

**EFFECT OF PUBLIC DEBT ON FINANCIAL PERFORMANCE OF
COMMERCIAL BANKS IN KENYA**

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**A Research Thesis Submitted in Partial Fulfillment of the Requirements for the
Award of the Degree of Master of Science in Economics, Masinde Muliro University of
Science and Technology**

November, 2024

DECLARATION

I declare that this thesis is my original work and has not been presented to any other university or institution.

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CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance of Masinde Muliro University of Science and Technology, a thesis entitled “**Effect of Public Debt on Financial Performance of Commercial Banks in Kenya**”

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DEDICATION

I dedicate this thesis to God, my dear parent Mr. and Mrs. Patrick Lumumba, my siblings and my dear daughter, Neenah Benter. I am grateful for their continuous support and encouragement throughout my study period.

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I want to express gratefulness to God Almighty for giving me the strength I needed to study. I would like to specially thank Professor John Byaruhanga and Dr. Angela Mungai, my supervisors, for their patience and continual assistance throughout this study. I also appreciate my lecturers; Dr Simiyu, Dr Umulkher, Dr Rutto, Dr Ngala and the whole of School of Business and Economics fraternity for their unending support towards my academic journey. Finally, I thank my family, classmates, and associates for their encouragement and contributions to the completion of this project.

ABSTRACT

Financial performance of commercial banks in any economy continue to be a huge indicator of growth and development. Commercial banks form a huge part of the Finance and Insurance sector in Kenya. However, growth in this sector recorded a decline from 11.8 percent reported in 2021 to 9.4 percent reported in 2022. According to the Central Bank of Kenya, a huge contributor towards this decline was due to an increased credit to the Kenyan Government and private firms. Commercial banks continue to be the major holders of debt across various governments in Africa. In Kenya alone, commercial banks benefit greatly from income derived from public debt. However, a huge share of debt holding can be detrimental to crucial operations and functions of commercial banks such as reduced lending to other industries in the private sector. The increasing amounts of public debt in Kenya in the past few years makes it important to study its effect on the performance of commercial banks. Therefore, this study sought to tackle four objectives with the general objective; to establish the effect of public debt on the FP of commercial banks in Kenya. The specific objectives sought to examine the effect of DD, ED, and real interest rates on the FP of commercial banks. Many studies highlight the importance of FDI; hence, this particular study seeks to confirm its intervening effect on the independent and dependent variables. The study primarily used a descriptive research design to determine how the variables connected. Furthermore, the study included secondary data from the Central Bank of Kenya, the World Bank, KNBS (KNBS), and the International Monetary Fund (IMF). Descriptive analysis showed the general trend of the variables under study. The correlational analysis indicated a strong negative relationship between external debt and financial performance (-0.727), a strong negative relationship between domestic debt and financial performance (-0.699), a weak positive relationship between real interest rates and financial performance (0.195) and a positive relationship between foreign direct investment and financial performance (0.530). The quarterly time series data was initially subjected to the Augmented Dickey-Fuller (ADF) test to determine if there were any unit roots. ROE, ED, DD, and FDI remained constant at the initial difference. However, real interest rates remained stable at their current level. The I (0) and I (1) series were then subjected to the Bounds Cointegration test, which demonstrated no long-term link between the variables. The ARDL (ARDL) model was then utilized to determine the relationship between public debt and financial performance of Kenyan commercial banks from 2008:q1 to 2022:q4. The regression model estimates were (-0.899, $p < 0.05$), (-0.3383239, $p < 0.05$), and (-0.0766451, $p < 0.05$) for external debt, domestic debt and real interest rates. The study's findings also demonstrated a positive and statistically significant intervening effect of FDI on the relationship between state debt and the financial performance of Kenyan commercial banks where $R_2^2 - R_1^2 = 0.0051$, $p < 0.05$. To achieve maximum financial performance, the Kenyan government should monitor the public debts which are continually negatively affecting the profitability of commercial banks. The Government should encourage more FDI inflows that will positively increase money supply and demand which are critical functions of commercial banks.

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LIST OF ABBREVIATIONS AND ACRONYMS

ADF	ADF
ARDL	ARDL
CBK	Central Bank of Kenya
DD	DD
ED	ED
FDI	FDI
GDP	Gross Domestic Product
GNI	Gross National Income
IMF	International Monetary Fund
KNBS	KNBS
NIM	Net Interest Margin
NPLs	Non-Performing Loans
RIR	Real Interest Rates
ROA	ROA
ROE	ROE

OPERATIONAL DEFINITION OF TERMS

Public debt Entails the total amount a country owes to other individuals, governments or businesses outside of itself.

DD The portion of public debt owed to individual or institution within the same country.

ED: Part of public debt that a country's borrows from foreign creditors, including governments, commercial banks, or international financial institutions.

Interest rates The percentage of a loan that a borrower pays that is charged on the principal amount.

FP This describes the overall well-being of a public or private firm that stakeholders use to know whether assets are utilized accordingly to generate more income or revenue.

Commercial banks These are financial institutions in an economy that handle deposits, withdrawals, loans, savings, and other account services.

FDI This is an investment remitted by an outside party mostly nations or organizations into another country's economy or institution with the aim of development.

ROE It is one of the measures of FP derived from dividing the shareholder's net income by the equity.

ROA: It is one the ratios that indicate the profitability of a firm based on the returns of an investment.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Financial institutions play a critical role in any nation's economy. Undoubtedly, the banking sector which is the key player in the financial sector has experienced immense revolution in the past years. According to Gnawali (2018), stability in any economy depends on the efficiency of financial institutions. Many nations across the globe depend on banking systems to steer economic growth and development. For one, Khanifah et al (2020) mention that banks act as crucial intermediaries who mainly oversee the movement of funds to meet the demand and supply in an economy. Additionally, the banking sector promotes investment and expenditure, which are critical components of a growing economy. However, despite their significant function in a nation, banks are vulnerable to economic shocks and failures (Gnawali, 2018). Improper management of the sector is likely to result in bankruptcy and collapse of the economy.

Despite the internal factors affecting performance of commercial banks, it is crucial to consider the economic environment. One of the notable economic crises that ever happened in history of banking and general economy is the Great Depression and from this, nations can learn the huge impact of external factors on the banking sector. In 1929, the United States started experiencing an extreme financial calamity characterized by a drop in prices, reduction in production, increased unemployment and rise in poverty. According to Amir-Ahmadi et al. (2020), financial institutions were hit hard by the Great Depression with four main factors being considered as the cause of the economic downturn. First, the Americans had made imprecise predictions in the stock market and this largely affected investment and expenditure.

Secondly, central banks in other countries were mandated to increase their interest rates against the gold standard with the aim of remedying the trade imbalances present in the United States. The third factor was the imposition of Smoot-Hawley Tariff Act of 1930 that mainly affected the manufacturing of both agricultural and industrial goods (Amir-Ahmadi et al., 2020). This action resulted in a decrease in general output translating to a huge decline in global trade. Lastly, most banks during this period went into panic thus, causing massive failure. Most of them closed down due to lack of resources needed to avail loans to people.

Undoubtedly, the Great Depression of the United States proves the adverse effects of poor economic choices on financial institutions. Both developed and developing countries were hit hard by the Great Depression. According to the monetarist approach, the banking crisis was the main cause of the Great Depression because of the decline in shareholder wealth across most banks in the United States. Breitenlechner et al. (2021) confirm that the Federal Reserve did nothing to remedy the situation in banks and therefore, leading to an economic recession. On the contrary, the Keynesian approach links the Great Depression to poor aggregate spending. John Maynard Keynes argued that a decline in aggregate expenditure further reduced employment and income to the point that is lower than the average. Such a situation results in increased rates of unemployment and reduced economic activity.

Another crucial argument brought forward by Irving Fisher as the main cause of the Great Depression was the level of indebtedness. With the margin requirements dropping to 10%, lenders considered \$9 as their rate, leaving only \$1 to deposits made by investors. Fisher additionally explained that with the market failures, brokerage firms were unable to collect

loan payments (Glasner, 2021). The increase in the number of debt defaulters greatly affected banks and most depositors decided to get their deposits. The efforts of the Federal Reserve and the U.S. Government were ineffective because they were unable to restrict the massive bank withdrawals. Most banks failed as a result of losing a lot of assets. Furthermore, Glasner (2021) notes that the outstanding debts continued to burden many as most borrowers were affected by a fall in income and prices.

In a different approach on the cause of the Great Depression, Bernanke (2018) added that a decrease in income and price level further increased the debt burden, hence causing insolvency. He argues that most economies underestimate the impact of credit-oriented variables in predicting the economy. In most instances, factors such as exchange rates, interest rates, and stock prices are the focus by central banks. However, these factors were not accounted for during the Great Depression because of the depth of the effect experienced across most nations. As a nation, we can learn a lot from the Great depression and one significant lesson that the performance of financial industries is a crucial indicator of economic progress and stability. Banks experience insolvency when they have inadequate assets to cater for their liabilities (Bernanke, 2018). This study is driven by the need to ascertain how commercial banks are affected by external factors such as government policies. Bernanke (2018) mainly focused on the United States and therefore, more focus should be shifted towards other countries with underlying debt problems. With the huge benefits of commercial banks in any country's economy, they should be protected from failure and collapse. Otherwise, negative effects to commercial banks affect aggregate demand, investment, and consumption, thus, greatly dismantling a country's economy.

1.1.1 Commercial Banks in Kenya and FP

Commercial banks continue dominating in Kenya and their growth has been dominant over the past few decades. By the end of 2022, there were a total of 39 commercial banks with majority of them being owned by private shareholders (CBK, 2022). With CBK as the main regulatory body, commercial banks have adopted various risk-based strategies to ensure their smooth running. First, the introduction of the Kenya Banking Sector Charter (BSC) in early 2019 by CBK saw adoption of 4 key strategies namely risk-based pricing, customer-orientation, banking ethics, and transparency. On the risk pricing approach, CBK directed commercial banks on how to strengthen their models and come up with incorporation strategies.

The Covid-19 pandemic affected most industries in the economy and despite this, the banking sector in Kenya proved resilient (CBK, 2022). Major strategies that worked for commercial banks were acquisitions and mergers. In 2022 alone, Century Microfinance Bank Limited was acquired by Branch International Limited of Mauritius. Approximately 66.06% of shares belonging to Daraja Microfinance Bank Limited was further acquired by UMBA Inc. located in the Delaware. One crucial element in the banking environment is their performance in terms of finances, and this is a key determinant of profitability in the industry. In this case, commercial banks are measured against the 5 metrics. In 2022, commercial banks recorded a general satisfactory rating however, the market share declined by 0.88 percent in the same year. By December 2022, the banking sector reported an increase of 22 percent in profit before tax. This performance was due to a growth in profitability since the total income obtained stood at Ksh. 92.7 billion. According to CBK (2022), banks realized a growth in the overall capital adequacy ratio and recorded 14.5 percent by December 2022. Additionally, main net assets grew to Ksh. 6.6 trillion in December 2022, an increase from Ksh.6.0 trillion reported in

December 2021. In terms of deposits, the sector recorded tremendous growth from Ksh. 4.5 trillion in 2021 to Ksh. 5.0 trillion in the period ending 2022 (CBK, 2022).

These statistics indeed show the significance of measures of profitability in the banking sector with the main being ROE, NIM, and ROA in the rating system (Ongore & Kusa, 2013). ROE entails the income earned by banks out of the general amount invested by shareholders equity. In 2022, commercial banks reported a ROE of 25.5% and ROA of 5.7% (CBK, 2022). An increase in ROE increases the capacity for banks to report profits since they are capable of generating adequate income. With ROA, banks are required to explore their total assets in order to attract income. A higher ROA indicates that the bank is utilizing the available resources in an efficient manner. Lastly, the NIM reflects the interest income derived from the interests charged by their lenders. The greater the NIM, the higher the profitability of the bank (Ongore & Kusa, 2013).

Increased public debt in Kenya is a major form of financial distress that has exposed the nation to debt sustainability challenges, coupled with weaker commodity prices. The banking system has become more vulnerable owing to increased household and corporate debts since most borrowers have been hit with greater burdens that come with servicing of debts.

1.2 Statement of the Problem

Commercial banks hold a huge part of public debt and from this, they benefit greatly in terms of income. For decades, public debt has been one key financial instrument which governments of various nations adopt with the aim of economic growth and overall stabilization. Public debt which mainly comprises of external debt and domestic debt are a huge source of finances to aid ailing economies and also, cover up for any deficit in financial budgets. Proper

utilization of public debt especially in infrastructural growth positively influences a nation since significant growth is seen in both public and private sectors. Considering commercial banks form a huge part of the economy and their contribution towards GDP is quite significant, their financial performance should be put into consideration.

Evidently, commercial banks are exposed to various internal and external factors that are likely to affect their performance. More government borrowing from both external and domestic sources is expected to boost the overall performance of commercial banks, however, this has not been the case. Operations within commercial banks may be negatively affected due to increased holding of public debt. Majorly, commercial banks in Kenya have recorded low scores in ROE with the lowest being 14.2% reported in 2020, a decline from 24.9% reported in 2008. Furthermore, according to CBK (2022), the Finance and Insurance industry recorded a decline in their growth from 11.8 percent reported in 2021 down to 9.4 percent in 2022. Such a trend is worrying given that banks play a crucial role in distribution of resources in the economy (Okwany, 2017).

For effective management and use of resources, commercial banks should record a higher ROE. Most literature touching on the FP of commercial banks both internationally and locally have looked into the influence of bank related factors and how they impact profitability. These bank-related factors include asset quality, liquidity, capital adequacy, management issues, and operational efficacy. Few studies have considered key macroeconomic factors that affect profitability of commercial banks. For any economy to thrive, the government should create a conducive external environment that is favorable for operating businesses. One of the key macroeconomic factors that have been left out in most studies is public debt. The continuous borrowing by the Kenyan Government intensifies the significance of this problem

hence the need to put it into consideration. This necessitated the study of public debt and its effect on financial performance of commercial banks between year 2008 to 2022.

1.3 Objectives of the Study

1.3.1 General Objective

The general objective of the research was to determine the impact of public debt on the financial performance of commercial banks in Kenya.

1.3.2 Specific Objectives

The study explored the following specific objectives:

- i. To examine the effect of ED on FP of commercial banks in Kenya.
- ii. To determine the effect of DD on FP of commercial banks in Kenya.
- iii. To establish the effect of real interest rates on FP of commercial banks in Kenya.
- iv. To analyze the intervening effect of FDI on the relationship between public debt and FP of commercial banks in Kenya.

1.4 Research Hypothesis

H₀₁: There is no statistically significant effect of ED on FP of commercial banks in Kenya.

H₀₂: There is no statistically significant effect of DD on FP of commercial banks in Kenya.

H₀₃: There is no statistically significant effect of real interest rates on FP of commercial banks in Kenya.

H₀₄: There is no statistically significant intervening effect of FDI on the relationship between public debt and FP of commercial banks in Kenya.

1.5 Significance of the Study

The increasing risks associated with heavy borrowing in developing economies have drawn attention to the significance of debt management and sustainability to boost financial progress of various firms. The results of this study will contribute greatly to stakeholders in the financial sector because they will use the information to develop the industry and develop policies that will prevent failure. Various scholars and academicians will benefit from this study because they will use it for reference in related studies. They will be able to identify other fields that they can explore in their research and employ the current one when seeking study gaps.

Implementation of sound policies is crucial for the government and other public institutions that either have a direct or indirect influence on performance of commercial banks. The Kenyan Government and the Central Bank in particular will gain insights that will assist in policy formulation and development of regulations within the financial system. The variables that will be found to affect the FP of commercial banks will assist these institutions in coming up with effective reforms that will benefit the economy as a whole.

For key investors, the findings of this study will promote more knowledge as to how public debt affects commercial banks. They will have a deeper understanding on the effect of public debt on the performance of commercial banks and thus, they will be able to be cautious when making decisions that will improve their returns. Most importantly, this study will add to the existing theory in terms of public debt and FP of commercial banks.

1.6 Scope of the Study

This study contextually focused on the effect of public debt on the FP of commercial banks in Kenya starting from 2008 to 2022. The study targeted all commercial banks in Kenya reported by Central Bank by the end of 2022. The key macro-economic factors that the study considered were those that had a potential impact on the financial performance of commercial banks in Kenya. It mainly considered four variables: DD, ED, real interest rates, and FDI. These external factors were considered because of their trend alongside the performance of the banking sector over the period 2008-2022. The period was relevant because it covered the key economic events in Kenya. For one, the banking sector experienced a huge set back owing to the post-election violence of 2007-2008. This particular period was marked by a decline in most operations within the public and private sectors. Also, the choice of the study period was informed by the Covid-19 pandemic between 2020 and 2021. The pandemic caused a huge set back in most economies worldwide due to the measures put in place to contain its spread. The curfews, social distancing, lay-offs, and lock downs affected the demand and supply of goods and services. Also, the geographical scope of the study was limited to a population of current commercial banks operating in Kenya. By the end of December 2022, CBK reported a total of 39 commercial banks in operation.

1.7 Limitations of the Study

Use of secondary data in a research study has few limitations. First, bias may occur since different sources have various omission in terms of calculations and definition. The study, however, considered data from reputable sources mainly World Bank Development Indicators, the Kenya National Bureau of Statistics (KNBS), IMF Database, and annual

audited reports published by the Central Bank of Kenya. Collection of data was mainly through the triangulation technique to select and compare the data from the recognized sources.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presents various theoretical approaches relevant to the study. First, the theoretical literature review looks into different perspectives on public debt theories to strengthen the study further. In addition, the empirical literature review discusses various empirical studies

with focus on how public debt which entails ED, DD, and interest rate, affect the FP of commercial banks in the Kenyan economy. The review further considers available studies carried out in Kenya and other nations. Finally, the section reviews relevant gaps which the research seeks to fill, thus, confirming the necessity of this study.

2.2 Theoretical Literature Review

Theoretical framework is crucial in reviewing the theoretical association between the study variables, and in this study, public debt and FP of commercial banks are the main focuses. Therefore, three main theoretical approaches are applicable to this study

2.2.1 Debt Overhang Theory

One of the main reasons behind the debt problem in most sub-Saharan economies is the excessive debt overhang. In the past few decades, policy makers across the globe have been worried about the ever-increasing level of indebtedness mostly evident in developing nations. As such, most of them are listed under the heavily indebted poor countries because they largely depend on borrowing to finance their economic activities. To understand this problem, a review of the debt overhang theory is necessary considering its overall effect on economic growth. The debt overhang theory was first put forward by Krugman (1988) who explained that “debt overhang” results in a country’s inability to manage its debts up to particular limits. This situation further culminates into poor returns for investors given an increase in taxes with the bid to repay the loans.

Additionally, the uncertainties in the economy make it difficult for nations to arrange its available resources so that they can go towards debt servicing. Therefore, the debt overhang

problem hinders both domestic and foreign investments which are crucial elements in steering capital accumulation.

2.2.2 Keynesian Theory of Public Debt

According to Keynes, public debt is crucial in economic policy and performance, however, the presence of debts and deficits has been a continuous challenge (Keynes, 2015). One of Keynes assumptions is the ‘false consciousnesses related to public debt which leads to generation of profit and interest rates possibilities especially when there is high level of debt (Aspromourgos, 2014). This can be attributed to the fact the debt pushes interest rates upward, causing a steeper yield curve. Also, an economy with high demand-inflation is likely to experience involuntary unemployment and further foreign borrowing. ED therefore increases the level of interest rates while stiffening the term structure of the rates.

Keynes further postulates the external constraints on interest policy and dates back to the 1930s whereby policies were determined by lower interest rates. Government management of interest rates entail the minimization of both long and short term rates to support aggregate investment. This will in turn promote economic performance which is effective in debt management, Also, open market operations assist in reducing the long-term interest rates. According to Fantacci (2010), the equilibrium interest rate is attained when the full employment saving is more than the profits obtained from aggregate investment. This means an inverse relationship between interest rates and aggregate investment. Keynes theory is relevant to this study because lower interest rates are more feasible and desirable. Therefore, there is no need for the government to increase interest rates with a rise in debts to fund investments.

2.2.3 Crowding Out Effect Theory

According to Modigliani (1971), government's expenditure must consequently be financed by the private sector of the economy through taxation. The funds for the private sector may be depleted, therefore, the costs exceed the benefits that have been derived. This situation is referred to as the crowding out effect. Another assumption of this model is that there is a definite money supply that the government can utilize, therefore, when the government borrows; it reduces the funds derived from the private sector. This condition further paralyzes investments required to steer economic growth. In short, the crowding-out-effect works towards decreasing the net effect of government expenditure and as a result, the degree to which the government stimulates spending efforts are increased. With the huge debt burden in most nations, there is an increase in demand for money. As such, the economies experience increased prices and interest rates. Adversely, the countries may experience inflation because of the crowding out effect in the private sector.

2.3 Conceptual Review of Variables

2.3.1 Concept of ED

The World Bank defines ED as debt payable to nonresidents in form of goods, services, or currency. The Kenyan Government continues to incur debt when seeking financial support from lenders beyond the borders. Therefore, ED plays a crucial role in this study given that it mainly affects tax revenues, investment, resource accumulation and mobilization, debt overhung problem and availability of funds which are crucial factors in profitability of commercial banks.

Commercial banks are more likely to grow from tax revenues, investments, resource accumulation and mobilization, and availability of funds. However, increased external borrowing has seen banks struggle to maintain their engagement in public revenues. Bosca et al (2019) established that increased taxation reduces the cost of capital hence leading to negative performance of banks. Commercial banks are forced to downsize and also reduce operating capital in order to adjust to higher tax rates.

2.3.2 Concept of DD

The second area of focus would be the influence of DD on the performance of commercial banks. The focus areas would be the effects of DD on crowding out effect, real interest rates, resource mobilization and the FP of banks. While DD entails various instruments given out by the Government, most of it has been in the form of Treasury Bills and Bonds. The continuous rise in DD in the country has affected the profits realized by commercial banks hence making it a critical component in the current study. First, most commercial banks which make a huge part of the private sector has seen a decrease in their spending and investment. This situation is mainly caused by the crowding out effect where the government increases spending in the public sector. More expenditure further necessitates additional revenue that pushes the government to borrow internally or raise the taxes.

The sale of Treasury securities by the Government is bound to force the real interest rates to go up as well as the costs of borrowing. Banks are bound to be disadvantaged since they gain profits through issuing loans to both the private and public sector. Hence DD directly affects performance of commercial banks since the government crowds out spending in public and private sectors, and the current study will prove its actual effect.

2.3.3 Concept of Interest Rates

The last aspect of the independent variable is the influence of public debt on performance of commercial banks with the inclusion of interest rates. For one, commercial banks derive profits from lending to private and public sectors. It has always been the norm that when interest rates increases, commercial banks are likely to benefit. However, this has not been the case given the adverse consequences of public debt. The Government of Kenya has been aiming to stabilize the economy due to the burden of high public debt and this has further resulted in high interest rates. Also, high inflation caused by increased government borrowing has seen an increase in fiscal deficit. In the study, the focus would be the effect of such borrowing on interest rates which is a factor that mainly determines the banking economy. With inflation rates, public sector debts and the crowding out effect, interest rates have proven more critical.

Given that commercial banks take in cash deposits from clients, the benefit which is mainly from interest payments facilitate investment in other projects. Thus, profitability is realized when banks gain from the difference between the gains from investing and interest depositors receive. Evidently, increased interest rates lead to more investments. However, when the rates are too high, banks are unable to make profits since consumers and businesses become reluctant to borrow, and this therefore decreases the performance of commercial banks.

2.3.4 Concept of FDIs

Finally, the intervening variable will look at the influences of interest rates and availability of funds on the link between public debt and the performance of commercial banks. One of the key main factors that has seen the growth of various industries in developing countries is FDI,

thereby making it a crucial element in the current study. In Kenya, the government has been pushing for investors to direct their funds towards development and this has been possible through improved technology and availability of funds. FDI has seen growth in technology and accumulation of funds. Most industries including manufacturing organizations, financial entities, and production industries have come up due to the positive impact of FDI.

According to Kariuki (2018), Kenya is one of the developing economies that attract a huge pool of foreign investors. Multiple measures have been put in place to make investment more favorable. First, the Kenyan Government mainly benefits from tax revenue imposed from these investments. For financial institutions, FDI mainly contributes to competitiveness and efficiency. With steady flow of FDI, commercial banks have intensified their banking services and invested heavily on new technology.

However, the recent past has seen a decline in equity flows which has greatly affected the performance of financial institutions. Kenya's increasing appetite for public debt instead of FDI to finance projects is slowly making the economy volatile. Therefore, the current study is looking to see if FDI is a more effective measure that will continue boosting profits among financial institutions.

2.3.5 Concept of FP of Commercial Banks

The dependent variable in the current study is the FP of commercial banks in Kenya. According to Mulwa (2015), FP mainly shows how organizations operate and this is dependent on either profits or losses. Commercial banks make a huge part of the financial sector in Kenya and therefore, analyzing their level of performance through revenues received, return on assets, and cost per share is of significance. Firms utilize various resources to

generate income which is in turn beneficial to investors. For commercial banks, resources are mainly utilized to generate returns which are mainly measured through ratios. One key indicator of performance is the ROE and it specifically highlights how financial institutions make revenue by utilizing their existing assets. An increase in ROE shows that an institution is putting its resources into good use and therefore, various shareholders get to enjoy profits.

2.4 Empirical Literature Review

2.4.1 ED and FP of Commercial Banks

Most developing economies often lack adequate resources to fully cover their revenues and expenditures. Additionally, poor tax revenues greatly contribute to the budget deficit, hence over reliance on external financing. According to Qayyum and Haider (2012), foreign help presents both advantages and disadvantages to nations. In their research, Qayyum and Haider (2012) mainly focus on foreign aid, ED and governance. One of their main arguments is that foreign aid and ED greatly promotes economic development. However, it is only helpful to nations with sound macroeconomic strategies and steady institutions. Both foreign aid and ED further steer increased tax revenues and therefore, institutions result in efficient management and governance. These positive factors additionally drive investment, thus increasing economic activities in a nation. Despite these advantages, foreign aid and ED negatively affect the economy by diminishing resource accumulation and mobilization. Since most nations depend on taxation, ED causes the debt overhang problem which affects savings and investment.

In their study, Qayyum and Haider (2012) conclude that ED has a negative relationship with economic growth and mainly burdens the economy. On the contrary, foreign aid has positive

benefits to the country, thus, developing nations should rely more on foreign aid to improve economic activities. Birru (2016) supports these findings by exploring the capital arrangement and FP of commercial institutions in Ethiopia. For one, most businesses rely on capital to boost their growth and competitive advantage. The capital structure dictates the form of financing for organizations with more focus on short and long-term liabilities. Birru (2016) considers two main measures of FP; ROE and ROA and adopted a survey design to gather information on selected commercial banks in a period of five years. One main finding by Birru (2016) is that FP has a negative association with capital structure mainly measured by debt ratio, debt to equity ratio, firm's size, and tangibility of asset. Studies conducted by Birru (2016), and Qayyum and Haider (2012) both confirm the negative association between debt financing and performance of an economy.

In most cases, lack of adequate finances is a major obstacle for financial institutions. To ascertain the effect of external financing on FP of firms, Ondieki et al. (2017) conducted an assessment of various Savings and Credit Cooperatives (SACCOs) in Kisii Central District, Kenya. Most Saccos in the country depend on external financing to meet the demands of their clients. Additionally, the availability of credit is expected to assist SACCO's fulfill their financial obligations; however, this is not the case. Ondieki et al. (2017) confirm this argument through adopting a descriptive survey design in their study. Based on their findings, most of the

SACCO's in their sample had received some form of external financing at one point. Also, external financing affected the FP of these SACCO's through portfolio quality, investment decisions, and financing policies. The main cause of external borrowing was to offer finances to their clients instead of boosting other profitable areas. Evidently, most financial institutions

lack solid plans on how to utilize external funding to improve their profitability in the long term, hence, risk falling into more debt.

Ondieki et al. (2017) study proves the positive association between external financing and performance of SACCO's in Kenya. Considering that a huge part of the Kenyan financial sector is dominated by commercial banks, it is crucial to analyze how external financing affects the banking industry. A study conducted by Harelimana (2017) in Rwanda compared the performance of Bank of Kigali and I&M Bank within 6 years starting from 2010. A healthy economy relies on the FP of banking institutions. Rwanda has experienced a rise in the quantity banks over the past few years. As such, it is crucial to examine the response of commercial banks to market situations that promote business growth. Harelimana (2017) utilized regression analysis and cross-section fixed model to assess time series data on the relationship between the level of debt and FP measured using ROE. Based on the results of the study, there is a strong positive association between the debt level and FP of both Bank of Kigali and I&M bank. The findings of both Ondieki et al. (2017) and Harelimana (2017) may be explained by the decreasing interest rates that result from external financing, thus, causing a rise in the profit levels.

With the increasing levels of ED in Kenya, it is evident that foreign sources may in the long run become hesitant to lend more money to the nation. Also, lack of foreign debt may limit the country's ability to repay the existing loans, resulting in sovereign default. Such a situation calls for credit risk management which has been a huge hurdle for most financial institutions. In a different study, Mwangi (2012) explores the role of credit risk management and how it influences the FP of commercial banks in Kenya. Mwangi (2012) first mentions that efficient credit risk management equates to more efficient bank performance. In the study, Mwangi

(2012) utilizes secondary data for the period 2007 to 2011 collected from 26 banks out of a population of 43 commercial banks in Kenya. The main performance measure in the study was ROE whereas CAR and NPLR was used to indicate credit risk management.

2.4.2 DD and FP of Commercial Banks

There have been several studies exploring the effect of DD in Kenya and in other nations. Governments of various economies have heavily borrowed from domestic sources to bridge the expenditure gap of various economic projects. As much as DD bears fewer risks compared to ED, it may present negative implications especially if the levels are unsustainable. Internal borrowing mainly impairs the banking sector since most industries in the private sector benefit from bank credit. Mun and Ismail (2015) use this viewpoint in their examination of the impact of domestic public debt on Malaysian financial development between 1980 and 2010.

Altayligil and Akkay (2013) also explored the connection between domestic debt levels and Turkey's financial progress. The researchers used time series analysis with data from 2002Q1-2012 Q2. Their results show that there is a negative association between DD and financial development. Based on both studies, it is evident that financing an economy using debt impairs financial development due to the crowding out effect. With expansionary fiscal policies, the real interest rates are likely to increase, causing reduction in private sector borrowing. In an analysis to confirm the extent to which expansionary fiscal policies affect the economy, Kariuki (2013) explored how financial distress affected the FP of Kenyan commercial banks. She noted that many banks in Kenya have been close down due to financial challenges. In her study, she selected twenty banks from a population of forty four banks. The findings revealed that financial distress contributed to poor FP among banks hence the need for nations to ensure financial stability in the sector.

In another study, Maina and Ishmail (2014) also concluded that there is a negative association between capital structure and FP of selected firms at the NSE. The study mainly adopted a causal research design alongside a panel regression analysis. As much as public debt is considered as a key macroeconomic factor in any economy, many countries are yet to attain acceptable debt management levels. Appropriate utilization of public debt should increase resource mobilization. Conversely, there are other studies that have shown that DD has a positive effect on FP and development. For instance, a work by Mogaka (2017) examined the impact of public debt on financial market development with focus on East African Community (EAC) using secondary data for the period 2007 to 2016 for the five main EAC nations: Uganda, Kenya, Tanzania, Rwanda, and Burundi.

The study concluded that DD positively impacts financial market development whereas the rate of inflation has a negative association with the development of financial development of markets. Additionally, interest rates and financial markets development in EAC economies have a positive relationship. Mogaka (2017) advises the need for governments to borrow from within in order to avoid the burden of foreign debt. However, Altayligil and Akkay (2013) warn against generalizing the results since every nation responds differently to financial and economic circumstances. The existence of mixed results in the studies warrants the need to ascertain the likely effect of DD in various economic sectors.

2.4.3 Interest Rates and FP of Commercial Banks

The financial crisis of 2008 affected many developing economies, and the banking sector made huge losses. Apart from losing valuable financial assets, most commercial banks accrued unpaid loans. This situation pushed banks to increase their lending prices in order to

cover up for the losses they had incurred and grow their profit margins. Over the years, interest rates have been fluctuating in line with investment and saving reforms across various nations. Most banks derive their profits from interest rates, hence, its significance in determining banking profitability. The aftermath of the global financial crisis made many nations realize the importance of the banking industry in steering economic growth. Despite this, credit insolvencies are bound to occur at any point hence the need for stability in commercial banks.

As a crucial determinant of profitability in commercial banks, interest rates have been a subject of study by many scholars across the globe. In a study conducted by Folawewo and Tennant (2008), the main focus was on the impact of the crowding out effect caused by economic growth, government borrowing, inflation rate, money supply, discount rates, population growth, and public sector debts. The study established that an increase in interest rates makes many banks to lend to individuals. On the contrary, a decrease in interest rates results in a crowding out effect because borrowers are considered as high risk. Therefore, banks do not obtain any profits when the interest rates are low. In a case where there is regulation of interest rates in an economy, the main causes of the crowding out effect include poor lending and government borrowing. Additionally, public debt is a huge determinant of interest rates. An increase in domestic and external borrowing is bound to reduce possible investments, increasing the interest rates. A study by Sumbi (2016) examined the interaction between public debt and interest rates between 2005 and 2015. The study adopted a descriptive research design to establish how public debt affects interest rates in Kenya. Sumbi (2016) investigated several additional critical variables, including interest rates, economic growth rates, foreign exchange rates, and interest rates. The results indicate a strong positive link between governmental debt and interest rates.

Several more studies investigate the relationship between interest rates and commercial banks' FP in Kenya. Ngure (2014) observed that interest rate changes had occurred in recent years and concluded that they had an impact on the financial success of various commercial banks. Ngure (2014) conducted his research across five years, mostly using a descriptive research approach. According to the findings, interest rates have a favorable impact on Kenyan banks' FP, as seen by changes in return on assets. As a result, higher interest rates boost commercial bank earnings. Wambari (2017) discovered that lending rate ratios have a beneficial impact on the overall growth of commercial banks after researching the effect of interest rates on their FP in Kenya. Unlike Ngure (2014), Wambari (2017) used an explanatory research design to perform a census of Kenya's 43 commercial banks. Wambari and Mwangi (2017) conducted more research on the deposit interest ratio and discovered a negative correlation with the FP of Kenyan commercial banks.

Based on Wambari and Mwangi's (2017) study, interest rates yield positive and negative results depending on deposits and lending. To confirm this, Kimita (2016) investigated how variations in interest rates affect commercial banks in the context of their FP. Most financial institutions contribute greatly to economic growth, and commercial banks accomplish this through maintaining acceptable liquidity levels. With the constant variation in interest rates, Kimita (2016) through a descriptive research design assessed 42 commercial banks that were running their operations from 2006 up-to 2015.

Kimita's (2016) study reveals a significant gap considering the findings that interest rate variations are not significant in explaining profitability in the banking sector. The current study seeks to confirm this finding. As for Wambari and Mwangi (2017), and Ngure (2014), both studies are significant in analyzing the financial sector; however, there are other key determinants of profitability that were not covered. Therefore, this study seeks to analyze other factors that affect the FP of commercial banks.

2.4.4 FDI and FP of Commercial Banks

In any economy, FDI plays a vital role in steering growth and overall progress. The past few years have seen a sharp rise in FDI inflows globally, and Majeed et al. (2021) confirm an outstanding \$1.35 trillion in FDI stock by 2018. Different studies highlight that FDI is essential in investment for most businesses (Boateng *et al.* 2017; Antwi *et al.* 2013; Saqib, 2013). First, FDI boosts competition across various industries in an economy especially when receiving country is able to direct the funds into more production and utilization of new technologies. Various literatures have explored the role of FDI on economic growth and the researchers found mixed results. Alsmadi and Oudat (2019) looked into annual data from 1978 to 2015. Over this time period, Bahrain has diversified various strategies to accommodate FDI, and therefore, the growth in the financial sector proves the significance of FDI.

Since most studies focus on the impact of FDI on economic growth, it is crucial to consider individual sectors in the economy. Studies on performance of commercial banks across the continent of Africa have shown the interaction between FDI and the economy. With focus on financial companies, Nwanji et al. (2020) investigated how FDI affects various deposit banks

in Nigeria between 2010 and 2017. FP is a key indicator of profitability and therefore, it determines the level of returns. Nwanji et al. (2020) adopted the Tobin Quantitative technique in their analysis. The main FP indicators in their study were: equity capital, firm size, reinvested earnings, and board size. Findings of the study showed that FDI positively influenced the performance of banks, hence, FDI increases profits. These results corroborate with that of Alsmadi and Oudat (2019), and confirm the relevance on FDI.

In Ghana, Musah et al. (2018) examined how FDI and economic growth contributes to the performance of selected commercial banks. According to the authors, many developing nations rely on FDI and Ghana has been one of them whose FDI stock has been increasing over the years. The study looked into different macroeconomic players based on data from the World Bank over a 10 year period. Furthermore, ROA was the main measure of profitability while GDP was used to indicate economic growth. The study analyzed the relationship between FDI, and the independent variables (Government expenditure, Gross Domestic Savings, Asset Composition, Credit Risk, and age). Additionally, FDI has a positive and significant impact on economic growth in Ghana in the short run and long run. Based on these findings, it is crucial for governments of developing nations to establish policies that push for more FDI inflows into their economies.

Locally, a work by Kariuki and Sang (2018) gave similar results. The researchers considered FDI as a crucial component that yields economic incentives in Kenya. Kariuki and Sang (2018) adopted a descriptive research design in analyzing annual data over the period 2005-2015. The research established that foreign equity capital significantly influences ROE which is a crucial measure of performance of commercial banks. Also, re-directing foreign earnings into the financial sector positively impacts the performance of Kenyan banks. Kariuki and

Sang (2018) mainly used intra-company loans, reinvested foreign earnings, and foreign equity capital as measures of FDI. However, there are other crucial factors affecting the profitability of commercial banks that Musah et al. (2018) cover in their study. Most importantly, the studies by Musah et al. (2018) and Kariuki and Sang (2018) yield similar results, and both recommend the positive benefits of FDI. One main difference in the studies is that they use different measures of profitability (Musah, Anokye, & Gakpetor, 2018).

Ongore and Kusa (2013), on the other hand, discovered conflicting findings in their examination of macroeconomic variables following their investigation into the factors influencing the FP of commercial banks in Kenya. One main argument in their study is that most commercial banks across Sub-Saharan Africa (SSA) are profitable because of investment; however, there is still a considerable gap between the supply and demand of bank-oriented services. In East Africa alone, the number of banks owned by the governments is lower, hence, poor competition in the region. Ongore and Kusa (2013) further looked into both macroeconomic and bank specific determinants that influence bank performance. They covered the period and found that bank specific factors play a crucial role in determining the performance of commercial banks in Kenya. However, the impact of macroeconomic factors mainly inflation and GDP was not conclusive. Based on this, it is important to introduce other macroeconomic variables that can drive profitability in commercial banks and the current study fulfills this.

Table 2.1 Summary of Empirical Literature and Research Gap

Author(s)	Research Topic	Research Methodology	Research Findings	Research Gap
Mun and	The Impact of Domestic	ARDL Model	Domestic public	The study only

Ismail (2015)	Public Debt on Financial Development in Malaysia		debt negatively affects financial development due to crowding out effect	focused on domestic public debt thus, the need to look into the impact of ED in the current
Qayyum and Haider (2012)	Foreign Aid, ED and Economic Growth Nexus in Low-Income Countries The Role of Institutional Quality.	Ramsey-Cass- Koopman's model	Foreign aid and governance promote economic growth whereas ED burdens the economy.	The current study incorporates additional variables.
Birru (2016)	The Impact of Capital Structure on FP of Commercial Banks in Ethiopia	Multiple regression model	Capital structure has a negative and significant effect on FP of selected commercial banks in Kenya.	The current study covers a longer period of time.
Harelimana (2017)	Effect of Debt Financing on Business Performance Bank of Kigali, Rwanda	Regression analysis and cross-section fixed model	Positive relationship between the level of debt and FP of	The study was carried out in Rwanda. The current research

			Bank of Kigali, and I&M bank.	will focus on Kenya commercial banks
Folawewo and Tennant (2008)	Interest rate spreads in low- and middle-income nations are determined by macroeconomic and market factors.	Cross-section fixed effects model	An increase in external and domestic borrowing reduces possible investments, hence increasing interest rates.	Current study focuses on Kenya
Sumbi (2016)	The effect of public debt on interest rates in Kenya	Descriptive research design	Strong positive association between public debt and interest rates.	The current study extends to the performance of FP of commercial banks

Source: Author 2024

2.4 Conceptual Framework

The conceptual framework shows the probable relationship between the variables under study.

The main variables considered include public debt, FP of commercial banks and FDI.

Independent variables: The relationship between the independent and dependent variables is made clear by the conceptual framework. Real interest rates, DD, and ED make up the majority of public debt, and these are the primary independent variables in the study.

Dependent variable: The FP of commercial banks was the research's dependent variable. This variable mostly shows how profitable commercial banks are. In this study, the ROE (ROE) was used as the metric.

Intervening variable: FDI was the intervening variable in the study. It was used to show whether its inclusion in the analysis had any intervening effect on the relationship between public debt and FP of commercial banks.

Figure 2.1 below is that of the conceptual framework showing the dependent variable, independent variables, and the intervening variables employed in the study.

Independent Variable

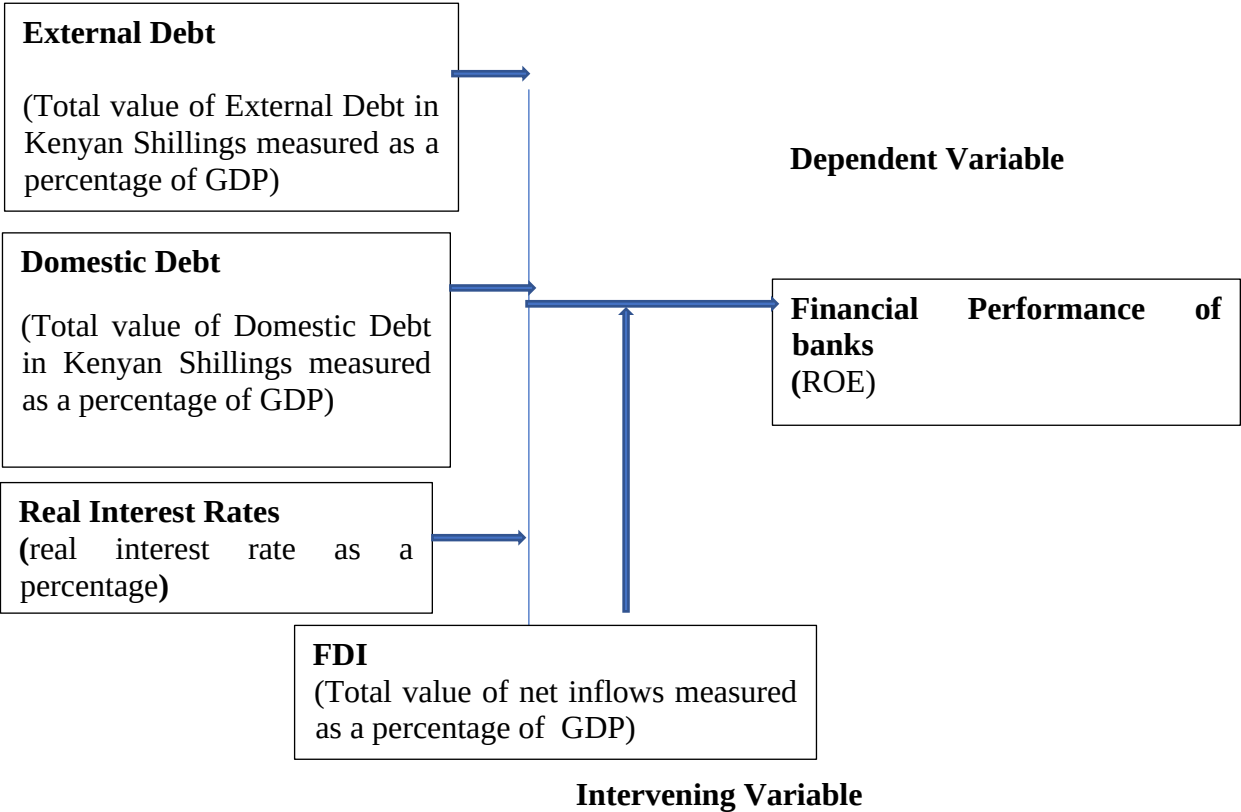


Figure 2.1: Conceptual Framework

Source: Author (2024)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, the research methodology details the methods that were implemented in the study in order to establish the effect of public debt on the FP of commercial banks in Kenya.

3.2 Research Design

The main research approach incorporated in this study was the descriptive research design which was deemed appropriate due to three main factors. First, the design assists to answer question when, what, where and how hence more emphasis is put on the actual research problem. Secondly, the descriptive research design allows incorporation of various research methodologies principally in analysis of quantitative data. Lastly, the design discourages manipulation of variables under study which is a crucial factor in any research. The descriptive research design assisted in translating the objectives of the study, identifying patterns and making informed decisions regarding the research problem.

3.3 Study Area

According to Kumar (2019), the study area encompasses the focus area where the research is to be done. This study will be conducted in Kenya which is located in East Africa, at a latitude of 1° 00'N and longitude of 38° 00'E. Additionally, Tanzania borders Kenya to the South while Ethiopia and Somali border the country to the North and North East respectively. South Sudan lies on the North West of Kenya while Uganda is on the West. Indian Ocean lies to the South East. The study considered all commercial banks in Kenya as reported by CBK (2022). A total of 39 commercial banks were incorporated and this was used to eliminate issues of sampling error.

3.4 Data Types and Data Sources

The study mainly incorporated quarterly time series data collected from secondary sources. Data on Return on Equity was obtained from KNBS and CBK supervision reports which entail financial statements published annually. In addition, data on External Debt, Domestic debt, Foreign Direct Investment and Real Interest Rates were collected from World Bank Open database and IMF official database from 2008 to 2022.

3.5 Data Collection

Secondary data of the study variables was collected for the period starting January 2008 to December 2022. There was data availability from official sources and publications. Secondary data was mainly sourced from the World Bank, IMF, and CBK. Data on ROE for the period 2008-2022 was collected from annual reports published by CBK. The data was considered accurate since CBK is a regulatory body and commercial banks are mandated to report their performance on an annual basis. Annual data on ED, real interest rates and FDI was obtained from World Bank database which publishes annual figures on key indicators. Lastly, data on DD was obtained from IMF and the same was confirmed by reports of CBK.

3.6 Data Analysis and Presentation

The time series data was first input in an Excel file before uploading to the Stata version 14 for analysis. The data was further examined through descriptive, correlational and inferential statistics. The descriptive approach assisted in explaining the status of the study variables based on measures such as the mean, minimum, maximum, median, skewness, and kurtosis. This design was relevant because it gave an overall overview of whether or not the variables were worth analyzing quantitatively. The correlational research approach further assisted in establishing the direction and strength of the relationship between two or more variables. In

this case, it explained whether the independent variables had a positive or negative association with the dependent variable. Lastly, regression was used in inferential research analysis. The inferential research design was appropriate in concluding that indeed, the FP of commercial banks depend on DD, ED, and interest rates.

3.7 Model Specification

A multiple regression model was utilized in the study to determine how Kenyan commercial banks' financial performance was impacted by public debt. The following model was used:

$$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \mu \text{ where;}$$

Y = FP of commercial banks in Kenya measured by ROE

β_0 = regression constant (ROE)

β_1, β_2 and β_3 = coefficients of the independent variables

x_1 = DD

x_2 = ED

x_3 = RIR

μ = error term

3.8 Diagnostic Tests

Since the study mainly involved time series data, various diagnostic tests were performed to establish the appropriateness regression method.

3.8.1 Unit Root Test

The stationarity or the unit root test mainly determines if the time series has a constant mean and variance in different time shifts. Since it is time series data, the ADF test was employed to check for unit roots.

3.8.2 Normality Test

The normality test determines the assumption that the residuals of random variable present in the data set are normally distributed. The research employed the skewness-kurtosis test to establish if the model residuals attain normality. For the residuals to be normally distributed, the p-value should be greater than 0.05 at a 5% significance level.

3.8.3 Autocorrelation Test

Autocorrelation can exist if the error terms in the regression model correlate over a period of time. The presence of autocorrelation results in a bias OLS estimator. The Breusch-Godfrey Serial Correlation LM Test was employed to test whether there was autocorrelation.

3.8.4 Heteroscedasticity Test

When heteroscedasticity is detected in time series data, there is a difference in the variance of the explanatory variables. The test for heteroscedasticity was carried out to establish if the OLS estimators were unbiased. The White test was used to test for heteroscedasticity with the main focus on the chi-squared value.

3.8.5 Multicollinearity Test

Multicollinearity mainly happens when at least two variables in a model reveal increased correlation hence making it difficult for the research to attain proper fitting of the model. As such, it is difficult to change a particular predictor variable without affecting the others in the

model. Variance Inflation Factor (VIF) was used to test for multicollinearity through establishing the correlation between variables in the study.

3.9 Ethical Considerations

In any study, researchers must adhere to the ethical policies procedures laid down by the institution. This particular research mainly utilized secondary data and the first ethical consideration is proper collection of data. A research permit was sought from the NACOSTI before continuing with the study.

CHAPTER FOUR: DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.1 Introduction

This chapter details the analysis and presentation of findings of the analyzed data. The study sought to establish the effect of public debt on FP of commercial banks in Kenya. It begins with presenting the findings of the descriptive statistics of the study variables. It further explores the correlation analysis and time series data analysis. Lastly, it interprets the findings of the study.

4.2 Descriptive Statistics

The study considered a descriptive analysis of the independent and dependent variables to establish the overall properties of the data at a glance. Descriptive statistics mainly encompasses measures of central tendency, measures of dispersion, and measures of variability. The median, mean, and mode are the major measures of central tendency. The mean particularly represents the average if the values within a given data set. Furthermore, the median appears in the middle of the data set whereas the mode is the value that appears the most within the data set. Standard deviation is a measure of dispersion that describes how dispersed the observations are from the sample mean within a given data set. The maximum reveals the figures with the highest values whereas the minimum reveals those with the smallest values for every variable. Furthermore, skewness and kurtosis are crucial measures considered in descriptive statistics. They both measure the normal distribution present in the data. For normal distribution, the skewness and kurtosis lie within +2 to -2. The statistics analyzed comprised of quarterly time series data from 2005 to 2018. These are presented in the table below:

Table 4.1 Summary of Descriptive Statistics

Stats	ROE	DD	ED	RIR	FDI
N	60	60	60	60	60
Std. Dev.	4.139876	11.08991	6.044985	2.682347	0.847131
Mean	24.906	44.52813	29.65938	7.564272	1.009155
p50	24.09	39.706	28.53157	7.831101	0.6275913
Variance	17.13857	122.9861	36.54184	7.194984	0.7176309
min	14.2	32.228	21.44737	0.984997	0.2662913
max	30.9	63.008	38.4528	12.52696	3.094711
skewness	-0.815698	0.4960634	0.1191346	-0.5663453	1.222524
kurtosis	3.793295	1.724525	1.473638	3.584541	3.354081

Source: Author (2024)

Table 4.1 summarizes the statistical information for both the independent and dependent factors, with a total of 60 observations. According to the table, the financial performance of commercial banks in Kenya over the study period ranged from 14.2 and 30.9 per cent. the average during this period stood at 24.906 per cent.

From the findings, the average of domestic debt was 44.552813 per cent with the minimum at 32.228 and the maximum at 63.008 percent. These findings confirm that the domestic debt between the year 2008 and 2018 in Kenya was 32.228 per cent and 63.008 percent. In addition, the average of external debt in Kenya over the study period was 29.65938 per cent. During this same period, external debt ranged from 21.44737 to 38.4528 per cent.

For real interest rates, Kenya recorded a mean of 7.564272 per cent, and a range of 0.984997 to 12.52696 per cent for the period 2008 to 2022. Finally, the mean and median of FDI were 1.009155 and 0.6275913 per cent, respectively. The range of foreign direct investment was 0.2662913 per cent to 3.094711 per cent.

4.3 Correlation Analysis

Correlation analysis indicates the relationship between different variables. The correlation between two different variables can either be positive or negative. The sign of the correlation value shows the direction of the relationship. Therefore, a coefficient value of +1 or value closer to that indicates a strong positive correlation between the variable.

Table 4.2 Correlational Analysis

Variables	ROE
ED	-0.727
DD	-0.699
RIR	0.195
FDI	0.530

Source: Author (2024)

Table 4.2 shows the correlational analysis for FP of commercial banks ROE, ED, DD, RIR, and FDI in Kenya. Foremost, the correlation coefficient between ROE and ED is -0.727 this implies that the two variables have a strong relationship however, it is negative. This further implies that an increase in ED results in a decline in ROE. Similarly, the correlation coefficient between DD and ROE is -0.699. This indicates that the relationship between the two is strong but negative meaning that an increase in DD negatively affects ROE. The correlation

coefficient between RIR and ROE is weak but positive ($r= 0.195$) meaning that an increase in RIR leads to a rise in ROE despite a weak coefficient. The analysis additionally reveals a positive correlation between FDI and ROE ($r= 0.530$). An increase in FDI promotes the FP of commercial banks in Kenya.

4.4 Test for Stationarity

Stationarity occurs when the series presents a constant mean, variance, and covariance over a given time. The ADF test helps in examining the presence of stationarity in the time series data. It mainly checks the correlation in the error terms through addition of lags. The null hypothesis is that the time series data is non-stationary (has unit roots).

Table 4.3 ADF Unit Root Test at Levels

ROE	-2.079	0.5580	-4.132	-3.492	-3.175
ED	-2.792	0.1999	-4.132	-3.492	-3.175
DD	-2.122	0.5338	-4.132	-3.492	-3.175
RIR	-4.210	0.0043	-4.132	-3.492	-3.175
FDI	-2.349	0.4071	-4.132	-3.492	-3.175

Source: Author (2024)

Table 4.3 shows that ROE, ED, DD, and FDI are non-stationary at the level since the absolute value of the ADF data is less than the absolute value of the crucial values. On the contrary RIR is stationary at level meaning it is stationary. In this case, we difference ROE, ED, DD, and FDI and observe their outcomes.

Table 4.4 ADF Unit Root Test at First Difference

dROE	-5.155	0.0001	-4.135	-3.493	-3.176
dED	-5.693	0.0000	-4.135	-3.493	-3.176
ddd	-5.803	0.0000	-4.135	-3.493	-3.176
dFDI	-5.235	0.0001	-4.135	-3.493	-3.176

Source: Author (2024)

From the result in Table 4.4, the first difference of the variables: ROE, ED, DD, and FDI are stationary given the ADF test statistics are greater than the critical values. MacKinnon estimated p-values are similarly significant at 5%. As a result, RIR is integrated at order 0, i.e. $I(0)$, whereas ROE, ED, DD, and FDI are integrated at order 1, i.e. $I(1)$. This needs the application of ARDL to analyze the data.

4.5 ARDL Co-integration Analysis

4.5.1 Determination of Optimal Lag Length

Since the series is integrated of order $I(0)$ and $I(1)$ based on the unit root tests, the model is likely to have a co-integration relationship. The bounds test was deemed appropriate to estimate the relationship between the dependent and independent variables at both the level

and the first difference. First, the optimal lag length for the individual variables were selected using the AIC (AIC).

Table 4.5 Determination of Optimal Lag Length: ROE

0	-160.479				18.7133	5.76711	5.78113	5.80328
1	-112.966	95.026*	1	0.000	3.55403*	4.10593*	4.13397*	4.17826*
2	-112.895	0.14243	1	0.706	3.67416	4.1391	4.18117	4.2476
3	-112.815	0.1586	1	0.690	3.79752	4.17198	4.22807	4.31665
4	-112.727	0.17768	1	0.673	3.92404	4.20452	4.27463	4.38536

Endogenous: ROE

Exogenous: _cons

Source: Author (2024)

Table 4.6 Determination of Optimal Lag Length: DD

0	-213.142				122.739	7.64793	7.66196	7.6841
1	-113.015	200.25*	1	0.000	3.56028*	4.10768*	4.13573*	4.18002*
2	-112.882	0.26667	1	0.606	3.67246	4.13864	4.1807	4.24714
3	-112.72	0.32324	1	0.570	3.78462	4.16858	4.22467	4.31325
4	-112.52	0.39995	1	0.527	3.89522	4.19715	4.26726	4.37799

Endogenous: DD

Exogenous: _cons

Source: Author (2024)

Table 4.7 Determination of Optimal Lag Length: ED

0	-177.648				34.5507	6.3803	6.39432	6.41647
1	-84.5172	186.26*	1	0.000	1.28666*	3.0899*	3.11794*	3.16223*
2	-84.4285	0.17748	1	0.674	1.32932	3.12244	3.16451	3.23095
3	-84.3258	0.20525	1	0.651	1.37281	3.15449	3.21058	3.29916
4	-84.2058	0.24009	1	0.624	1.41697	3.18592	3.25603	3.36676

Endogenous: ED

Exogenous: _cons

Source: Author (2024)

Table 4.8 Determination of Optimal Lag Length: RIR

Selection-order criteria

Sample: 2009q1-2022q4

Number of observations = 56

0	-120.09				4.42285	4.32466	4.33868	4.36082
1	-109.224	21.732	1	0.000	3.10948	3.9723	4.00035	4.04464
2	-107.519	3.4116	1	0.065	3.0323	3.9471	3.98916	4.0556
3	-105.022	4.9935	1	0.025	2.87487	3.89364	3.94973	4.03831
4	-100.995	8.0535*	1	0.005	2.58091*	3.78554*	3.85565*	3.96638*

Endogenous: RIR

Exogenous: _cons

Source: Author (2024)

From the tables, the optimal lag lengths for ROE, ED, DD, and RIR are 1, 1, 1, and 4 respectively. This is based on the AIC and also, the lags have the lowest figures with the Asterix in the range.

4.5.2 ARDL Bounds Cointegration Test

This test was conducted to establish whether or not there is co-integration in the model. If the computed F-statistics is greater than the critical values of the upper bound 1(1) at 1%, 5%, 2.5%, and 10%, the hypothesis is rejected. The ARDL bound test results are shown in the table below:

Table 4.9 Bounds Cointegration Test Summary

H0: no levels relationship

10%	2.72	3.77	1.907
5%	3.23	4.35	
2.5%	3.69	4.89	
1%	4.29	5.61	

Source: Author (2024)

From the above table, the F-statistic is 1.907 and this is less than all critical values at 10%, 5%, 2.5% and 1% of the lower and upper bounds. Therefore, we fail to reject the null hypothesis implying that there is no long run relationship in the model. This necessitates estimating the short run ARDL model.

4.6 Regression Analysis

The ARDL bound test for co-integration confirms that there is no long run relationship in the model. Therefore, the study estimated the short run relationship using the ARDL model. The results are shown in table below:

Table 4.10 Estimated short-run Coefficients

ARDL (1, 1, 1, 4) regression

Sample: 2009q1-2022q4				Number of obs= 56 F(10, 45)=43.34 Prob>F = 0.0000 R-squared= 0.9059 Adj R-squared= 0.8850 Root MSE= 1.4538
Log likelihood=-94.293252				
ROE	Coefficient	Std. Err	t-statistic	P-value
ROE(L1.)	0.7953208	0.0775529	10.26	0.000
ED	-0.8998085	0.2129038	-4.23	0.000
ED (L1.)	0.6998185	0.2073222	3.38	0.002
DD	-0.3383239	0.121788	-2.78	0.008
DD (L1.)	0.3819981	0.1136293	3.36	0.002

RIR	-0.0766451	0.1701364	-0.45	0.655
RIR (L1.)	0.0415571	0.1437729	-0.29	0.774
RIR (L2.)	-7.89e-16	0.1361903	-0.00	1.000
RIR (L3.)	-4.68e-16	0.1361903	-0.00	1.000
RIR (L4.)	0.0069082	0.1165976	0.06	0.953
_cons	10.46767	4.443237	2.36	0.023

Source: Author's computation using Stata 14

4.7 Discussion of ARDL Estimation Results

The lagged variable of ROE as a measure of FP is 0.7953208. This means that previous FP explain the current FP by approximately 79.53% and the coefficient is highly significant at 5%. Therefore, the other explanatory variables may be responsible for the remaining percentage in the model. Based on the estimation results, it is evident that ED has a negative effect on ROE with a coefficient of -0.899. These results are additionally statistically significant at 5% level given the p-value is 0.000. These findings confirm the study conducted by Qayyum and Haider (2012) that ED negatively affects economic growth.

Also, DD has a negative impact on ROE with a coefficient of -0.3383239. It is also significant at 5% given a p-value of 0.008. These results agree with the studies of Mun and Ismail (2015), and Altayligil and Akkay (2013) who also established a negative relationship between financial growth and DD. The crowding out effect brought about by DD greatly affects the overall economy.

Lastly, RIR has a negative coefficient of -0.0766451 however, this is not statistically significant given the p-value is 0.655. Similarly, Kimita (2016) found an insignificant relationship between interest rates and FP of commercial banks. The adjusted R-squared value is 0.8850, implying that the explanatory variables explain FP by about 88.50%.

Furthermore, the intervening effect of FDI on the association between public debt and FP of commercial banks in Kenya was analyzed using the R^2 values. Table 4.8 indicates the regression output when FDI is not part of the model.

Table 4.11 Regression Output Without FDI

Number of Observations	56	R-squared	0.9059
F(10, 45)	43.34	Adjusted R-squared	0.7806
Prob>F	0.0000	Root MSE	0.8850

Source: Author (2024)

Table 4.12 Regression Output with FDI

Number of Observations	56	R-squared	0.9110
F(12, 43)	36.70	Adjusted R-squared	0.8862
Prob>F	0.0000	Root MSE	2.1936

Source: Author (2024)

Without FDI as an intervening variable, $R^2=0.9059$ as shown in table 4.9. With FDI as an intervening variable, $R^2=0.9110$. This implies that the inclusion of FDI in the model jointly explains 91.10% variation in FP of commercial banks in Kenya. Additionally, the probability

of the F-statistic is 0.0000 and this implies that the intervening effect of FDI is statistically significant.

Various diagnostic tests were conducted to validate the results and they included autocorrelation, multicollinearity, normality, and heteroscedasticity.

4.8 Post-Estimation Diagnostic Tests

4.8.1 Autocorrelation Test

The Breusch-Godfrey LM test was used to test for autocorrelation in the model. The test allows detection of serial correlation through a number of lags.

Table 4.13 Autocorrelation Test

Lags(p)	Chi2	df	Prob>chi2
1	0.745	1	0.3880

From the results, chi2 is greater than 5% i.e. 0.3880 is more than 0.05. It is determined that there is no serial correlation in the model thus the null hypothesis cannot be rejected.

4.8.2 Normality Test

To determine whether the residuals were normally distributed, a normality test was performed. The Skewness Kurtosis test was used in the study to ensure normality, and the findings are displayed below:

Table 4.14 Skewness/Kurtosis tests for Normality

Skewness/Kurtosis tests for Normality					
Variable	Observations	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
Residuals	15	0.9681	0.3896	0.80	0.6700

Source: Author (2024)

It is the null hypothesis that a normal distribution is seen in the residuals. The alternative hypothesis, $H_1: p < 0.05$, which suggests that the residuals are not normally distributed, is opposed by $H_0: p > 0.05$. Given that the p-value for bias is higher than 0.05, the table's probability of skewness, which is 0.9681, suggests a normal distribution. Additionally, the asymptotically distributed kurtosis is indicated by Pr (Kurtosis) ($0.3896 > 0.05$). Furthermore, it is significant because the overall probability is 0.6700, which is higher than 0.05. Since the null hypothesis cannot be disproved, the model's residuals exhibit a normal distribution.

4.8.3 Heteroskedasticity

The Breusch-Pagan test was employed to check for heteroscedasticity in the model. The below were obtained from the Breusch-Pagan test:

Breusch-Pagan/Cook-Weisberg test for heteroskedasticity

H0: Constant variance

Variables: fitted values of ROE

$\chi^2(1) = 3.16$

$\text{prob} > \chi^2 = 0.0752$

The aforementioned result demonstrates that the χ^2 value of 0.0752 is higher than 0.05. As a result, we cannot rule out the null hypothesis and come to the conclusion that heteroscedasticity does not exist.

4.8.3 Multicollinearity Test

Multicollinearity test was conducted. The values of the VIF and the tolerance (1/VIF) were considered. If the values are less than 10, then it implies no multicollinearity.

Table 4.15 Test for Multicollinearity

ED	9.40	0.106367
DD	9.33	0.107222
RIR	1.03	0.975161
MEAN VIF	6.58	

Source: Author (2024)

From the table, the variables had a mean VIF of 6.58 which is less than 10, therefore, confirming the absence of multicollinearity in the model.

CHAPTER FIVE: SUMMARY, CONCLUSION AND POLICY RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary, conclusion, and policy suggestions from this study. This chapter is organized into four sections: summary, conclusion, policy recommendations, and opportunities for future research.

5.2 Summary

The Kenyan economy considers commercial banks as integral given the roles they play across various drivers. First, the study employed a descriptive research design which was appropriate in determining the relationship between the dependent and independent variables.

The correlational research analysis mainly examined the strength and direction of the relationship between the variables. The findings showed a significant inverse association between Kenya's commercial banks' FP and ED. Furthermore, there is a significant inverse association between FP and domestic debt. FP had a weak but favorable correlation with real interest rates. Moreover, a positive correlation was found between financial performance and FDI.

Additionally, the study employed the ADF unit root test to examine if the variables in the model were stationary. The series was subjected to ADF test at both the level and at the first difference. The findings revealed that FP, ED, DD and FDIs became stationary at first difference or integrated of order 1. However, real interest rates were stationary at level and therefore, integrated of order 0.

Given that the series revealed mixed orders of integration, i.e. $I(0)$ and $I(1)$ series, the ARDL model was applied. The ARDL is an ordinary least square (OLS) model which fits time series analysis whereby variables have different orders of integration. The ARDL regression considers number of lags during the modeling process. First, the unrestricted vector autoregressive (VAR) order was applied to select the optimal lag length applicable to each variable in the model. The AIC was considered as the appropriate one during lag selection. For ROE, ED, DD, and RIR, lags 1, 1, 1, and 4 were selected as the optimal lags for the model. After selection of the lag, the Bounds Cointegration Test was applied to determine whether or not there was cointegration between the variables given the stationarity results. The findings confirmed that there was no cointegration, implying there was no long-run relationship among the variables in the study. Based on this, the ARDL model was used to conduct the regression analysis. The ARDL revealed the coefficients as well as the statistical significance of the variables in the model. The Breusch-Godfrey test indicated that there was no autocorrelation present in the residuals of the regression model. Additionally, the Skewness/Kurtosis normality test confirmed that the regression residuals were normally distributed. To test for heteroskedasticity, both the Breusch-Pagan and White tests were used and results revealed absence of heteroskedasticity in the model. Also, the VIF test proved the absence of multicollinearity in the model. The following part delves into the overview of the findings based on each target.

5.2.1 Effect of ED on FP of Commercial banks in Kenya

The first objective of the study was to determine the effect of external debt on financial performance of commercial banks in Kenya. The correlation coefficient value of $r = -0.727$

from the correlational research investigation showed that ED has a substantial negative correlation with the FP of commercial banks. The regression model validates this finding, as the ED had a negative coefficient of $\beta_1 = -0.8998085$. With a p-value of 0.000, this coefficient was likewise statistically significant at the 5% level. This result suggests that Kenyan commercial banks' FP is negatively impacted by ED. There is an 89.98% decrease in FP for every percentage rise in ED.

5.2.2 Effect of DD on FP of Commercial banks in Kenya

The second objective of the study was to establish the effect of domestic debt on financial performance of commercial banks in Kenya. The correlation analysis's results, which had a correlation value of $r = -0.699$, showed a negative relationship between DD and commercial banks' FP. This suggests that Kenyan commercial banks perform worse overall when there is a rise in DD. The regression results also showed that the coefficient of DD is negative, with $\beta_2 = -0.3383239$. Consequently, when all other variables are held constant, a rise in DD lowers the FP of commercial banks by 33.83%. Furthermore, with a p-value of 0.008 at the 5% significance level, DD has a substantial role in explaining the FP of commercial banks.

5.2.3 Effect of Real Interest Rates on FP of Commercial banks in Kenya

The third objective was to determine the effect of real interest rates on financial performance of commercial banks. The correlational analysis showed a weak but positive relationship ($r = 0.195$) between real interest rates and the FP of commercial banks. Regression analysis results also showed that interest rates had a negative coefficient, $\beta_3 = -0.0766451$. This indicates that a

percentage increase in real interest rates only has a 7.66% negative impact on the FP of commercial banks when all other variables remain constant. Nevertheless, considering that the p-value is larger than 0.05 at 5% (0.655), the coefficient was not significant.

5.2.4 Intervening Effect of FDI on the Association between Public debt and FP of Commercial banks in Kenya

The last objective was determining the intervening effect of FDI on the relationship between public debt and financial performance of commercial banks in Kenya. The R-squared value of FDI was significant since the probability of the F-statistic was 0.0000. Its inclusion in the model jointly explained 91.10% variation in FP of commercial banks in Kenya.

5.3 Conclusion

The main objective of the study was to establish the effect of public debt on the FP of commercial banks in Kenya. The study covered the period 2008 to 2022. The following conclude the results of the hypothesis for the study:

5.3.1 ED and FP

The null hypothesis is rejected since the results revealed that ED has a significant effect on the FP of commercial banks in Kenya.

5.3.2 DD and FP

Given that there is a statistically significant relationship between the DD and FP of Kenyan commercial banks, we reject the null hypothesis.

5.3.3 Real Interest Rates and FP

We failed to reject the null hypothesis since the study established that real interest rates are insignificant in explaining the FP of commercial banks in Kenya.

5.3.4 FDI and FP

Given that FDI had a statistically significant intervening effect on the relationship between state debt and the FP of Kenya's commercial banks, the null hypothesis was rejected.

5.4 Recommendations

The results of the study found a significant effect of DD on the FP of commercial banks in Kenya. Domestic debt was found to negatively affect financial performance of commercial banks hence DD is not sustainable and harms the overall growth of commercial banks. Domestic debt crowds out investment into the private sector since the government is forced to utilize private savings in the nation. As such, private sectors such as commercial banks are left out and not considered for development projects. Borrowing from domestic sources such as commercial banks may lead to higher interest rates. This finding calls for the Kenyan Government to strengthen debt management strategies to limit the crowding out effect in commercial banks which can alternatively lend funds to other private firms and gain more revenue.

The results of the study further revealed the significance of external debt in the performance of commercial banks in Kenya. Through external debt, commercial banks gain more capital that can be effective in increasing investments into the sector. Despite this, the study established that ED had a negative effect on commercial banks and their general FP. Most nations borrow from external sources because local sources are unable to meet their financial needs.

Furthermore, this external financing is mainly directed towards closing the gap in the country's budget as opposed to being used to improve infrastructure and develop both public and private sector. This study therefore recommends that the Kenyan government should adopt debt reduction and management strategies that can control debt servicing which in turn take up a huge share of government revenue.

When it comes to real interest rates, the findings indicated a negative effect meaning that increasing interest rates negatively affects commercial banks. Interest rates on outstanding public debt are likely to increase in cases where financial resources are inadequate to sustain debt servicing. However, the study established that real interest rates were insignificant in explaining FP hence, cannot be adopted as an immediate tool in devising policies for commercial banks.

Lastly, the study established a positive intervening effect of FDI in the relationship between public debt and financial performance of commercial banks. Most developing nations continue to create conducive environments which attract foreign investors. The Kenyan Government needs to take advantage of income earned through tax incentives derived from foreign direct investment. The study established that FDI had a significant effect on financial performance of commercial banks in Kenya. FDI increases deposits in commercial banks and in turn, they are able to increase their ROE. This factor makes it a more efficient alternative to public debt.

5.5 Areas for Further Research

This study set out to determine how public debt affected Kenyan commercial banks' financial performance. The current study mainly included commercial banks; however, other studies

can consider the effect on SACCOs and other financial institutions which are equally significant in the Kenyan economy. Additionally, the study employed ROE as a measure of FP. A different research can employ a different measure for instance ROA and NIM which also indicate the profitability of commercial banks.

Lastly, the ARDL model and time series analysis were used in the study. With the use of panel data analysis, a comparable study may be conducted to analyze how public debt affects Kenya's commercial banks' FP in various countries.

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APPENDICES

Appendix 1: Data

YEAR	ED	DD	REAL	FDI	ROE
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			INTEREST RATES		
2008	21.44737	32.462	0.984997	0.266291	24.9
2009	23.21917	32.228	10.096	0.274534	26.1
2010	22.29531	35.434	12.52696	0.392164	28.2
2011	23.93145	34.966	4.526186	3.094711	30.9
2012	23.57602	35.878	9.313511	2.447259	30.3
2013	25.27764	35.819	9.293946	1.81417	29.2
2014	27.91646	34.837	8.249079	1.202208	26.7
2015	31.30583	39.706	6.268806	0.8838	23.9
2016	28.53157	47.538	10.11813	0.627591	24.6
2017	33.49015	48.059	5.656748	1.640837	20.8
2018	34.61404	50.784	8.48796	0.832686	22.88
2019	35.40429	54.148	7.831101	0.468169	22.11
2020	38.4528	63.008	6.714634	0.423521	14.2
2021	38.21241	62.648	7.427581	0.422364	22.3
2022	37.21627	60.407	5.968447	0.347014	26.5

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Appendix 2: Research Permit



REPUBLIC OF KENYA

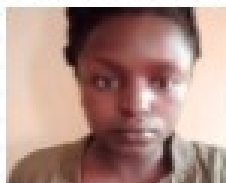


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