such as GDP growth rate decrease from a growth rate of 7.60% in year 2021 to 4.80% in year 2022 (CBK, 2022). The inflation rate was at 5.73% as at 31st December 2021 and increased to 9.06% in 31st December 2022. The volatility of Ksh to USD has been increasing as the exchange rate in terms of USD to Ksh was at 112.91 on 31st December 2021 and increased to 122.93 on 31st December 2022. The bank lending rates as at 31st December 2021 was 12.16% and increased to 12.67% on 31st December 2022 (CBK, 2022).

Governments must carefully manage their external public debt growth to ensure that debt servicing obligations do not become overwhelming and hinder the country's economic growth and development. External public debt can come with varying terms and conditions, including interest rates, repayment schedules, and grace periods before payments begin. The level of external public debt affects a government's fiscal policy decisions (Yusuf & Mohd, 2021). High debt levels might limit the government's ability to allocate resources to other priority areas, and debt servicing costs could crowd out spending on essential services. Governments need to carefully assess the risks associated with external borrowing, including currency exchange rate risks and interest rate fluctuations. Unfavorable shifts in these factors can increase the cost of repaying debt. Governments need to maintain external public debt at sustainable levels to prevent debt crises or defaults (Dey & Tareque, 2020).

Excessive or unsustainable growth of external public debt can pose significant risks to a country's economy. High levels of growth of external debt relative to a country's economic output (GDP) can lead to debt distress, where debt servicing becomes challenging and diverts resources from essential public services. This situation can result in a debt trap, where a country struggles to make repayments, and its economic prospects are compromised (Awan & Qasim, 2020). Effective management of growth of external public debt involves careful borrowing decisions, assessing the sustainability of debt levels and ensuring that borrowed funds are used for purposes that contribute to economic growth. Balancing the benefits of external borrowing with the risks it poses is essential for maintaining a stable and prosperous economy (Mbalu & Matanda, (2021).

1.1.3 Macro-Economic Factors and Growth of External Public Debt

The interaction between macro-economic factors and growth of external public debt can have significant implications for a country's economic health and stability. Macroeconomic factors, such as GDP growth, inflation, unemployment, interest rates and exchange rates play a crucial role in determining the overall health of an economy (Demirel, Erdem & Eroglu, 2017). Fiscal policy decisions, including government spending and taxation, directly affect the level of public debt. Expansionary fiscal policies such as higher spending and lower taxes can lead to budget deficits, requiring governments to borrow and increase their external debt (Dey & Tareque, 2020). Structural reforms that enhance productivity, efficiency, and revenue generation can have positive effects on reducing deficits and stabilizing or reducing external debt levels. Political considerations influence fiscal policies and debt accumulation. Short-term political goals may lead to increased spending and deficits contributing to increased debt growth (Omodero, 2019).

Empirical studies have shown linkages between macro-economic factors and external public debt growth. Dey and Tareque (2020) examined the effect of GDP growth rate and established that high GDP growth signifies a healthy economy with increased production and income. A strong economy can provide the resources needed to manage external debt obligations. This is because strong GDP growth often leads to increased tax revenue for the government. Higher government revenue can provide more resources to allocate toward debt servicing, making it easier to meet external debt obligations. Aimola and Odhiambo (2021) investigated the effect of inflation on growth of external public debt and noted that inflation erodes the purchasing power of a currency, which can effectively reduce the real value of growth of external debt. If a country owes a fixed amount of debt denominated in a foreign currency, high inflation in the domestic currency can make it easier to repay the debt in real terms as the debt becomes relatively smaller when adjusted for inflation. If the

debt has fixed interest rates, higher inflation reduces the real burden of both principal and interest payments.

Gamber and Seliski (2019) on effect of interest rate on growth of external public debt indicated that interest rates can influence borrowing costs, debt servicing obligations, and a nation's overall fiscal health. High inflation can lead to higher interest rates, affecting both government and private sector borrowing costs. If interest rates rise due to inflation, the cost of servicing external debt could increase and thus increasing the growth of external debt potentially straining government finances (Ali & Mustafa, 2018). Yusuf and Mohd (2021) on effect of foreign exchange on growth of external public debt revealed that external debt denominated in foreign currency exposes a country to exchange rate risk. If the domestic currency weakens against the foreign currency, it becomes more expensive to repay debt, potentially leading to higher debt servicing costs thus increasing growth of external debt. Mbalu and Matanda (2021) indicated that countries with significant external debt denominated in foreign currency need to maintain an adequate level of foreign exchange reserves. These reserves are used to ensure that the country has sufficient currency to service its debt obligations even if its own currency depreciates.

1.2 Research Problem

Excessive growth of external debt can constrain a government's ability to implement fiscal policies that promote economic growth and development. Governments may be forced to adopt austerity measures, reduce public spending, or increase taxes to meet debt obligations, which can stifle economic activity (Gamber & Seliski, 2019). High levels of growth of external debt can crowd out private sector borrowing. Increased growth of external public debt may lead debt servicing burden, may not contribute to economic growth, currency depreciation and increased inflation (Bahr, Shan & Lam, 2020).

Excessive growth of external debt has become a main concern for a number of nations particularly Africa's developing countries for instance Kenya (Kipyego, Njoka & Muniu, 2022). Kenya has continued to experience increased growth of external debt for many years (Kipyego, Njoka & Muniu, 2022). High levels of growth of external public debt can lead to significant debt servicing costs. A large portion of the government's budget may need to be allocated to paying interest and principal on the debt, leaving fewer resources for essential public services, social programs, and investments (Murungi & Okiro, 2018).

Over many years, external public debt has continued to increase in Kenya which has been a cause of concern for many stakeholders in the country. With regard to the Central Bank of Kenya government finance statistics, by the end of December 2019, external public debt had risen to KSh. 3.107 trillion from KSh. 2.724 trillion on 31st December 2018. The external public debt was at KSh. 3.793 trillion on 31st December 2020 and increased to KSh. 4.174 billion in 31st December 2021. The external public debt was at KSh. 4.673 trillion on 31st December 2022 (CBK, 2022). The macro-economic factors that may affect public debt such as GDP growth rate decrease from a growth rate of 7.60% in year 2021 to 4.80% in year 2022 (CBK, 2022). The inflation rate was at 5.73% as at 31st December 2021 and increased to 9.06% in 31st December 2022. The volatility of Ksh to USD has been increasing as the exchange rate in terms of USD to Ksh was at 112.91 on 31st December 2021 and increased to 122.93 on 31st December 2022. The bank lending rates as at 31st December 2021 was 12.16% and increased to 12.67% on 31st December 2022 (CBK, 2022).

Bahr, Shan and Lam (2020) studied the macroeconomic effects of public debt in Canada and established that public external debt impact on economic growth is positive only for shorter run. However, a methodological gap exists as the study used annual data while the present study uses quarterly data. A contextual gap exists as the study was done in Canada

while the present study is in Kenya while a conceptual gap and empirical gap exists as the study focus was not on macro-economic factors and growth of external public debt. Murungi and Okiro, (2018) studied the impact of government debt on economic growth in Kenya and established that there was both positive and negative impact of government debt on economic growth. However, a methodological gap exists as the study used annual data while the present study uses quarterly data. A conceptual gap and empirical gap exists as the study focused on government debt on economic growth and not on macro-economic factors and growth of external public debt. This study aimed to address this gap by determining the relationship between macro-economic factors and growth of external public debt in Kenya.

1.3 Research Objective

The objective of the research was to determine the relationship between macro-economic factors and growth of external public debt in Kenya.

1.4 Value of the Study

The research contributed to the advancement of Debt Overhang theory which asserts that the stock and service of public debt does impact on growth through discouragement of the private investments or interfering with the public expenditure composition. The study contributed to Keynesian theory which indicates that public debt can serve as a tool for governments to manage economic fluctuations and stimulate demand during downturns. Keynesian theory advocates for active government involvement in the economy to achieve stable and balanced growth. The study contributed to Crowding Out theory which indicates that crowding out leads to a decreased in consumption of the individual due to a rise in the spending of the state. The rise in state spending financed by taxation decreases individual consumption.

The research findings will be useful to the stakeholders and investors both institutional and individuals since they are going to obtain information on if the nation is at a place capable of paying the external public debt and thus, they are going to come up with decisions well informed during the time of lending to that government. This research gives important information regarding the way lenders can make prudent decision when lending to the government.

The research will be relevant to policy makers in the Government of Kenya as it is interested in stimulating the growth of the economy. The research findings will thus aid Kenya's government in drawing policies regarding management of the levels of external public debt in the country and at the same time ensuring that the external public debt impacts directly on economy's growth through utilization of the borrowed funds prudently. The study will thus act as a catalyst in policy formulation as far as levels of external public debt are concerned.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter seeks to determine the relationship between macro-economic factors and growth of external public debt in Kenya. The chapter included an empirical review of research, conceptual framework and a summary of the literature study.

2.2 Theoretical Review

The theoretical review focused on major theories that included Debt Overhang theory, Keynesian theory and the Crowding Out theory.

2.2.1 Debt Overhang Theory

The theory was established by Krugman (1988) who noted that there is a probability that future indebtedness will outgrow the nations' redemption capability. The expected cost of debt servicing is going to discourage more internal and external investments since the earnings from profitable plans of investment are going to be miserable in boosting economic development of a country. Increased payments of external interest may raise the deficits in the budgets of a nation, thus decreasing the public savings in case the private savings fail to rise to counterbalance the variance. As a result, this might raise the rates of interest or end up crowding out the available credit for purposes of private investment, disappointing the economy's growth. Servicing of a debt might dishearten the growth through squeezing the available public resources in labor and infrastructure (Clements, 2019).

This theory asserts that the stock and service of public debt does impact on growth through discouragement of the private investments or interfering with the public expenditure composition. Critics argue that the Debt Overhang theory oversimplifies the relationship

between debt and economic growth ignoring other complex economic factors that contribute to growth or stagnation (Diamond & He, 2014). The theory was relevant in this study in establishing the effect of macro-economic factors on public external debt since high debt levels might hinder economic development and growth of a country.

2.2.2 Keynesian Theory

In the 1930s, John Maynard Keynes formulated the Keynesian theory. According to this theory, when numerous individuals or businesses engage in microeconomic actions, the outcomes on a macroeconomic scale can result in inefficiencies (Blaug, 1990). The theory also highlights that the total demand for goods and services in an economy might not consistently match its productive capacity. Various factors can influence aggregate demand, which, at times, follows an erratic pattern, impacting aspects such as inflation, employment, and production. In the shorter term, aggregate demand exerts an influence on the level of production output (Dutt & Skott, 2006). The theory explains that policies put in place often focus on the needs to be met in the short term and ways to make quick correction in instances where the economy is going wrong. Further the theory advises against increased government spending as this can increase government debt (Mankiw, 2018).

Critics are concerned about the potential for fiscal deficits and increasing public debt resulting from Keynesian policies. If not managed properly, these deficits could lead to negative consequences such as higher interest rates, crowding out private investment, and reduced fiscal flexibility. Keynesian policies might lead to the crowding out of private investment due to increased government borrowing. Critics argue that this can reduce the efficiency of capital allocation and hinder long-term growth (Vaona, 2012). The theory was relevant to this study as Keynesian economics supports the idea that public investment

can drive economic growth. Governments then can use debt to finance capital projects that generate long-term economic benefits and revenue.

2.2.3 Crowding Out Theory

The proponent of the Crowding Out theory, John Maynard Keynes, elucidated that when the government amplifies its borrowing to support its expenditures, it vies with private borrowers such as households and businesses for the available funds within the credit market (Frey & Jegen, 2001). Crowding out is the displacement of a single financial endeavor by a nationwide financial operation (Buiter, 2018). This phenomenon results in a decline in individual consumption due to an elevation in state expenditure. The escalation in state spending, funded through taxation, diminishes individual consumption. If the state refrains from increasing taxes, it resorts to borrowing, leading to heightened interest rates and a reduction in personal investments. The contention is that escalated government borrowing from the financial sector has a notable impact on individual borrowing, leading to the crowding out of individual borrowing activities (Frey, 2012).

Critics of the theory point out that the theory relies heavily on the assumption that increases in government borrowing will directly lead to higher interest rates. However, the relationship between government borrowing and interest rates is not always straightforward, as central banks and financial markets also play a role (Demirel, Erdem & Eroglu, 2017). The theory was relevant to this study since consideration of Crowding Out theory can encourage coordination between fiscal and monetary policies. Debt managers and central banks might work together to manage interest rates and prevent potential crowding out effects on private investment.

2.3 Determinants of Growth of External Debt

This section of the literature looks into the factors that determine growth of external debt. Inflation, interest rates, exchange rates, gross domestic product, foreign direct investments and budget deficit are the key aspects found in this study.

2.3.1 Inflation

Inflation can have significant implications for the growth of external debt in a country. Inflation can impact the real value of a country's debt. If a country experiences high inflation, the value of its currency decreases, which effectively reduces the real value of its external debt when measured in domestic currency terms. This can make it relatively cheaper for the country to repay its external debt (Aimola & Odhiambo, 2021). High inflation can lead to higher interest rates in an economy. If a country seeks to borrow externally during periods of high inflation, it might face higher borrowing costs due to increased risk perceptions by lenders. This can result in more expensive external borrowing. High inflation can erode investor confidence in a country's economic stability. Investors might demand higher yields to compensate for inflation risk, making it costlier for the country to borrow externally (Onafowora & Owoye, 2019).

2.3.2 Interest Rates

Interest rates play a crucial role in determining the growth of external debt in a country. Rising interest rates can expose a country to refinancing risk, particularly if it has a significant amount of short-term external debt. When existing debt matures and needs to be refinanced at higher interest rates, the cost of debt servicing can increase substantially. Countries with higher interest rates might face more challenging conditions when accessing international capital markets (Blanchard, 2019). Lenders might be less willing to lend at

higher rates, making it more difficult for the country to borrow externally. Higher interest rates can attract foreign capital seeking higher returns. This influx of capital can lead to currency appreciation, affecting the cost of repaying external debt denominated in foreign currency. The level of interest rates can impact investor confidence in a country's economic stability and creditworthiness. Higher interest rates might signal economic uncertainty and impact investor perceptions, potentially affecting the country's ability to borrow externally at favorable terms (Eisenshmidt & Smets, 2019).

2.3.3 Exchange Rates

Fluctuations in exchange rates can have profound implications for a country's debt burden, borrowing costs, and overall debt management strategies. Exchange rate movements can impact the cost of servicing external debt. If the domestic currency depreciates, it becomes more expensive for the government to repay debt denominated in foreign currency, as more domestic currency is required to make the same foreign currency payment. Exchange rate movements can influence a country's interest rates (Itskhoki & Mukhin, 2022). A sharp depreciation of the domestic currency might prompt the central bank to raise interest rates to stabilize the currency. This can lead to higher borrowing costs for the government. Exchange rate movements can impact the fiscal position of the government. A depreciating currency can lead to higher costs for servicing external debt, potentially straining the government budget and affecting other public expenditures (Koijen & Yogo, 2020).

2.3.4 Gross Domestic Product

A higher GDP can generate increased government revenue through taxes, which can contribute to debt servicing capacity. Strong economic growth can provide the government with more resources to allocate toward debt repayment. Countries with higher GDPs might be perceived as having a larger economic base and stronger repayment capacity. This can

enhance their ability to borrow externally at favorable terms, including lower interest rates (Clements, 2019). A larger GDP can provide more resources for public investment and development projects. If a country uses external debt to finance productive investments that contribute to GDP growth, it can have positive effects on debt sustainability. A higher GDP can provide governments with more fiscal space to manage debt-related challenges. During economic downturns, a larger GDP might allow governments to implement countercyclical policies without risking debt unsustainability (Mohamed, 2020).

2.3.5 Trade Deficit

A trade deficit occurs when a country's imports of goods and services exceed its exports of goods and services over a specific period, typically a month or a year (Dey & Tareque, 2020). A trade deficit signifies that a country is purchasing more from other nations than it is selling to them. It is an important component of a country's balance of payments, which records all financial transactions between a country and the rest of the world (Omodero, 2019). A trade deficit can be attributed to various factors, including high consumer demand for imported products, a country's specialization in certain industries that lead to increased exports and economic policies affecting trade. A trade deficit can have economic consequences. For example, it can deplete a country's foreign exchange reserves, influence the value of the national currency, and potentially result in job displacement in domestic industries facing competition from imports (Yusuf & Mohd, 2021). Government policies, such as tariffs, import quotas, and exchange rate management, can affect a country's trade balance. These policies can be used to address trade imbalances, but they also have economic implications of their own (Celebi & Honig, 2019).

2.3.6 Foreign Direct Investments

Foreign direct investments (FDI) represents an inflow of foreign capital into the country, which can help finance domestic economic activities and development projects. FDI can contribute to economic growth and reduce the need for external borrowing to fund domestic investments. FDI often supports productive investments that can stimulate economic growth. This growth can lead to higher government revenue through taxes and other sources, reducing the need for borrowing to finance public expenditures (Ndikumana & Sarr, 2019). FDI can contribute to increased foreign exchange earnings through exports and repatriation of profits by foreign investors. These foreign exchange inflows can support the country's ability to service external debt. FDI can attract additional investments from other sources, creating a "crowding in" effect that stimulates overall investment and economic activity. This effect can lead to increased government revenue and decreased borrowing needs (Yusuf & Mohd, 2021).

2.4 Empirical Review

Canbek (2018) concentrated on the interaction between economic growth and public debt. For the purpose of this empirical study, a sample comprising 128 countries was utilized, encompassing 26 advanced economies, 40 emerging economies, and 62 developing economies. The study spanned the period from 1960 to 2011. There was estimation of the bivariate equations for growth and debt and the equations of conventional growth increased with the variables of the threshold of debt. The outcomes indicated, the negative implication of public debt over growth looked quite severe on markets that are emerging as compared to the developing and advance nations. Economies that are emerging incurred most from that debt whereas the economies that are advanced did not suffer most. However, a gap exists as this study was in a global context and used panel data since it was conducted in 128 countries while the present study seeks to use time series data as it seeks to establish

the relationship between macro-economic factors and growth of external public debt in Kenya.

Nafula (2018) conducted research on the influence of public debt on Kenya's economic growth through a descriptive approach. The study gathered secondary data from reports issued by the Central Bank of Kenya (CBK) and the Kenya National Bureau of Statistics (KNBS). The data were analyzed using SPSS and STATA software, involving diagnostic tests and inferential statistical methods like regressions, correlations and ANOVA. The study concluded that a positive but weak and insignificant relationship existed between GDP growth rate and public debt. It also identified a robust negative correlation between GDP growth rate and inflation rate, along with a substantial negative correlation between interest rate and GDP growth. While Nafula's research centered on the impact of public debt on Kenya's economic growth, the present study aims to explore the connection between macroeconomic factors and the expansion of external public debt in Kenya.

Murungi and Okiro (2018) focused on how government debt impacted on Kenya’s economic growth: a serious literature review was conducted where extensive review of appropriate empirical and theoretical literature was conducted. They noted, governments go for borrowing for purposes of covering the deficits in their budgets. The money borrowed is probably gotten from external sources and the local market. Government debt by Greece evidenced as bad for their economy whereas USA’s government debt that was the highest across the globe. The above study used a literature review approach where an empirical and theoretical literature was conducted while the existing study uses secondary data where inferential statistics will be used to the relationship between macro-economic factors and growth of external public debt in Kenya.

Muinga (2019) assessed Kenya's economic growth in relation to its external public debt. The study utilized data spanning the period from 1970 to 2010, sourced from World

Development indicators and the Kenya National Bureau of Statistics (KNBS). Economic growth was approximated using the GDP. Given that this data constituted a time series, the augmented Dickey Fuller Unit Root test was employed to ascertain stationarity. The data analysis was conducted using Ordinary Least Squares (OLS) methodology. The findings revealed that both interest rates and external debt exerted a negative influence on Kenya's economic growth. The simulation outcomes demonstrated that a percentage increase in external debt, while keeping other factors constant, would result in a reduction of GDP, thus impeding economic growth. The study emphasized the need for a review and enhancement of debt management policies in Kenya. While the aforementioned research was localized and focused solely on the relationship between economic growth and external public debt, the present study aims to investigate the correlation between macroeconomic factors and the expansion of external public debt in the context of Kenya.

Ntshakala (2020) evaluated how public debt impacted on Switzerland's economic growth counting variables like; government expenditure and inflation to the approach for purposes of avoiding results spuriousness. Advanced econometric approaches were applied in analyzing data in form of time series from the year 1988 to the year 2013. In determining the extent and nature of every relationship Ordinary Least Square (OLS) was applied because all the variables were stationary and were found to have a normal distribution. The research discovered that no substantial relationship existed between the economy's growth of Switzerland and the public debt within the research duration. Conversely, domestic debt happened to be having a positive association with the growth of the economy at a 5 per cent significance level. A gap exists as this study was in a global context and focused on relationship between public debt and economic growth while the present study seeks to establish the relationship between macro-economic factors and growth of external public debt in Kenya.

In Ghana, Owusu-Nantwi and Erickson (2020) assessed the reaction of economic growth following the change on public debt in the country. The study concentrated on the long term and causal relationship amongst the 2 variables. The variables in this study comprised of aggregate output for measuring GDP, private capital, public capital, labor, public debt, employment, inflation, population growth, Government consumption, openness and investment spending. The findings showed that real GDP growth rate related positively and significantly with public debt levels. That was described to meaning that public debt positively contributed to economic growth of Ghana within the duration of the research. However, this was in a regional context and focused on economic growth and public debt while the present study evaluates the relationship between macro-economic factors and growth of external public debt in Kenya

Abula and Mordecai (2020) research applied Error Correction Method (ECM), Johansen co-integration test, the Granger Causality test and Augmented Dickey-Fuller test when seeking the effect of public borrowing on Nigeria's economic development. According to the Johansen co-integration test findings, there happened to a long-term association amongst the study variables namely; domestic debt stock, external debt stock, economic development, external debt servicing, and domestic debt servicing. Domestic debt stock reveled a significant and direct association with the development of the economy. However, this was in a regional context and it only used diagnostics tests so as to establish the effect of public borrowing on Nigeria's economic development while the current study evaluates the relationship between macro-economic factors and growth of external public debt in Kenya.

Simidi (2021) examined the relationship among public debt, specific macroeconomic factors, governance and sustainable economic growth within the East African Community (EAC) Member Countries from 2000 to 2019. The research employed a panel longitudinal

research design, rooted in a positivistic philosophy, utilizing secondary panel data for the variables. The analysis and interpretations were carried out using Eviews and SPSS for data analysis. The study identified that inflation, gross capital formation, and government consumption expenditure play a role in explaining the link between external debt and sustainable economic growth. The governance indicators for EAC member countries were consistently found to be unfavorable over the years, impacting the effectiveness of public debt. A gap exists as the previous study was limited to EAC countries, focusing on total public debt, whereas the present study seeks to investigate the relationship between macroeconomic factors and the expansion of external public debt specifically within the context of Kenya.

Njenga (2022) investigated the impact of external debt on exchange rates in Kenya during the period from 2013 to 2021. The data was collected on a quarterly basis, spanning two decades from January 2002 to December 2021. The research adopted a descriptive research approach and employed a multivariate regression model to analyze the interplay between the variables under study. The findings of the study reveal a positive correlation between external debt, interest rates, and exchange rates in Kenya. The research indicates that higher levels of external debt and elevated interest rates contribute to escalation in exchange rates within the country. Additionally, the study concludes that inflation and trade openness do not exert a noteworthy influence on exchange rates in Kenya. However, there is a gap between this study and the present one, as the former concentrated on the influence of external debt on exchange rates, whereas the current study seeks to explore the relationship between macroeconomic factors and the expansion of external public debt specifically within the context of Kenya.

Ochieng (2022) examined the influence of external public debt on the performance of the stock market in Kenya, during the period spanning from 2015 to 2021. The research

adopted a descriptive correlational research design. Utilizing monthly secondary time series data, the study employed a combination of descriptive and inferential statistics for its analysis. The study's conclusion highlighted the pivotal role played by the Kenyan capital markets in fostering economic growth. From the study's findings, it was established that among the diverse categories of external debt, only multilateral and bilateral debt components had a noteworthy impact on the country's stock market performance. Consequently, it is imperative for significant stakeholders within the capital market, particularly the government, to initiate strategies and implement policies that would enhance the local capital markets as a source of long term financing. However, there is a distinction between this study and the present one, as the former explored the connection between external public debt and stock market performance, whereas the current study seeks to delve into the relationship between macroeconomic factors and the expansion of external public debt specifically within the context of Kenya.

2.5 Summary of Literature Review

Canbek (2018) indicated that the negative implication of public debt over economic growth looked quite severe on markets that are emerging as compared to the developing and advance nations. Nafula (2018) indicated there existed a relationship between GDP growth rate and public debt which was positive though the relationship was weak and insignificant. Muinga (2019) indicated that interests' rates and external debt had a negative contribution towards the growth of Kenya's economy. Ntshakala (2020) discovered that no substantial relationship existed between the economy's growth and the public debt. Owusu-Nantwi and Erickson (2020) findings showed that real GDP growth rate related positively and significantly with public debt levels. Abula and Mordecai (2020) indicated there happened to a long-term association amongst the study variables namely; domestic debt stock, external debt stock, economic development, external debt servicing, and domestic debt

servicing. Simidi (2021) found that the correlation between external debt and sustainable economic growth is elucidated by factors such as inflation, gross capital formation and government consumption expenditure. Njenga (2022) demonstrated a positive influence of external debt and interest rates on Kenya's exchange rates. Ochieng (2022) revealed that within the country, the noteworthy impact on stock market performance comes specifically from the multilateral and bilateral debt components.

2.6 Conceptual Framework

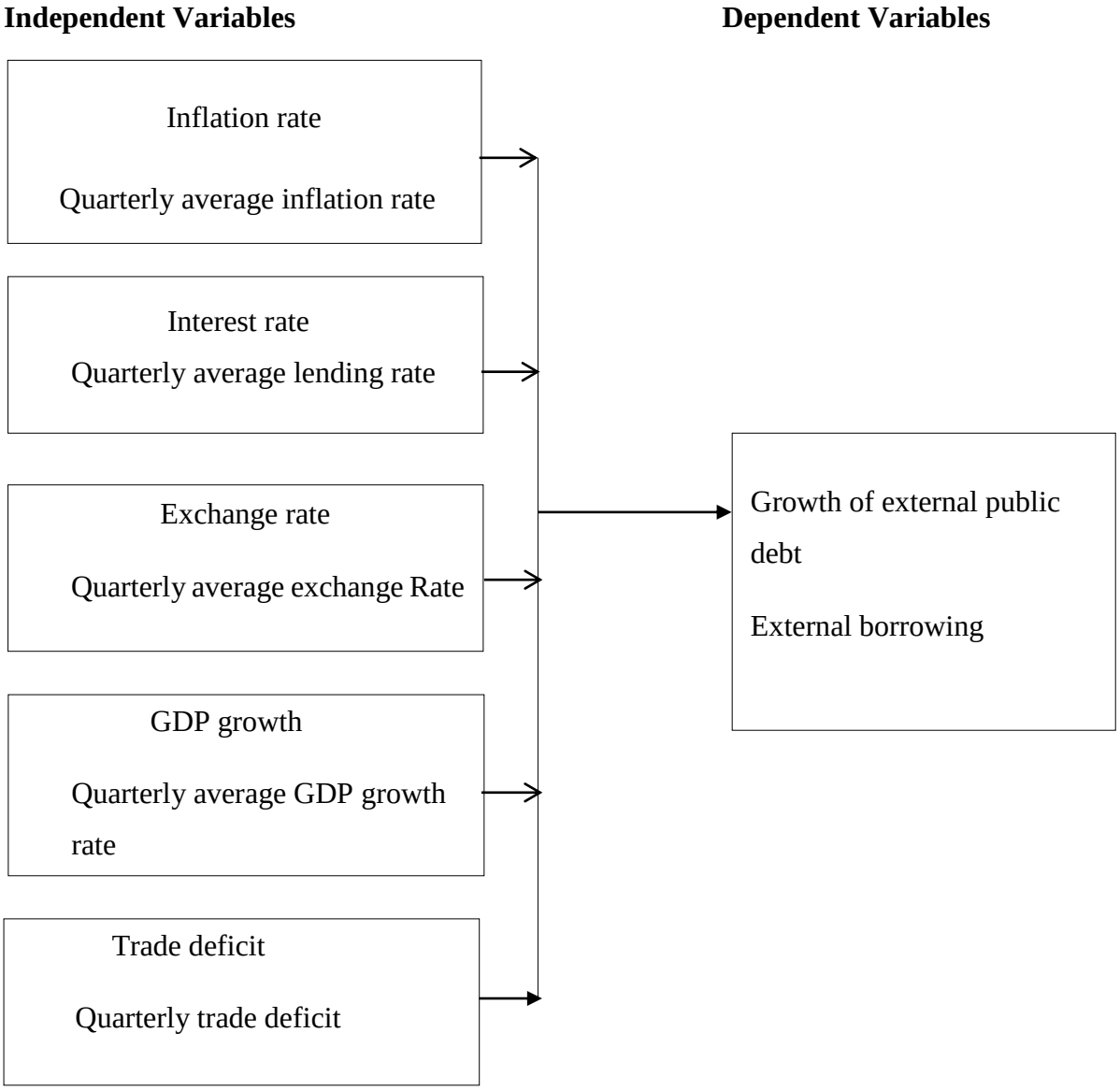

Figure 2.1: Conceptual Framework

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlined the methodological approach that was employed in this study and research design, data collection, data analysis and operationalization of variables.

3.2 Research Design

Kothari (2014) defines research design as a framework used to provide appropriate responses to research queries. This study utilized the descriptive research method because of its effectiveness in gathering comprehensive data from a substantial population efficiently and effectively using panel data (Saunders, Lewis & Thornhill, 2016).

3.3 Data Collection

The researcher acquired data through the utilization of a data collection sheet, gathering secondary data. The source of secondary data was drawn from statistical reports by the CBK that encompass various macroeconomic variables and public debt. The collected data was presented in the form of time series data. A time span of 15 years was covered, including quarterly data ranging from 2008 to 2022. This extended timeframe is chosen to encompass a sufficient number of data points, thereby accounting for the changes that have transpired within the country.

3.4 Data Analysis

The data analysis methods used in this study were geared towards uncovering insights into the research inquiries, particularly examining the relationship between macroeconomic factors and the growth of external public debt in Kenya. The collected data underwent

procedures such as editing, sorting and coding to maintain its quality and precision. Analysis of this data was carried out utilizing SPSS version 27 and STATA.

3.4.1 Diagnostic Tests

3.4.1.1 Test for Autocorrelation

Due to the use of time series data, it was considered crucial to investigate autocorrelation. The presence of autocorrelation would confirm the null hypothesis, while favoring the alternative hypothesis would suggest its absence. Supporting the null hypothesis implies a relationship or covariance among the error terms for the parameters. The assessment of autocorrelation involved the utilization of the Breusch Godfrey test (Gujarati, 2014).

3.4.1.2 Heteroscedasticity

Identifying heteroscedasticity doesn't affect the fairness or the linear connection of regression coefficients. Heteroscedasticity occurs when the variability of the error term differs across independent variables. To examine the presence of heteroscedasticity in the data, the study utilized the Breusch-Pagan test (Gujarati, 2014).

3.4.1.3 Multi-collinearity

Multicollinearity occurs when there's a linear correlation among independent variables, resulting in inflated standard errors (Gujarati, 2014). The researcher utilized VIF test to determine if there is significant and noteworthy evidence of multicollinearity.

3.4.1.4 Test for Normality

Prior to performing a regression analysis, it's expected that the research data follows a normal distribution. If the research data deviates from normality, it can lead to biased and inefficient estimates. The evaluation of data normality was conducted using the Shapiro-Wilk test.

3.4.2 Analytical Model

The regression model took the form of a multivariate model, as depicted by the equation provided;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

Where:

Y= Growth of External Public Debt

β0 - Y intercept

$\beta_1 - \beta_4$ = Measure of the sensitivity of variable X to changes in growth of external public debt

X_1 – Inflation rate

X_2 - Interest rate

X_3 – Exchange rate

X_4 – GDP growth

X_5 – Trade deficit

ε –Error term

3.4.3 Test of Significance

To test the hypothesis and establish whether there is enough evidence to suggest that the independent variables impact the dependent variables, an ANOVA was used with a confidence level of 95%. This method was chosen to overcome the constraints linked with the t-test and to uncover connections between the variables. Additionally, the t-test was employed to evaluate the individual significance of the predictor variables. The interpretation of p-values was conducted at a 5% significance level. A p-value below 0.05 indicates the significance of the variables.

3.5 Operationalization of Study Variables

The table below included operationalization of variables that include growth of external debt, inflation rate, interest rates, exchange rates, gross domestic product and trade deficit.

Table 3.1: Operationalization of Study Variables

Variable	Type	Operationalization
Growth of external debt	Dependent	Quarterly growth in external debt
Inflation rate	Independent	Quarterly average inflation rate
Interest rate	Independent	Quarterly average lending rate
Exchange rate	Independent	Quarterly average USD to Ksh exchange Rate
GDP growth	Independent	Quarterly average GDP growth rate
Trade deficit	Independent	Quarterly trade deficit

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND INTERPRETATION

4.1 Introduction

The outcomes and discoveries are thoroughly elucidated in this section, accompanied by their respective interpretations.

4.2 Descriptive Statistics

This study intended to explore the descriptive statistics of its variables, aiming particularly to determine and establish their mean values and standard deviations.

Table 4.2: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Dev	Skewness	Kurtosis
Growth of external public debt	60	-1.67	3.39	1.4482	0.98464	-0.312	0.431
Inflation rate	60	3.33	19.19	7.7028	4.06695	1.614	1.752
Interest rate	60	11.75	20.23	14.6998	2.32318	0.708	-0.358
Exchange rate	60	62.65	123.38	94.3283	13.66625	-0.126	-0.567
GDP growth rate	60	-5.62	11	5.4378	1.95201	-2.712	17.957
Trade deficit	60	-144,409	-27,128	-80.008	27.826	-0.09	-0.214

Descriptive results showed that growth of external public debt in the 15-year period recorded a mean average of 1.49% with the highest at 3.39% and the lowest at -1.67%. The average inflation rate was 7.7% with the highest at 19.19% and the lowest at 3.33%. The average interest rate was 14.7% with the highest at 20.23% and the lowest at 11.75%. The average exchange rate was Ksh 94.33 to USD with the highest at Ksh 123.38 to USD and the lowest at Ksh 62.65 to USD. The average GDP growth rate was 5.44% with the highest at 11% and the lowest at -5.62%. The average trade deficit was Ksh 80.009 billion with the highest at Ksh144.41 billion and the lowest at Ksh 27.128 billion.

4.3 Diagnostic Tests for Regression

The study conducted various diagnostic tests that included test for Autocorrelation, Heteroscedasticity, Multi-Collinearity and test for Normality. The tests were conducted to help ensure the validity, reliability and appropriateness of statistical analyses and the conclusions drawn from them.

4.3.1 Test for Autocorrelation

To evaluate autocorrelation, the Breusch Godfrey test was employed to help ensure that time series data and regression models are valid.

Table 4.3: Test for Autocorrelation

lags *(p)*	chi2	df	prob > chi2
1	6.092	1	0.237

The presence of serial correlation can distort conclusions drawn from various tests, including the Breusch-Godfrey test. In this instance, we cannot reject the null hypothesis, as the dataset's p-value (0.237) surpasses the significance threshold (0.05). These results suggest an absence of serial correlation among the variables, ensuring unbiased parameter estimates and accurate hypothesis tests.

4.3.2 Heteroscedasticity

Breusch-Pagan test was employed to test for Heteroscedasticity to for violations of the assumption of constant error variance. When heteroscedasticity is present, it can lead to biased parameter estimates and incorrect hypothesis tests affecting the validity of the model.

Table 4.4: Heteroscedasticity

Breusch Pagan / Cook Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of Y
chi2(1) = 1.09
Prob > chi2 = 0.2954

To assess for heteroscedasticity, the researchers utilized the Breusch Pagan test. If the chi-squared value surpasses a critical threshold or if the p-value falls below 0.05, it implies rejection of the null hypothesis, indicating the presence of heteroscedasticity. However, the findings indicated a chi-squared value of 1.09, indicating no heteroscedasticity. Moreover, the p-value of 0.2954 exceeded 0.05, confirming the retention of the null hypothesis of homoscedasticity, thereby demonstrating the absence of heteroscedasticity. This indicates that the parameter estimates were not biased and the hypothesis tests were correct.

4.3.3 Multi-Collinearity

The researcher employed the VIF test to test for Multi-Collinearity since multicollinearity can make it challenging to interpret the individual contributions of independent variables in a regression model.

Table 4.5: Multi-Collinearity

Variable	**VIF**	**1/VIF**
X5	4.97	0.201394
X3	4.57	0.218867
X4	1.27	0.786813
X1	1.18	0.849496
X2	1.08	0.929002
Mean VIF	**2.61**	

The research examined data for multicollinearity, a situation where variance inflates, using the variance inflation factor (VIF). Typically, multicollinearity becomes a concern if the

VIF score goes beyond 10 or exceeds the threshold of 0.2. However, in this instance, the overall VIF recorded as 2.61, falling below 10. This suggests the absence of multicollinearity in the research data. It indicates that the independent variables weren't highly correlated, allowing for the clear determination of their individual impacts on the dependent variable.

4.3.4 Test for Normality

The Shapiro-Wilk test was used to test for Normality to assess whether a given dataset follows a normal distribution. Violations of normality assumptions can lead to biased estimates and incorrect inferences.

Table 4.6: Test for Normality

Variable	Obs	W	V	z	Prob>z
Y	60	0.97873	1.156	0.312	0.37733
X1	60	0.78668	11.596	5.282	0
X2	60	0.91905	4.4	3.194	0.0007
X3	60	0.97134	1.558	0.955	0.16971
X4	60	0.71157	15.678	5.932	0
X5	60	0.97548	1.333	0.62	0.26776

To evaluate normality, the researcher used the Shapiro-Wilk test. This test hypothesizes that the population adheres to a normal distribution, and when the p-value falls below 0.05, it rejects this assumption, suggesting the data might be biased. The results showed differing p-values: external public debt growth (0.37733), exchange rate (0.16971), and trade deficit (0.26776) retained the null hypothesis, indicating substantial evidence of a normally distributed population, signifying unbiased data. Conversely, inflation rate (p-value: 0), interest rate (p-value: 0.0007) and GDP growth rate (p-value: 0) rejected the null hypothesis, suggesting these datasets deviate from a normal distribution, potentially leading to biased data.

4.4 Correlations Analysis

The research conducted a Pearson Correlation test to assess the degree of association among the variables.

Table 4.7: Correlations Analysis

		Growth of external public debt	Inflation rate	Interest rate	Exchange rate	GDP growth	Trade deficit
Growth of external public debt	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	60					
Inflation rate	Pearson Correlation	-0.194	1				
	Sig. (2-tailed)	0.146					
	N	60	60				
Interest rate	Pearson Correlation	-0.206	.281*	1			
	Sig. (2-tailed)	0.132	0.03				
	N	60	60	60			
Exchange rate	Pearson Correlation	0.418**	0.102	-0.214	1		
	Sig. (2-tailed)	0.002	0.436	0.1			
	N	60	60	60	60		
GDP growth	Pearson Correlation	0.515**	-0.042	0.036	-0.116	1	
	Sig. (2-tailed)	0.002	0.752	0.785	0.378		
	N	60	60	60	60	60	
Trade deficit	Pearson Correlation	0.408**	-.368**	-.256*	0.062	0.056	1
	Sig. (2-tailed)	0.003	0.004	0.048	0.639	0.672	
	N	60	60	60	60	60	60

After analyzing the data, a negative correlation coefficient emerged between the growth of external public debt and the inflation rate, signified by a correlation factor of -0.194. This relationship was considered statistically insignificant, indicated by a p-value of 0.146, exceeding 0.05. Similarly, a negative correlation coefficient was observed between the

growth of external public debt and the interest rate, demonstrated by a correlation factor of -0.206. Contrarily, this relationship was deemed statistically significant, with a p-value of 0.132, exceeding 0.05. Conversely, a positive correlation coefficient was found between the growth of external public debt and the exchange rate, presenting a correlation factor of 0.418. This relationship was considered statistically significant, evidenced by a p-value of 0.002, below 0.05.

Likewise, a positive correlation coefficient emerged between the growth of external public debt and the GDP growth rate, denoted by a correlation factor of 0.515. This relationship was deemed statistically significant, illustrated by a p-value of 0.002, below 0.05. Finally, a positive correlation coefficient was observed between the growth of external public debt and the trade deficit, with a correlation factor of 0.408. This relationship was deemed statistically insignificant, indicated by a p-value of 0.003, below 0.05.

4.5 Regression Analysis

Regression analysis was conducted so as to establish the relationship between the variables.

4.5.1 Model Summary

The model summary was used to assess the goodness of fit of a regression model so as to understand how well the model's independent variables explain the variation in the dependent variable.

Table 4.8: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.426a	.181	.164	.0100406

The R-squared value, known as the coefficient of determination, indicated that 18.1% of the fluctuations in the growth of external debt were accounted for by the macroeconomic

factors, encompassing inflation rate, interest rate, exchange rate, GDP growth .and trade deficit.

4.5.2 Analysis of Variance

ANOVA was conducted to assess whether there were statistically significant differences among the group means.

Table 4.9: Analysis of Variance

Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	13.642	5	2.728	5.644	.012a
	Residual	26.104	54	0.483		
	Total	**39.746**	**59**			

At a 5% significance level, the overall model was deemed significant as the computed F-value (5.644) surpassed the critical F-value (value = 2.386). This indicates a substantial impact of macroeconomic factors on the growth of external debt. The obtained p-value was 0.012, falling below 0.05, signifying a significant relationship between macroeconomic factors and the growth of external debt at the 5% significance level.

4.5.3 Coefficients

A multiple regression analysis was conducted to assess whether independent variables had a statistically significant impact on the dependent variable.

Table 4.10: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.276	0.644		5.087	0.006
	Inflation rate	-0.492	0.336	-0.384	-1.464	0.375
	Interest rate	0.619	0.761	0.421	0.813	0.585
	Exchange rate	0.362	0.132	0.292	2.742	0.024
	GDP growth	1.214	0.368	0.829	3.299	0.018
	Trade deficit	-0.726	0.352	-0.563	2.063	0.035

$Y= 3.276 - -0.492X_1 + 0.619X_2 + 0.362X_3 + 1.214X_4 - 0.726X_5$

From the regression model described above, it was observed that if all independent variables were maintained at zero, the growth of external debt would stand at 3.276%. A unit increase in inflation rate would result to a 0.492 decrease in growth of external debt while a unit increase in interest rate would result to a 0.619 increase in growth of external debt. A unit increase in exchange rate would result to a 0.362 increase in growth of external debt while a unit increase in GDP growth would result to a 1.214 increase in growth of external debt. A unit increase in trade deficit would result to a 0.726 decrease in growth of external debt.

Exchange rate, GDP growth and trade deficit had p values less than 0.05 an indication that the three variables had a significant effect on external debt. Inflation rate and interest had p values higher than 0.05 and hence the study didn't reject their specific null hypothesis of an insignificant effect on growth of external debt.

4.6 Discussion of Findings

After analyzing the data, a negative correlation coefficient (-0.294) was discovered between the growth of external public debt and the inflation rate. This relationship was deemed statistically significant, supported by a p-value of 0.046. The findings were in support of Nafula (2018) findings that established that there was a negative correlation between growth of external public debt and inflation rate. If a country seeks to borrow externally during periods of high inflation, it might face higher borrowing costs due to increased risk perceptions by lenders. Aimola and Odhiambo (2021) also revealed that if a country experiences high inflation, the value of its currency decreases, which effectively reduces the real value of its external debt.

Upon data analysis, a negative correlation coefficient (-0.306) was identified between the growth of external public debt and the interest rate. This relationship was found to be statistically significant, illustrated by a p-value of 0.032. The results supported Eisenshmidt and Smets (2019) findings that higher interest rates might signal economic uncertainty and impact investor perceptions, potentially affecting the country's ability to borrow externally at favorable terms. Blanchard (2019) also indicated that countries with higher interest rates might face more challenging conditions when accessing international capital markets.

Upon analysis, a positive correlation coefficient of 0.418 was observed between the growth of external public debt and the exchange rate. This relationship was deemed statistically significant, indicated by a p-value of 0.002. The results supported Koijen and Yogo (2020) findings that a depreciating currency can lead to higher costs for servicing external debt, potentially straining the government budget and affecting other public expenditures leading to increased borrowing. The findings differed with Itskhoki and Mukhin (2022) findings that a sharp depreciation of the domestic currency might prompt the central bank to raise interest rates to stabilize the currency. This can lead to higher borrowing costs for the

government. The findings differed with Mohamed (2020) who indicated that a higher GDP can provide governments with more fiscal space to manage debt-related challenges leading to decreased borrowing.

After evaluating the data, a positive correlation coefficient of 0.515 was found between the growth of external public debt and the GDP growth rate. This correlation was considered statistically significant, as indicated by a p-value of 0.002. The results supported Clements (2019) findings that a higher GDP can generate increased government revenue through taxes, which can contribute to debt servicing capacity. Strong economic growth can provide the government with more resources to allocate toward debt repayment and in turn borrow more.

Upon analysis, a positive correlation coefficient of 0.408 was discovered between the growth of external public debt and the trade deficit. However, this relationship was deemed statistically insignificant, highlighted by a p-value of 0.003. The results supported Omodero (2019) findings that a persistent trade deficit can put pressure on a country's balance of payments, as it needs to pay for imports with foreign currency reserves or additional borrowing. Over time, this can contribute to the accumulation of external debt. The findings differed with Celebi and Honig (2019) findings that a trade deficit can lead to depreciation of the country's currency, making its external debt more expensive to service leading to decreased external borrowing.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In this concluding chapter, the study summarizes the findings discussed earlier, aiming to construct a comprehensive conclusion based on these results. Subsequently, it aims to formulate recommendations derived from these findings, intended for utilization by policymakers.

5.2 Summary of Findings

The descriptive outcomes indicated that over the 15-year period, the growth of external public debt averaged at 1.49%, with the highest recorded at 3.39% and the lowest at -1.67%. The average inflation rate was 7.7% with the highest at 19.19% and the lowest at 3.33%. The average interest rate was 14.7% with the highest at 20.23% and the lowest at 11.75%. The average exchange rate was Ksh 94.33 to USD with the highest at Ksh 123.38 to USD and the lowest at Ksh 62.65 to USD. The average GDP growth rate was 5.44% with the highest at 11% and the lowest at -5.62%. The average trade deficit was Ksh 80.009 billion with the highest at Ksh144.41 billion and the lowest at Ksh 27.128 billion.

A negative statistically insignificant correlation coefficient was revealed between growth of external public debt and inflation rate, as exhibited by correlation factor of -0.194 and the p value of 0.146. A negative statistically insignificant correlation coefficient was revealed between growth of external public debt and interest rate, as exhibited by correlation factor of -0.206 and the p value of 0.132. A positive statistically significant correlation coefficient was revealed between growth of external public debt and exchange rate as exhibited by correlation factor of 0.418 and the p value of 0.002. A positive statistically significant correlation coefficient was revealed between growth of external

public debt and GDP growth rate as exhibited by correlation factor of 0.515 and the p value of 0.002. A positive correlation coefficient was revealed between growth of external public debt and trade deficit as exhibited by correlation factor of 0.408 and the p value of 0.003.

The R^2, showed that 18.1% of the variations of growth of external debt were explained by the macro-economic factors. The model was deemed significant as the computed F-value (5.644) exceeded the critical F-value (value = 2.386), and the p-value of 0.012 was below 0.05. These results indicate a substantial effect between macroeconomic factors and the growth of external debt at a 5% significance level.

According to the aforementioned regression model, it was observed that if all independent variables remained constant at zero, the growth of external debt would be at 3.276%. .A unit increase in inflation rate would result to a 0.492 decrease in growth of external debt while a unit increase in interest rate would result to a 0.619 increase in growth of external debt. A unit increase in exchange rate would result to a 0.362 increase in growth of external debt while a unit increase in GDP growth would result to a 1.214 increase in growth of external debt. A unit increase in trade deficit would result to a 0.726 decrease in growth of external debt.

Exchange rate, GDP growth and trade deficit had a p values less than 0.05 and indication that the three variables had a significant effect on external debt. Inflation rate and interest rate had p values higher than 0.05 and hence the study didn't reject their specific null hypothesis of an insignificant effect on growth of external debt.

5.3 Conclusions

Inflation rate had a negative effect on growth of external public debt and the relationship was insignificant. This is because if a country seeks to borrow externally during periods of high inflation, it might face higher borrowing costs due to increased risk perceptions by

lenders leading to decrease external debt. Further, high inflation can erode investor confidence in a country's economic stability.

Interest rate had a negative effect on growth of external public debt and the relationship was insignificant. This is because higher interest rates might signal economic uncertainty and impact investor perceptions, potentially affecting the country's ability to borrow externally at favorable terms. Further, countries with higher interest rates might face more challenging conditions when accessing international capital markets.

Exchange rate had a positive effect on growth of external public debt and the relationship was significant. This is because a depreciating currency can lead to higher costs for servicing external debt, potentially straining the government budget and affecting other public expenditures leading to increased borrowing. This can lead to higher borrowing costs for the government and thus increasing the growth of public debt.

GDP growth rate had a positive effect on growth of external public debt and the relationship was significant. This is because a higher GDP can generate increased government revenue through taxes, which can contribute to debt servicing capacity. Strong economic growth can provide the government with more resources to allocate toward debt repayment and in turn growing external debt level.

Trade deficit had a positive effect on growth of external public debt through the relationship was significant. This is because a persistent trade deficit can put pressure on a country's balance of payments, as it needs to pay for imports with foreign currency reserves or additional borrowing. Over time, this can contribute to the accumulation of external debt and in turn leading to increased growth of the debt.

5.4 Policy Recommendations

The government should practice prudent fiscal management to ensure that government spending and deficits are kept in check.

A disciplined fiscal policy can help prevent excessive borrowing that could be driven by inflation and this in turn reduce external debt level.

The government should consider issuing long-term bonds with fixed interest rates when market rates are low to reduce its external debt burden and also consider locking in favorable long-term rates can provide stability and predictability in debt service costs and reduce refinancing risks.

When the local currency appreciates against the currency in which external debt is denominated, the government should explore opportunities to renegotiate debt terms with creditors such as lower interest rates and extended maturities to reduce its debt level.

The government should try to control its external public debt and only invest in the capital-based projects from the debt so that this may have impact positively on the economic growth and also the development of the country.

The government should adopt policies geared towards export promotion to boost exports of goods and services. This can include trade agreements, export incentives and support for domestic industries to enhance competitiveness in international markets. This will in turn reduce reliance on external debt.

5.5 Limitations of the Study

There was restriction of only 15-year duration from 2008 to 2022 from which quarterly data was derived, if longer term of the study was available and used it might have captured different financial significance periods such as booms and recessions. If a longer time was

available there would have been better and broader measurement to the issues involved. Future studies should consider increasing the duration of study.

Secondary data was the only data available and used as it was collected from the Central banks of Kenya, Bank Supervision Reports. The data for analysis was not readily available in one database; this made data collection to be a time and effort consuming exercise as the researcher had to collect data from different reports. The data available was in form of monthly data and hence the researcher had to do quarterly averages so as to ensure the data was uniform.

The study used five macro-economic factors that affect growth of external debt. The study therefore overlooked other variables such as unemployment rate, political risk, budget deficit and foreign direct investments which also affect growth of external debt. The study therefore was not able to establish the effect of these variables on the growth of external debt.

5.6 Suggestions for Further Study

This study sought to determine the relationship between macro-economic factors and growth of external public debt in Kenya and was confined to inflation rate, interest rate, exchange rate, GDP growth and trade deficit as the variables of the study. There were still other variables that affect growth of external public debt such as unemployment rate, budget deficit, political risk and foreign direct investments hence future studies should consider incorporating them and establishing their effect on growth of external public debt.

There is need for a study in other countries which should be comparative especially in East Africa in order to establish the similarities and differences that may exist as far as the findings on the effect of the above variables on growth of external public debt. This will

help establish whether all the variables had the same effect on growth of external public debt and where there were disparities the reasons for disparities.

The study was restricted to secondary data hence its suggested that other variables from which primary data can be sought be used in determining their relation on the economic growth of the country. This would thus help compare the result findings from the primary data and secondary effect on economic growth.

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APPENDICES: DATA COLLECTION FORM

Year	Quarters	Inflation rate	Interest rate	Exchange rate	GDP growth rate	Trade deficit	Growth of external public debt
2008	Q1	0.1063	0.1399	0.0243	0.0503	4.4885	0.0097
	Q2	0.1753	0.1387	-0.0789	0.0581	4.4334	0.0003
	Q3	0.1806	0.1404	0.0898	0.0445	4.6339	0.0045
	Q4	0.187	0.1477	0.1361	0.0542	4.6052	0.0339
2009	Q1	0.1417	0.1481	0.0296	0.0561	4.5252	0.0053
	Q2	0.1021	0.1488	-0.0171	0.0542	4.5527	0.0217
	Q3	0.0751	0.1479	-0.0333	0.059	4.5408	0.0069
	Q4	0.0565	0.1491	-0.0166	0.0532	4.6411	0.0315
2010	Q1	0.0503	0.1461	0.0204	0.0513	4.5565	-0.0002
	Q2	0.0368	0.1429	0.0370	0.061	4.6502	0.0136
	Q3	0.0333	0.1393	0.0300	0.0552	4.6753	0.0197
	Q4	0.0384	0.1394	-0.0053	0.059	4.7457	0.0054
2011	Q1	0.0705	0.1391	0.0250	0.0754	4.7474	0.0190
	Q2	0.1316	0.1412	0.0585	0.0663	4.7880	0.0214
	Q3	0.1651	0.1617	0.1040	0.0612	4.8761	0.0169
	Q4	0.1919	0.1995	0.0130	0.0443	4.8794	-0.0167
2012	Q1	0.1687	0.2023	-0.1468	0.0427	4.8445	0.0174
	Q2	0.1178	0.2019	-0.0003	0.0434	4.8557	0.0145
	Q3	0.0638	0.1885	0.0024	0.0512	4.8621	0.0185
	Q4	0.0353	0.1804	0.0196	0.0476	4.8714	0.0131
2013	Q1	0.0408	0.1768	0.0172	0.0614	4.8686	0.0003
	Q2	0.0437	0.1698	-0.0318	0.0752	4.8337	0.0178
	Q3	0.07	0.1692	0.0400	0.0646	4.8894	0.0279
	Q4	0.0742	0.1703	-0.0204	0.0354	4.9091	0.0087
2014	Q1	0.0678	0.1686	0.0063	0.0523	4.8464	0.0094
	Q2	0.0703	0.1651	0.0139	0.0634	4.9419	0.0304
	Q3	0.0754	0.161	0.0149	0.0456	5.0350	-0.0030
	Q4	0.0618	0.1598	0.0247	0.0564	4.9838	0.0183
2015	Q1	0.0582	0.158	0.0247	0.0587	4.8680	0.0258

	Q2	0.0699	0.1537	0.0652	0.0562	4.9519	0.0187
	Q3	0.0614	0.1583	0.1076	0.0613	4.9106	0.0126
	Q4	0.0735	0.1685	-0.0089	0.0554	4.9419	0.0242
2016	Q1	0.0702	0.1807	-0.0071	0.0533	4.7456	0.0163
	Q2	0.0536	0.1804	-0.0131	0.0632	4.8728	0.0303
	Q3	0.0633	0.1798	0.0045	0.0571	4.8916	0.0078
	Q4	0.065	0.1375	0.0059	0.0617	4.8830	0.0111
2017	Q1	0.0877	0.1367	0.0254	0.0608	4.9572	0.0239
	Q2	0.108	0.1364	-0.0008	0.0597	4.9613	0.0242
	Q3	0.0752	0.1367	0.0024	0.0602	5.0096	0.0058
	Q4	0.0498	0.1369	-0.0026	0.0588	4.9677	0.0064
2018	Q1	0.0449	0.1366	-0.0229	0.0485	4.9650	0.0223
	Q2	0.0399	0.1333	-0.0161	0.0627	5.0033	0.0104
	Q3	0.047	0.1303	-0.0008	0.0606	4.9717	0.0070
	Q4	0.0561	0.1261	0.0181	0.0627	4.9810	0.0081
2019	Q1	0.044	0.1249	-0.0178	0.0555	4.9487	0.0095
	Q2	0.0559	0.1248	0.0086	0.0542	5.0128	0.0231
	Q3	0.0503	0.1209	0.0433	0.0528	5.0030	0.0087
	Q4	0.0544	0.1216	-0.0361	0.053	5.0387	0.0047
2020	Q1	0.0626	0.1209	-0.0106	0.0496	4.9170	0.0128
	Q2	0.0531	0.1195	0.0744	-0.0562	4.8427	0.0212
	Q3	0.0431	0.1175	0.0258	0.0285	4.9349	0.0206
	Q4	0.0526	0.1202	0.0161	0.0349	4.9766	0.0075
2021	Q1	0.0579	0.1215	0.0109	0.027	5.0227	0.0026
	Q2	0.0598	0.1219	-0.0250	0.11	5.0068	0.0168
	Q3	0.0668	0.124	0.0398	0.093	5.0862	0.0123
	Q4	0.0599	0.1257	0.0400	0.074	5.1106	0.0085
2022	Q1	0.0534	0.1202	0.0273	0.067	5.1075	0.0196
	Q2	0.0715	0.1205	0.0435	0.052	5.1560	0.0221
	Q3	0.0868	0.121	0.0438	0.047	5.1596	0.0266
	Q4	0.0938	0.1214	0.0400	0.037	5.0893	0.0312

RELATIONSHIP BETWEEN MACRO-ECONOMIC FACTORS AND GROWTH OF EXTERNAL PUBLIC DEBT IN KENYA

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