

**EFFECTS OF FOREIGN DIRECT INVESTMENTS ON THE INTEREST  
RATE SPREAD AMONG LISTED KENYAN BANKS**

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## DECLARATION

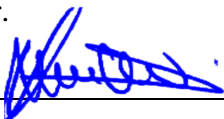
I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than the University of Nairobi for examination.



Signed: \_\_\_\_\_ Date: 18/11/2022

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

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Foremost, my God has made this a possible with all the difficulties I have faced. His wisdom has guided me throughout the process.

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## **DEDICATION**

I dedicate this project to my wife Irene Nakhisa, sons Travis, Keynes, Cartley and late parents for their contribution in my life to make this happen.

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## **ABBREVIATIONS AND ACRONYMS**

<b>CBK</b>	Central Bank of Kenya
<b>CMA</b>	Capital Markets Authority
<b>FDI</b>	Foreign Direct Investments
<b>GDP</b>	Gross Domestic Product
<b>ICT</b>	Information
<b>MNCs</b>	Multinational Corporations
<b>UNCTAD</b>	United Nations Conference on Trade and Development
<b>USD</b>	United States Dollar
<b>VIF</b>	Variation Inflation Factor



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## ABSTRACT

Foreign direct investments have been associated with the streamlining the local economy, through provision of new technology, providing increased employment opportunities as well as enhancing that provision of exemplary and unique services that the local economy would not obtain the expertise or the resources to undertake. However, FDI inflows on the other hand, means that the local industry is faced with stiff competition and may be required to increase their investments and their standards, to compete with the multinational companies. The increased borrowing of funds is expected to increase demand for loans and increase interest rate spread. This study therefore sought to determine the effect of FDI on interest rate spread in Kenya. These factors included, inflation rate, real interest rate, GDP and exchange rate volatility. Quarterly data for these variables was collected for the period of 10 years (2012-2022). The study adopted correlation analysis as well as regression analysis that sought to determine the relationship between the study variables. The regression analysis that was undertaken by the study indicated that FDI had significant negative effect on interest rate spread. The Spearman's correlation that was undertaken by the study was -0.05, but insignificant. The regression analysis however indicated that FDI had a significant coefficient of -0.494. The correlation coefficient of inflation rate with interest rate spread was negative and close to zero at -0.034. This indicated that increasing inflation rate would reduce interest rate spread, although the correlation was insignificant. Real interest rates, however, did not have significant effect on interest rate spread. The regression coefficient had a p-value greater than 0.05 and therefore despite the coefficient being negative indicating that increasing real interest rates would have a negative impact on interest rate spread, the impact was not significant. Increasing GDP in the economy increased economic activity and therefore less people need to borrow loans from commercial banks. The

commercial banks, therefore, reduce their interest rates, and thereby reducing the interest rate spread. The regression analysis had a similar finding where the coefficient of GDP was significant but negative at -1.17. Exchange rate volatility on the other hand measured the exchange rate between the Ksh and USD. The volatility had negative and insignificant correlation while at the same time the regression coefficient was negative and insignificant. The study recommended that the government improves FDI inflows, as well as enhance opportunities that would improve GDP. Inflation rate in the short run was also encouraged and recommended by the study.

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background of the Study**

Foreign Direct Investment (FDI) enables a country to acquire the much-needed assets that can be invested domestically to create job opportunities and earn country revenue which boosts the economy. A country as well obtains new technology that previously was not available and improved managerial expertise enhancing efficiency in the producing services and goods and effectiveness of the management control practices (Nyanyuki, 2018). Advancement in technology is the fundamental driver in the global business processes which greatly attract FDI and affect the international trade in general increasing competition for local firms. For local firms to compete effectively in the market they require financial resources to improve their products and services. Demand for loans increases as the local industries seek to acquire better technology and embrace new trade practices. The demand in loans would mean that the interest rate spread would increase as the banks which are the greatest players in trade seek to maximize their earnings. That is, until the marginal efficiency of capital equals its cost, the investment is profitable.

Loanable funds or neo-classical theory of interest rates was pioneered in 1930s by Wicksell (1936) and was subsequently built upon by Ohlin, Robertson and Hawtrey (1937). The theory suggests that the determination of the interest charged is affected by market forces which are supply of loanable funds and credit demand. According to this model, the price of credit is dictated by the supply and demand for money that is lent out, which in turn determines the rate of interest. The second theory is classical theory suggests that the economy has the ability to

regulate itself. It was introduced by Adams Smith in the early 1930s (Vivenza & Smith, 2001). The theory argues that the equilibrium interest rate is established from savings and investments that is achieved at the point of intersection between saving curve and investment curve as explained by Oost (2002). Lastly, this study is underpinned to the theory of financial intermediation which was proposed by Akerlof (1970) in his seminal paper. The theory was however developed further by the works of Spence (1973) and Rothschild & Stiglitz (1976). The theory proposes that there exist financial intermediaries in order to reduce both the cost for information and the cost of transaction that exist due to information imbalance between the lender and the borrower. This therefore implies that financial intermediaries exist to enable and enhance efficiency in financial markets.

Demand for loans has increased among local industries as a result of the increase in competition in Kenya engendered by foreign direct investment which increases the interest rate spread. Listed local banks in Kenya generate income from the interest rates with the net interest rates spreads as their profit margins. Kenyan listed local banks embrace innovative client acquisition, customer retention, loyalty, and principal investing techniques as a means of gaining a competitive edge. These unique strategies that could help them stand out from other financial institutions and effectively compete. Despite the enhancement of profitability of listed local banks catalysed by FDI, FDI has been associated with profits repatriation as well as unfair competition for domestic industries which may not compete against well-established multinational corporations (MNCs) (Nunnenkamp, 2002).

### **1.1.1 Foreign Direct Investment**

A foreign investor, firm, or government may purchase an interest in a foreign project, business, or company. FDI is an economic decision to purchase a substantial stake of an international company or the entire stock as part of expansion of operations or to a new location. According to Times (2014), FDI is as well defined as having an ownership stake control of a company situated in a foreign country through investment. This investment can be made inorganically by purchasing an existing consortium in the foreign of interest or organically by through the expansion of extant businesses there. It also refers to an investment into a business or a corporation done intending to establish a lasting interest by a party that is in one country in another foreign country (Duce & España, 2003).

Developing economies currently inclines toward FDI to participate in global trade by facilitating the flow of capital for economic growth and development. FDI boosts economy by creating job opportunities, increasing per-capita income, stimulates productivity, improves management expertise and spurs the transfer of technology. In 2020 FDI in Kenya registered a growth of USD 717 million equal to 0.5% of the nominal GDP which was a decline from the previous year which was 1 billion equivalents to 1.3% nominal GDP (Odhiambo, 2022). Kenya is rich with resource endowment which attracts foreign investment enhancing competition between the local industries and foreign investments given that the foreign direct investor have a comparative advantage. The country is therefore torn between the allure of establishing better access to foreign markets resulting from highly efficient production and the fear of new competition in existing market.

The level of FDI in Kenya has been weak in consideration to the magnitude of her economy and her development level. However, it still maintains to be the major FDI recipient in Africa as the country has mostly operated under open economy system. The increase in FDI, has increased

since the year 2010 but a report from UNCTAD (2020) indicates that FDI inflows in Kenya decreased by 18% to US\$ 1.3 billion in 2019, in comparison to US\$ 1.6 billion in 2018, as shown in table 1.1. The arrival of fiber optics in 2009-2010 has enabled the country to attract most FDI in the ICT sector, the other sectors in the country that have also attracted FDIs are banking, tourism, infrastructure and extractive industries. The year 2020 was grossly affected by COVID-19 pandemic that the FDI flows into Kenya fell significantly as investments were hard hit by budget cuts as well as dwindling business climate. As a matter of fact, the report by UNCTAD indicates that FDI flows to Sub-Saharan Africa decreased by 11% to an overall estimate of US\$ 28 billion. The main investors in Kenya are mostly from the UK (United Kingdom), the Netherlands, China, Belgium and South Africa (UNCTAD, 2020).

### **1.1.2 Interest Rates Spread**

The interest rate spread is the difference between the interest rate charged by banks on overdrafts taken out by private sector borrowers and the interest rate paid by commercial or similar banks on demand, time, or saving deposits (Ghasemi & Rostami, 2015). Another way to defining net interest rate spread is the result obtained from taking the difference between the average yield obtained from borrowing by a financial institution, which also covers other interest-earning operations, and the typical rate paid on deposits and borrowings by the institution (Were & Wambua, 2014). Interest rate spread determines the profitability of a financial institution. Listed local Kenyan banks receive interest income from several sources which includes primary sources which are also known as core deposits which are generally in form of checking and savings accounts which are normally obtained in low rates. Other sources include shareholder equity, debt insurance and wholesale deposits. Listed local banks earn interest on variety of loans the



issue such as mortgages on property, student loan, home equity lending, car loans and credit card lending which earn relatively higher interest rates (Were & Wambua, 2014).

A bank's primary responsibility is to control the difference between the rates of interest it charges depositors and the rate it gets from lending. This indicates that money from the interest rate differential is generated when the interest collected on loans exceeds the interest presented by the bank on customer deposits, with the net interest rate spread serving as the profit margin (Were & Wambua, 2014). The likelihood of the financial institution being more profitable increases with the size of the spread or profit margin of the interest rate differential. The interest rate spread differential by commercial banks is affected by the rate of demand of loans, the competition among the banks, as well as central bank's policies that reduces the interest rate charged to commercial banks. It implies that factors that would influence demand of loans, increase competition or change in central bank's monetary policies would have an influence on interest rate spread (Ng'etich, 2011). Demand for loans increases as the local industry seeks financial support in form of loans to acquire better technology and embrace new trade practices. The demand in loans would mean that the interest rate spread would increase as the banks seek to maximize their earnings. However, the government may also intervene by capping interest rates, sometimes adopting policies that would mean that the propensity of the population to take up loan obligations does not increase.

The operationalization of interest rate spread in listed local Kenyan banks will be generated by calculating the net interest rates spread which will be calculated from getting the difference between total interests earned from the variety of loans issued to debtors and the total interest paid to depositors who are the creditors minus all the transactional fees or cost incurred (Ghasemi & Rostami, 2015).

### **1.1.3 Foreign Direct Investment and Interest Rates Spread**

Governments, and most cases governments of least developed and developing nations, seek to ensure increased FDIs in their countries. This is based on the fact that FDIs benefit a country in many ways such as obtaining new technology and resources that were not previously available in the country, improved managerial expertise, job opportunities for local talents, as well as helps the local industry to learn of new and better ways of producing goods and services that help improve on production efficiency which increases gross domestic products (GDP) of the country (Nunnenkamp, 2002). However, FDI in a country means that the local industries are affected by the increase in competition and therefore in seeking to close the gap by improving their products and services to maintain their competitiveness they seek financial assistance by borrowing loans from local banks.

Demand for loans increases as the local industries seek to acquire improve their technology and advance their trading practices as well as improve their production process to improve the standard of their products. This triggers an increase in demand for loans leading to the increase in interest rate spread as the banks seek to maximize their earnings by increasing their lending rates. However, the government may intervene by capping interest rates where they impose limits of lending rate and interest rates payable on deposits through the central bank, sometimes adopting other policies that would mean that the demand for loans does not increase (Ng'etich, 2011). This indicates that FDI does not directly affect interest rate spread but affects it through competition enhancement. It thus holds true that an upturn in FDIs will in turn cause an increase in the interest rate spread.

### **1.1.4 Listed Local Kenyan Banks**

There are twelve local Kenyan banks that are listed in the Nairobi Security Exchange. These banks include Barclays Bank of Kenya, CFC Stanbic Holdings, Diamond Trust Bank Group, Equity Group Holding limited, Housing Finance Company of Kenya, I&M Holdings Limited, Kenya Commercial Bank Group, National Bank of Kenya, National Industrial Credit Bank, Standard Chartered of Kenya, Absa Bank Kenya PLC and Cooperative Bank of Kenya. These banks are licensed by the Central Bank of Kenya, Central Bank and national banking regulator as commercial banks in Kenya. Most of these banks have subsidiaries in Eastern African countries.

When the demand for loans increases as a result of local industry seeking financial assistance to acquire better technology and embrace new trade practices. The demand in loans means that the interest rate spread would increase as the banks seek to maximize their earnings by raising interest rate (Ng'etich, 2011). To protect the exploitations of the borrowers and those with banks deposits the central bank mediates through the government and controls interest rates of commercial banks in Kenya by imposing interest rate capping. The banking amendment act of 2016 set a ceiling on lending interest rates as well as a minimum interest rate for deposits made into customers' earning interest accounts (floor). This acts to restrict the interest rate differential, which has a negative impact on the performance of Kenyan local banks. The Central Bank of Kenya set the minimum rate for deposit by customers at 70% and the maximum loan interest rate at 4% above the CBK rates (Mwathé, 2021).

## **1.2 Research Problem**

The correlation connecting the FDI and interest rate spread is a crucial topic that demands close attention from government and academic researchers. Kenya encourages FDI to acquire the

benefits accrued to it such as boosting the economy by exploiting the available resources which enhances competition between the local industries and foreign investments given that the foreign direct investors have a comparative advantage. The country is therefore torn between the allure of establishing better access to foreign markets resulting from high efficient production and the fear of profits repatriation which reduces the amount of money in circulation as well as unfair competition for domestic industries which may not compete against well-established multinational corporations (MNCs) (Nunnenkamp, 2002). An indirect effect of FDI on interest rate spread may therefore exist where local firms seek financial assistance from local industries in form of loans to upgrade their standards for effective competition thereby increasing the demand for loans which pushes the increase of interest rates (Ng'etich, 2011).

A report from the World Bank indicated that in 2021, Kenya recorded an interest rate spread of 5.39% which was a decline as a result of interest rate fluctuations in the last two decades. Since 2002 to 2021 the interest rate spread for has been decreasing. Similarly, In 2020 FDI in Kenya registered a growth of USD 717 million equal to 0.5% of the nominal GDP which was a decline from the previous year which was 1 billion equivalent to 1.3% nominal GDP . In 2021 FDI registered a further decrease where FDIs amounted to US\$ 448 million (Odhiambo, 2022). The decline in interest rate spread could be as a result of decrease in market competition as a result of decrease in FDI. The decline calls for the country to review and re-assess its market structures which include regulatory framework, government ownership and control as well as business internal organization and management to create a stirring financial system that increases efficiency in resource allocation and even credit rationing criteria. Financial liberalization therefore is required to abolish interest rate ceilings in order to promote fare and free competition

between local and foreign investors which will have a beneficial effect on the interest spread differential.

Several studies have been done by different researchers to establish the relationship between FDIs and interest rates spreads. Some have found a positive relationship yet others have identified negative relationship and others have established no relationship existing between FDI and interest rate spread. Several studies have focussed on establishing the effect of interest rate spread on FDI which differs from the conceptual framework of the current study. This study will be addressing a research question on: What is the effect of foreign direct investment on interest rate spread of listed local Kenyan banks?

### **1.3 Research Objective**

The objective of this study is to ascertain the effect of foreign direct investment on interest rates spread of advertised Kenyan banks.

### **1.4 Value of the Study**

The results of this research should provide a thorough understanding of the connection between FDI and interest rate spread of publicly traded local Kenyan banks. As a result, this study is important to the government, particularly to Capital Markets Authority (CMA) as well as the Central Bank of Kenya and other regulatory bodies concerned with national banking in the financial industry. This study provides necessary guidance in laying of policies that would enhance attraction of foreign direct investment to increase competition that enhances performance of commercial banks by increasing interest rate differential. Such policies result in the stability of economic sector as well as the enhancement of financial inclusion would be dealt with from the regulatory framework, point of view.

The report is also important for foreign investors as well because it outlines the different obstacles to their investments in Kenya. The government's improvement in any of these areas is essential in assisting foreign investors, enhancing their investments, and increasing the profitability of their investments in the nation. The study also serves as a warning sign for potentially dangerous financial areas, educating overseas investors and assisting them in making decisions.

This study is of considerable relevance to future researchers and academicians since it directs them when they do their literature reviews. It provides a literature review foundation for determining their research gap and assist them in either endorsing or criticizing study results. This study offers recommendations on FDI and interest rate spreads of Kenyan banks, opening up research areas that could be pursued by upcoming academics to provide details on these factors in Kenya. Additionally, the study includes any relevant literature that either supports or refutes current hypotheses on FDI and interest rate spread.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

FDI, interest rate spread, and economic growth are factors that have elicited quite an interest from different researchers, philosophers and students. There is therefore immense contribution on each of these fields, though much is yet to be done in relating foreign direct investment with interest rate differential of listed local banks in Kenya. Nevertheless, there is sufficient information that can be leveraged in the undertaking of this study which outlines the research gap that the current study seeks to investigate and elaborate upon.

This chapter looks into the present literature on theories related to this study, determinant of the interest rate spread, some empirical studies relating to FDI and interest rate spread and finally draws a conceptual framework of the current study variables.

#### **2.2 Theoretical Review**

This section entails a review of theories found to bear relevance that are formulated to explain, predict or else clarify a phenomenon for a better understanding or else to challenge as well as extend existing knowledge. The theories therefore are relevant to the study as they either extend

existing knowledge in regard to FDI and interest rate differential or they challenge the relationship between these concepts and as well explain how these theories may be relevant in predicting and explaining the relationship between these study variables.

### **2.2.1 Loanable Funds Theory of Interest Rates**

Loanable funds theory of interest rates was pioneered in 1930s by Wicksell (1936) and was later further elaborated upon through the help of Ohlin, Robertson and Hawtrey (1937). The theory contends that the supply and demand of loanable funds, which are two market forces, influence how much interest is imposed. The theory contends that the supply and demand of loanable funds, which are two market forces, influence how much interest is charged. The theory contends that the supply and demand of loanable funds, which are two market forces, influence how much interest is charged. Theoretically, the supply and demand for loanable funds regulate the rate of interest, which in turn determines the cost of credit. Businessmen, government and consumers of loanable funds for investment purpose consumption and hoarding are sources that primarily raise the demand for loanable funds. Businessmen borrow loanable funds for the commodity purchasing and funds for the project investment which is interest elastic. The borrowing tendency at a reduced interest rate is higher than at an increased rate giving the opportunity for an investor to enjoy the consumption of a capital good sooner. Therefore, investment funds are less borrowed at a higher interest rate and more at lower interest rates (Bibow, 2000).

Supply on the other hand comes from savings, bank credit and dis-hoardings. Savings comes mostly from individual, private and government corporate. Since personal savings depends on level of income and then presenting the levels of income as given, personal saving are seen as interest elastic. Saving inducement increases with increase in the rate of interest. Corporate



savings are undistributed firm's profits which depend on interest rates, also funds coming out of hoards increases with increase in the interest rate. The two curves representative of the total demand for loanable funds and the aggregate supply of loanable money will meet at a given equilibrium point which becomes the interest rate (Tsiang, 1989). This theory bears relevance to the fulfilment of this study as it explains how local industries increase the demand for loanable funds to enhance their competitiveness as a result of increase in competition induced by FDIs which alters the rates of interest on loans which equally impacts the interest rate differentials.

This theory has got several criticisms which are raised by different economists. Equilibrium rate is dynamic according to the theory hence cannot be sustained. Contrary to the loanable money notion, cash balances are not elastic. According to the hypothesis, cash balances in savings can be released to raise the supply of loanable funds or absorbed into savings to decrease it. The idea exaggerates the effect of rates of interest on saves and views savings as elastic, whereas in reality, they are inelastic since people save out of caution rather than to earn money. It is not correct to combine real and monetary factors such as combining investment and savings with bank credit (Bertocco, 2013).

### **2.2.2 Classical Theory**

Classical theory suggests that the economy has the ability to regulate itself. It was introduced by Adams Smith in the early 1930s (Vivenza & Smith, 2001). The economy has the ability to achieve normal extent of the real GDP. This extent of real GDP is achieved in the case where economic resources are in full utilization despite the changes that emerge which in turn cause the levels of GDP to either fall below par or exceed the expectations of the normal levels of real GDP. There are two beliefs of how the economy adjusts itself. Say's Law beliefs that interest

rates, wages and prices are flexible. A certain level of real GDP produced by the economy generates a specific income that is required to buy the level of real GDP. It thus holds true that the economy is in a position to demand and consume all the output produced. This implies that demand will equate to supply (Myint, 1958).

The other belief is that interest rates wages and prices are flexible. When the aggregate investment is lower than the aggregate savings which causes the equilibrium real GDP to be lower than the natural level, the investors will be demanding more of the available savings which will be stirred by the falling of the rates of interest which will equate the supply of monetary provision from aggregate saving to increase in investment expenditures. This flexibility of interest rates and prices is a self-adjustment mechanism which keeps money market in equilibrium at all times. Therefore, theory argues that savings and investments establish the equilibrium interest rate that is achieved at the point of intersection between saving curve and investment curve as explained by Oost (2002). This study is underpinned to this theory as it explains how increase in FDIs accelerates the increase in local investment altering interest rates which in turn affects the interest rate spread.

This theory has been criticised by different people, for example it was criticized for limitations of classical theory that the theory eliminates scarcity, ownership and money (Hiroyuki, 2018). The theory indicates that at the equilibrium level full employment must not be attained and that employment and output are not functions of wage rate. Rates of interest is not a true factor in the determination of saving and investment since according to the theory they are both functions of the interest rate which can be equated to each other by tuning the interest rates. Lastly the existence of over-production or under-production cannot be overruled (Eltis, 2000).

### **2.2.3 Theory of Financial Intermediation**

The theory of financial intermediation was proposed by Akerlof (1970) in his seminal paper. The theory was however developed further by the works of Spence (1973) and Rothschild & Stiglitz (1976). The theory proposes that there exist financial intermediaries in order to reduce both information and transaction costs that emerge from the lack of information that is similar in nature between the lender and the borrower. This therefore implies that financial intermediaries exist to enable and enhance efficiency in financial markets. The purpose of financial intermediaries has been explained by two different school of thoughts. The first school of thought suggest that financial intermediaries help to increase or provide liquidity in the market. The second school of thought suggest that financial intermediaries are able to transform risks characteristics in assets. The two school of thoughts suggest that financial intermediation reduces cost of transferring funds from lenders to borrowers of those funds which lead to optimal allocation of resources.

Financial intermediation largely relies on working financial markets that help to bring together lenders as well as borrowers of those funds. The borrowers utilize the funds in projects that generate positive NPVs and therefore they can comfortably pay the lenders plus interests accrued thereof. Developing the financial markets therefore reduces transaction costs making the markets more efficient. However, financial market development requires the development of legal, regulatory and governance structures that would enhance free flow of information (Mishkin & Eakins, 2012). Financial intermediation makes it possible for small savers to pool their resources together and provide to a borrower who would make investments to generate higher returns.

The theory has however been critiqued as it does not consider the role of lenders in risk management in the financial intermediation. The risk management by lenders is a major cost (hindrance) in financial intermediation and which may hinder the pace at which financial markets attain high efficiency (Scholtens & Wensveen, 2000). It is also argued that there is a cost of participation by players in financial intermediation and for which the theory disregards.

Despite the critique brought forth, this theory is very critical on the evaluation of the correlation connecting foreign direct investments and interest rate differential. The theory suggests that increase in financial intermediation reduces transaction costs in financial markets and therefore enhances financial development thus increasing borrowings. On the other hand, FDI may have different and perhaps inconsistent measures. This is because some multi nationals will highly be attracted by a highly development financial system in a foreign country as it would mean that improved financial system would enhance their investment opportunities in the foreign country. Furthermore, improved financial development in the foreign country would also mean that the local investors would be in position to obtain affordable credit from the improved financial system and thereby offer similar goods and services. This would enhance competition which will lead to more borrowing by local investors.

## **2.3 Determinants of Interest Rate Spread**

The study will focus on the following determinants of the interest rate differential which include foreign direct investment, rate of inflation, real interest rates, GDP and exchange rate volatility. The implication of these determinants on interest rate differentials will be explained below.

### **2.3.1 Foreign Direct Investment**

FDI refers to the investment that is undertaken by a company from one country into a business that is located in a country foreign based. It therefore means that FDI is realized when a foreigner establishes a business investment, or acquires controlling interest in an existing business in the foreign country. According to Moran (2011) in order to attract foreign investors to make significant investment in the country, a number of factors must be conducive to entice the investor to undertake the extra international risk that he would incur instead of making investment in the home country. The foreign investor must thus make sure that the target country operates on open economy basis, and therefore there are less stringent conditions or rules in undertaking the investment in the country, as well as the investment must guarantee more than average returns which could be easily attained from undertaking investments in home country. UNCTAD (2009) argues that FDI is the greatest steady form of global capital movements. These are investments that are made by the parent company in a foreign country

### **2.3.2 Inflation Rate**

The consistent upturn in prices of products over a certain duration in an economy is referred to as inflation. Increase in prices causes lenders the currency of a country less valuable. Inflation leads to reduction of purchasing power per unit of money. The government through central bank therefore, controls inflation in a country using interest rates (Alvarez, Lucas & Weber, 2001). The CBK reduces its lending rates to commercial banks in order for them to reduce their lending rates to individual and private investors to attract more borrowing to enhance investment. This happens when the inflation has been caused by demand pull which results from a shortage in supply. This is to enhance production of goods which reduces the short supply to stabilize inflation. When the inflation results from cost push which is a result of increase in the cost of wages and raw materials. High production cost is therefore passed on to consumers creating cost

push inflation since demand remains constant. This type of inflation is prevented by raising interest rates, which raise the cost of borrowing and deter investment and consumer spending. Higher rates also cause the exchange rate to appreciate, bringing down the cost of imported items. (Alvarez, Lucas & Weber, 2001).

### **2.3.3 Real Interest Rates**

The real cost of acquiring money through loans for a borrower is reflected in an interest rate that has been adjusted for inflation and the real yield for a lender or investor is reflected in an adjusted interest rate. (Barro & Sala-i-Martin, 1990). As a result, it captures the rate at which current goods are preferred to those in the future. The actual interest rate calculates how much more money the lender makes when the borrower pays back the loan plus interest. A person who borrows money with the intention of repaying it later expects to be reimbursed for the time value of money or for the loss of use of the borrowed funds. Additionally, they will ask for payment of the estimated worth of the loss of purchasing power when the loan is paid back. These anticipated losses include the potential for the borrower to default or be unable to make payments in accordance with the terms initially agreed upon, or that the collateral securing the loan will prove to be less valuable than anticipated; the potential for changes in taxation and regulatory laws that would make it difficult for the lender to collect on a loan or force it to pay more in taxes on the amount repaid than initially anticipated; and the potential decline in the value of the collateral securing the loan. By subtracting the inflation rates from nominal interest rate, the real interest rate is determined. (Demary & Voigtländer, 2018).

### **2.3.4 Gross Domestic Product**

The GDP of a nation measures the market value of all the finished products it sold during a specific duration (Achar, 2015). High level of Gross Domestic Product signifies high investment and high production of goods and services. It also signifies high purchasing power since per-capita income is high. This influences interest rates where the government may impose high interest rates to control the circulation of money by maintaining it at equilibrium. The government may therefore through the central bank increase rates for lending to banks which influence an increase of interest rates to individual and private investors thus discouraging borrowing to withdraw excess money from the circulation. If the level of GDP is low it means that the money in circulation is low therefore, the central bank lowers the banks rates in order for the commercial banks to reduce interest rates to encourage more borrowing which injects more money to the circulation thus increasing GDP (Achar, 2015). The increase and decrease of interest rates affect interest rate spread.

### **2.3.5 Exchange Rate Volatility**

This is the unpredictable movement of the exchange rate of a currency caused in part by inflation or the loss of value of the said currency. The effect that volatile exchange rate has on the interest rate is that it forces financial regulatory bodies to either raise or lower the interest rates in order to combat the fluctuation that may be caused by inflation within a country. The effect this has is the appreciation or depreciation of a currency's value thus underlining the relationship that may accrue to the exchange rate volatility and interest rates of banks (Ali, Mahmood & Bashir, 2015).

## **2.4 Empirical Studies**

A study sought to ascertain the impact of rates of interest on FDI flows in Kenya was done by Nyanyuki (2018). A 10-year span (January 2008 to December 2017) saw the quarterly collection of secondary data. A descriptive research design was chosen for the purposes of this investigation. A model of multivariate linear regression was used to examine the correlation between the variables. The study also discovered that the independent factors and FDI inflows had a high correlation ( $R=0.837$ ). Therefore, the model could adequately account for FDI inflows into Kenya. According to the findings, interest rates individually have a large negative influence on FDI inflows, whereas external debt and the balance of payments have a significant pragmatic impact. Economic growth was discovered to be a negligible factor in FDI inflows. The findings study suggest that policymakers should control the current interest rates in the nation since they have an impact on FDI inflows.

In their study on the impact of interest rate spread on the quantity of non-performing assets, Ng'etich and Wanjau (2011) looked at Kenyan commercial banks. Forty-three commercial banks that were active in Kenya as of 2008 served as the population of this study. The study used primary data from the issuance of questionnaires with secondary data from bank supervisory reports to further validate the primary data sources. The data was displayed in tables, graphs, and pie charts. The study concludes that because interest rate spread increases the cost of loans charged to borrowers, it has an effect on banks' performing assets. Due to the fact that interest rate regulations affect the interest rate spread in banks and have the potential to lower the moral risks connected with NPAs, they also have a substantial impact on non-performing assets. The value of a bank's interest rate spread is indirectly impacted by the use of credit risk management techniques since interest rates are compared to the value of the bank's non-performing assets, which are high-cost loans. The study suggests that commercial banks in Kenya evaluate their



customers and set interest rates appropriately since inefficient interest rate policies might raise interest rates and, as a result, NPAs. In order to control banks' interest rate, spread and improve periodic and ongoing monitoring of credit risk, they impose strict controls on the interest rates that banks charge.

Palmgren and Ylander (2015) assessed the effects of FDI on market efficiency in six African states that consisted of Nigeria, Tunisia, Morocco, Kenya, Botswana and Mauritius. The study therefore sought to ascertain whether the capital injections as well as contributions by foreign multinationals affected market efficiency of these six major frontier stock markets in Africa. The study undertook two variance ratio tests; Chow Denning test and the multiple versions of Wright's sign test. These tests were applied in the study in order to obtain measures of time-varying market efficiency and multiple panel regression analysis was undertaken. The study was categorical in identifying six macroeconomic factors that was likely to affect market efficiency and as such both Chow Denning test and Wright's sign test were used as independent variables in the panel regression analysis. The study found that FDI had no impact on the level of market efficiency, though the study further reduced the number of countries to assess the impact on only four countries (Kenya, Mauritius, Morocco and Tunisia). In this new analysis, FDI was found to be significant and as such increase in FDI in these countries was followed by a significant increase in market efficiency. The study therefore advocated for African countries to implement measures that increased FDI such as relaxing regulations on multinational companies to boost their market efficiency. Despite the study assessing the variables FDI and market efficiency, it only assessed the relationship of the variables where FDI was the independent variable, and financial efficiency as the dependent. The researcher, however, proposes to undertake a reverse

relationship where financial development is the independent variable and FDI becomes the dependent variable.

Njane (2017) was inspired by the theoretical knowledge in regard to causal implication of FDI on improvement of stock market in undertaking the study to prove this theoretical bearing. The knowledge suggests that FDI inflows in a country would lead to technological improvement, increase production of goods, decrease unemployment among other economic benefits that led to increase in stock market (Adam & Tweneboah, 2009). The study collected secondary data for thirty years (1987-2016). A descriptive research design was adopted by the study, where a multiple linear regression model was used in analyzing the relationship between the variables. The researcher as much as intends to study the variables as suggested in this study, a reverse relationship is envisioned, where the researcher intends to find out whether financial development in form of market efficiency affects or contributes to FDI in Kenya.

Dimelis and Louri (2002) undertook a study that investigated FDI and technology spillovers, and particularly on how firms were able to benefit from FDI. The FDI has been considered to bring out efficiency as it directly influences local productivity as well as direct improvements in domestic performance through spillovers. Similarly, local companies are pushed to upgrade their production frontiers in order to compete with these international rivals who are more efficient. These domestic firms are therefore pushed to push their average cost upwards that limits and reduces their productivity. The study collected secondary data from annual reports of all Greek manufacturing corporations that were in operation in 1997. The sample was inclined to large firms that made up almost 75% of all manufacturing sales, where a total number of firms used were 3742. The study then started by the definition of the production function, from which regression equations were obtained and the study undertook OLS analysis. The study found that

the effects of scale, leverage and liquidity were pragmatic and substantial. It found a significant effect of FDI on productivity that increased with a share of foreign ownership.

Pradhan (2010) was keen to explore the correlation connecting economic deepening and FDI in India for the period of 1970-2007. The study used Johansen's cointegration technique where the Error Correction Model (ECM) was used to assess both the direction and the nature of causality between the variables. The study found that financial deepening, FDI as well as economic growth had long run equilibrium relationship, and were therefore cointegrated. The ECM model further determined that there was bidirectional causality between FDI and economic growth and a uni-direction causality between financial deepening and FDI. The study recommended that India required to enhance their financial system in order to increase foreign direct investment.

The effect of financial market growth on FDI in nations in Latin America was evaluated by Hajilee and Nasser (2015). The two factors were considered crucial for the region's effective economic allocation. FDI is believed to stimulate the economy as it enhances and introduces new production techniques, efficient production networks, and introduction of innovative technologies and access to international markets (Levine, 1997). Utilizing a time series model of 14 Latin American nations, the study tested causation. The study's findings showed that in the majority of the countries, financial development had a significant impact on the dependent variable. The correlation connecting FDI and the banking industry was found to be unidirectional, whereas the correlation connecting FDI together with the growth of the stock markets was shown to be bidirectional.

Kariuki and Sang (2018) sought to link FDI and bank performance in Kenya. The research found the importance of FDI in boosting economic development through the direct impact it brings in

different economic sectors. The study tried to ascertain whether FDI had any implication on the profitability of the commercial banks because it had been reported that the banking industry had performed poorly. The study used a descriptive research design and a positivist research ethic, and it focused on all 39 commercial banks that had been granted licenses between 2005 and 2015. Inferential and descriptive statistics were used to analyze the secondary cross section data that had been gathered. The study's conclusions showed that foreign equity capital significantly improved commercial banks' performance. Reinvested foreign earnings were also found to be crucial in enhancing this performance, together with intra-company loans. This study is however different as its focus was on FDI and bank performance while the researcher seeks the relationship of financial development on FDI.

Musa et al. (2018) noted that there was quite a significant number of literatures that had been undertaken on establishing the relation that exists between FDI and economic development in various countries. However, they also evaluated the implication of FDI on the financial viability of banks in Ghana in addition to studying this link. Macroeconomic aspects were evaluated by the study using secondary data, while financial data was gathered over a ten-year period from the financial reports. The correlation and regression analysis that was undertaken indicated that FDI had positive as well as significant effect on the financial viability of commercial banks in Ghana. FDI was also found to have notable relation with the development of the economy for under prevailing and future conditions. The study therefore recommended the encouragement of FDI inflows.

In the South Asian setting, Tahir and Alam (2020) looked at the perceived association between FDI inflows and banking sector performance. The study was conducted in five economies that were selected based on the availability of data, and a panel data set was collected throughout the

duration of the study from internationally reputable sources (1998-2017). For econometric analysis, the study used pooled least squares, fixed effects, and generalized least square. The analysis discovered a strong, although unfavorable, correlation between FDI inflows and banking sector performance. Trade openness, per capita income, and the inflation rate all had a sizable beneficial impact on FDI inflows.

## **2.5 Summary of the Literature Review**

The chapter included a review of the research on FDI and interest rate spread as well as other independent factors that influence interest rate spread, such as the rate of inflation, gross domestic product, real interest rate, and volatility of exchange rates. It also included empirical studies conducted in the past by various scholars on FDI, interest rate spreads, and the performance of Kenya's listed local banks. Additionally, some of the theories that have been connected to this study are discussed in this chapter. The conceptual framework for this study, which displays the independent variables and the dependent variable, concludes the chapter.

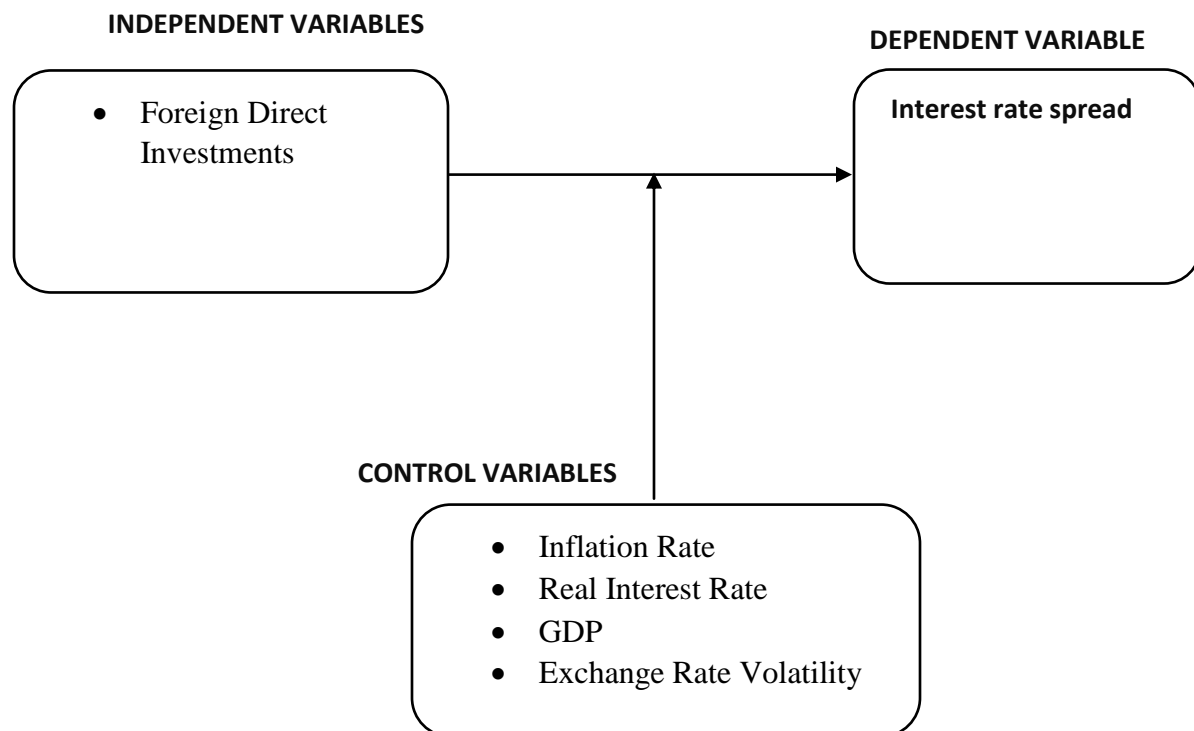
According to the empirical studies that are available, little has been done to identify the relationship that exists between FDI and interest rate spread. The theories guiding this study, according to the literature review, indicated a strong significant relationship between FDI and interest rate spread because foreign direct investment tends to increase borrowing, prompting the banking system to increase the money supply through banks in order to control the amount of money in circulation. The interest rate spread of Kenya's commercial banks increases when interest rates rise. FDI appears to have a favorable impact on the interest rate spread of Kenyan local banks that are listed because it encourages local borrowing by investors to increase their

competitiveness, according to the few research that have been done to demonstrate the relationship.

## 2.6 Conceptual Framework

Conceptual Framework is an analytical tool with expansive ideas and standards taken from various fields of enquiry and used to structure presentation (Smith, 2004). A conceptual framework of the current study shows the correlation connecting FDI and interest rate spread of listed local banks in Kenya. Figure 2.1 below conceptualizes the specific objectives of the study and their relationship with the dependent variable.

**Figure 2. 1: Conceptual Framework**



## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter plays a significant role in selecting the methods used in this study. The chapter also elaborates upon the data utilized for analysis and the methodology employed in the process of undertaking this research study. The research design, target population, sample, and sampling procedure are explained.

#### **3.2 Research Design**

In order to solve the research topic and provide coherent and logical results, the researcher must integrate the study's various components according to a general method known as research design. Research design therefore refers to the blueprint that researcher chooses to enable him collect, measure and also analyze data to provide the desired responses to the research questions.

In general terms research design may be looked into two perspectives namely; quantitative research design and qualitative research design (Saunders, Lewis & Thornhill, 2012). This study therefore adopts a quantitative research design that describes different macroeconomic variables.

### **3.3 Target Population**

Borg and Crall (2009) describes target population as the set of study focused on all the members or the study items, objects or people to which qualifies to be subject of the study as per the researcher. The population that has ben targeted for the purposes of this study is the macroeconomic data that relates to FDI, Interest rates spread and inflation. Quarterly data was collected for all these variables for the study period of 10 years 2012-2021. The study did not therefore need to undertake any form of sampling.

### **3.4 Data Collection**

Second-party data collection method was employed. The data was extracted from the World Bank, Nairobi Security Exchange, CBK, National Treasury, International Monetary Fund and National Bureau of Statistics where quarterly data was collected for ten years (2012-2022).

### **3.5 Data Analysis**

Inferential statistics were used in the study to determine the relationship between the independent and dependent variables. The study used multiple linear regression analysis to determine the relationship between foreign direct investment (an independent variable) and the interest rate spread (a dependent variable). The MLR analysis technique is used to investigate the relationship between a dependent variable and a number of independent factors. The study examined the



correlation connecting the independent factors and the dependent variable using Spearman's correlation.

### **3.6 Diagnostic Tests**

The data in the study was subjected to linearity test, normality test, multicollinearity test, autocorrelation test, heteroskedasticity test, test of the model, as well as stationarity test which are all diagnostic tests.

#### **3.6.1 Linearity Test**

If an increase in one unit of the independent variable causes a fixed rise in the dependent variable, the variables are said to be linear. Thus, linearity denotes a straight connection between a data set's independent and dependent variables. The Pearson correlation coefficient was used in this study to evaluate linearity. The correlation coefficient also revealed the direction and stability of the linear relationship. A positive correlation shows a causal relationship in which an increase in one variable causes an increase in the other and vice versa. When one variable increases, the other decreases, this is referred to as a negative correlation (Field, 2009).

#### **3.6.2 Normality Test**

OLS regression model that impacts the validity of all tests assumes that residuals behave normal. In this study, a non-graphical test by Shapiro Wilk was used to determine whether the residual's behaviour is normal. The null hypothesis is that there is a normal distribution of the residue. The study therefore seeks to either accept the null hypothesis at 95% significant level if the p-value is found to be greater than 0.05 ( $p > 0.05$ ), or reject the null hypothesis if the p value is less than 0.05 (Oscar, 2007).

#### **3.6.3 Test of Autocorrelation**

In time series data, disturbances can either display serial correlation or autocorrelation across the period. Serial correlation causes a problem of biasness of the standard errors and also inefficiency of consistent estimated regression coefficients when present in a linear panel data models. This study applied Durbin-Watson test to identify whether the problem of autocorrelation is present. This is a statistical test used for testing First Order autocorrelation between the error and its immediate previous value to find out whether there is correlation among the errors in different observations. There is no serial correlation in the null hypothesis. The study fails to reject the null hypothesis at 95% significant levels if d-statistic is more than 0.05 ( $d > 0.05$ ). The conclusion is that there is no correlation among the errors in different observations.

#### **3.6.4 Heteroscedasticity Test**

Observations may have regression disturbances which do not have constant variances. This problem is referred to as heteroskedasticity. It may arise in cross-section data as well as time series data. Its presence causes a problem of inefficiency of the estimation results. Trevor Breusch and Adrian Pagan (1979) came up with modified Wald test for heteroskedasticity. This study uses Breush-Pagan test in undertaking heteroscedasticity test.

#### **3.6.5 Multicollinearity Test**

The test is intended to ensure that the independent variables are not correlated with one another, which would cause collinearity issues in the data. This is due to the fact that independent variables should remain truly independent, with their dependence on the dependent variable. Variation inflation factors (VIF) is used to determine multi-collinearity, where variables with VIF or more than 10 are believed to have multi-collinearity that may affect the regressions. This

is also determined by the use of tolerance level, where a tolerance level of greater than 1 indicates presence of multicollinearity issues that would need to be solved.

### **3.6.6 Test of the Model**

Model test is undertaken using AIC model test and use of BIC model test. The higher the score of either AIC or BIC, the less efficacy is the model. The test is undertaken on all the variables in the model then the test is repeated on the model with the exception of each of the independent variable to ensure which of the model has the lowest value of AIC or BIC.

### **3.7 Analytical Model**

The regression model depicted below explains the expected.

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

$\beta_0$  represent regression coefficient and  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$  and  $\beta_4$  represents the gradient of the regression equation.

Where:

Y-is the interest rate spread

$\beta_0$  - Constant

$X_1$  - Foreign direct investment

$X_2$  - Inflation rate

$X_3$  - Real interest rate

$X_4$  - GDP

$X_5$  – Exchange rate volatility

$\varepsilon$  - The error term

### **3.8 Significance Tests**

For the purposes of this research the Analysis of Variance (ANOVA) model was used to test the significance of the study. This model assists in establishing the significance level of the sample used for the study since it is simple to calculate and interpret. The sample was tested at 95% confidence level which is equivalent to 0.05 significant levels.

## **CHAPTER FOUR**

### **DATA ANALYSIS, SUMMARY, AND INTERPRETATION OF FINDINGS**

#### **4.1 Introduction**

The study analysis represents the empirical examination of the study variables in order to determine the significance of the independent variables on the dependent variable. This chapter entails performing descriptive statistics on the study variables. The chapter includes diagnostic tests, correlational analysis, and regression analysis. The chapter concludes with a summary of the findings and an interpretation of the result.

#### **4.2 Descriptive Statistics**

It involves the aspect of describing the study variables to have an understanding of data collected from each variable and therefore draw conclusion on the generalizations that could be made in regard to the variable, mostly in comparison to the normal or expected characteristic of the said variable. This is therefore made possible through the analysis to determine the mean, the standard deviation, the outliers in each variable, as well as skewness and kurtosis that provide a general outline of the distribution of the study variable.

**Table 4. 1: Descriptive Statistics**

	Descriptive Statistics								
	N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic	Skewness Statistic		Kurtosis Statistic	
						Std. Error		Std. Error	
Y_InterestRateSpread	40	2.30	8.49	5.3132	1.89641	.357	.374	-1.198	.733
X1_FDI	40	4.68	5.84	5.2278	.41977	.158	.374	-1.315	.733
X2_inflationRate	40	3.20	15.61	6.3657	2.15396	2.310	.374	8.085	.733
X3_RealInterestRate	40	2.86	14.95	8.47	2.68604	.516	.374	.229	.733
X4_GDP	40	13.85	14.68	14.35	.27567	-.523	.374	-1.322	.733
X5_ExchangeRateVolatility	40	-1.81	7.39	.8013	1.77313	1.670	.374	4.214	.733
Valid N (listwise)	40								

Source: Researcher, (2022)

The difference between the interest rates that banks charge their lenders and the central bank rate was used to calculate the study's dependent variable, interest rate differential. It is considered the basis for profitability of commercial banks as it provides the difference between the rate at which the bank charges its clients viz-a-viz the charges the bank pays CBK to secure credit for its banking operations. The mean for the interest rate spread was 5.31% with a small standard deviation of 1.9%. This shows that commercial banks have a good profit margin which is in average of 5.31% without much variation from one quarterly period to the next. This can also be

observed by the fact that the maximum value is 8.49% while the minimum was 2.30%. There is a positive skewness close to zero with a value of .357 and a negative kurtosis of -1.2.

FDI is the main independent variable that was determined by the amount of FDI inflows in a quarter. The study obtained yearly data of FDI inflows that was prorated and assumed to have been accumulated evenly over the year. Therefore, in this study, FDI was measured using the natural logarithm of FDI inflow. With a mean of 5.23 and a standard deviation of 0.42, it can be seen that there was very little variation in FDI between the different quarters. The FDI values ranged from 4.68 to 5.84, with a small positive skewness of 0.158 and a negative kurtosis of -1.32.

Inflation rate was also determined by the study as it was found to be a critical factor that affects macroeconomic factors, as well as the ability to affect the financial factors such as consumption by households and investments. High inflation would deter FDI inflows as well as have an upward pressure on interest rate spread, as commercial banks intend to compensate or to be cautionary on increase in inflation. The mean inflation rate in Kenya for the study period was 6.37% with a low standard deviation of 2.15%. This is an indication that the inflation rate over the study period did not fluctuate so much away from the mean. The highest inflation rate that was recorded in the study period was 15.61% while the minimum inflation rate within the study period was 3.20%. The data had high and positive skewness and kurtosis of 2.31% and 8.09% respectively.

Real interest rates on the other and was also determined by the study. It involved subtracting the level of inflation rate from the bank's lending rate. Therefore, the value of interest rates charged by commercial banks after taking inflation into account is the real interest rate. As a result, the

real interest rates offset the inflation factor to lower the level of interest rates. With a negligible standard deviation of 2.69%, the average real interest rate was 8.47%. The values ranged from 2.86% to 14.95%, respectively. Kurtosis and skewness were both low but positive, at 0.229 and 0.374, respectively.

GDP was also considered to be an important independent variable. GDP is the measure of the worth of gross products that have been produced in an economy. It measures the value of goods and services that have been produced in an economy by both the citizens and the non-citizens, as long as the goods and the services have been produced within the boundaries of the nation. The study undertook natural logarithm for GDP, where the mean value was 14.35 with a low standard deviation of 0.28. The maximum value was 14.68 and the minimum was 13.85. The data was negatively skewed at only -0.52 and Kurtosis of -1.32.

Exchange rate volatility was also undertaken by the study where the mean was 0.8% with a standard deviation of 1.77%. The maximum exchange rate volatility was 7.39% and the minimum was -1.81%. There was positive skewness and kurtosis of 1.67 and 4.21.

### **4.3 Diagnostic Tests**

The study undertook diagnostic tests, that were meant to test whether the data collected for each variable is adequate and conforms to prescribed form and therefore could produce unbiased results from the respective analysis. The diagnostic tests that were undertaken by the study included, linearity test, normality test, tests of autocorrelations, multi-collinearity tests, heteroscedasticity test as well as Dickey-Fuller test.

#### **4.3.1 Linearity Test**

The linearity assumption is made when the analytical model proposed by the study is linear in nature. The test is therefore carried out to determine whether data forms linear patterns and therefore linear assumptions are used in predicting the dependent variable. The test is therefore undertaken by the use of normal P-P plots that determines whether data follows the diagonal line. Linear data follows the diagonal line and therefore linear assumption is assumed to be present.

**Figure 4. 1: Linearity Test**

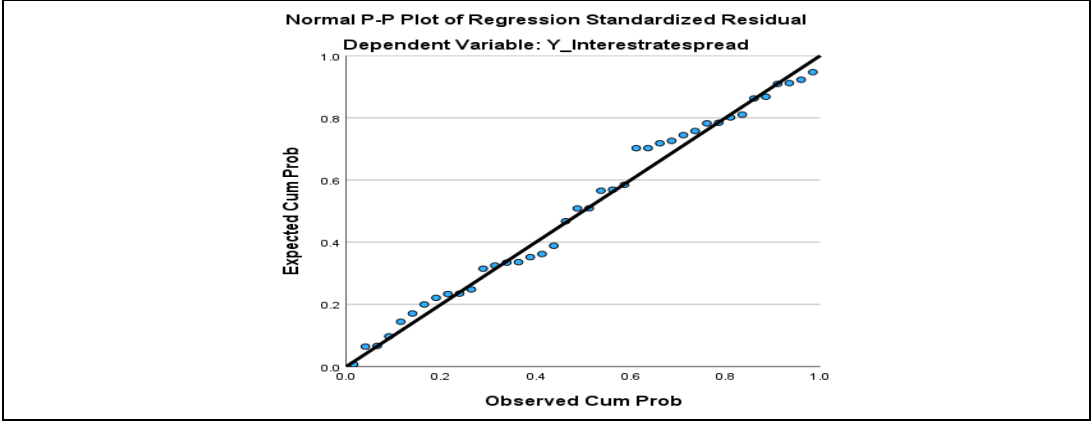


Figure 4.1 indicates that the plots under P-P plots follow the diagonal line and therefore data is linear in nature.

**4.3.2 Normality Test**

Normality test is applied since data most parametric tests require data to be normally distributed and therefore normal assumptions could be made about the data. This enables the prediction of the dependent variable possible, while also making other assumptions relative to the data, possible and accurate. The test used in this analysis is Shapiro-Wilk test. The test’s null hypothesis states that data is normally distributed, and this test could be rejected at a significance level of 5%.

**Table 4. 2: Normality Test Table**



	<b>Tests of Normality</b>					
	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Y_Interestratespread	.157	40	.014	.912	40	.004
X1_FDI	.164	40	.008	.888	40	<.001
X2_inflationRate	.174	40	.004	.811	40	<.001
X3_RealInterestRates	.084	40	.200*	.971	40	.391
X4_GDP	.227	40	<.001	.864	40	<.001
X5_Exchangeratevolatility	.145	40	.034	.872	40	<.001

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Source: Researcher, (2022).

Table 4.2 shows that only Real interest rate has a p -value greater than 0.05. The other variables have p-value less than 0.05 and the null hypothesis is rejected, meaning the data is not normally distributed apart from real interest rates data that is normally distributed. This implies that since most variables failed the test, then non-parametric tests would be preferred while at the same time data would be transformed through use of standardized values in undertaking analysis.

#### 4.3.3 Tests for Autocorrelations

Autocorrelations would range from 0 to 4. The presence of autocorrelations in data is expected to be normal, in that there are no negatively inclined autocorrelations neither are there positively inclined auto correlations. The test is undertaken by the use of Durbin -Watson test, where the standard practice is that values less than 1.5 indicates presence of negative autocorrelations while 2.5 and above would indicate positive autocorrelations.

**Table 4. 3: Durbin Watson Test**

<b>Model Summary<sup>b</sup></b>					
Model	R	R-Square	Adjusted R-Square	Std. Error of the Estimate	Durbin-Watson

1	.769 <sup>a</sup>	.591	.531	1.29900	.972
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Source: Researcher, (2022)

Table 4.3 indicates that the Durbin-Watson score is 0.972 and therefore there exists negative autocorrelations that would affect regression analysis. This indicates that data would need to be transformed before undertaking parametric analysis of the data, which was undertaken through standardization of the values.

#### 4.3.4 Heteroskedasticity Test

This is a test that is undertaken to determine whether data is homogenous and therefore undertaking regression in the data would not lead to spurious regressions. There are different measures that are adopted in carrying out this test. White test, Breusch-Pagan test among other tests. This study undertakes the latter as indicated in table 4.4.

**Table 4. 4: Breusch-Pagan Test Table**

Breusch-Pagan Test for Heteroskedasticity <sup>a,b,c</sup>		
Chi-Square	df	Sig.
.000	1	.996

a. Dependent variable: Y\_Interestratespread

b. H0: Data is homoscedastic

c. Intercept + X1\_FDI + X2\_inflationRate + X3\_RealInterestRates + X4\_GDP + X5\_Exchangeratevolatility

Source: Researcher, (2022)

The p-value according to table 4.4 is greater than 0.05 indicating that we fail to reject the null hypothesis that data is homoscedastic, and therefore there is no problem of homoscedasticity.

#### 4.3.5 Multi-Collinearity Test

The test is undertaken to determine whether the independent variables remain independent and therefore there is no problem of multi-collinearity. This is determined by the use of variation inflation factors (VIF) where the rule of thumb dictates that values of above 10 indicate presence of multi-collinearity problem.

**Table 4. 5: Multi-Collinearity Table**

Model	Collinearity Statistics	
	Tolerance	VIF
1 (Constant)		
X1_FDI	.525	1.903
X2_inflationRate	.236	4.245
X3_RealInterestRates	.142	7.061
X4_GDP	.126	7.908
X5_Exchangeratevolatility	.776	1.289

Source: Researcher, (2022)

Table 4.5 indicates that there is no variable with VIF greater than 10 and therefore there is no problem of multi-collinearity with the data.

#### 4.3.6 Stationarity Test

Dickey Fuller unit root test is usually undertaken as test for stationarity to indicate whether the time series are indeed stationary. Time series that are stationary indicate that the trend (pattern) brought by time changes, has been detrended and it does not influence the value of the factors. This is undertaken by the use of Dickey Fuller test or by comparing the R squared with d-Watson score. When the R squared is greater than d- Watson score, then the data fails stationarity test as data is not indeed stationary. Table 4.3 shows that R2 (0.591) is less than d-Watson (0.972) and therefore data is indeed stationary.

#### 4.4 Correlation Analysis

The analysis is carried out to express the relationship between the dependent and independent variables. Because Spearman's correlation is a non-parametric test, it was used in this study.

Correlations range from 0 to 1, with values either significantly correlated at the level of 0.05 significance or not significant at this level.

**Table 4. 6: Correlation Table**

		Correlations						
		Y_Interestratespread	X1_FDI	X2_inflation	X3_RealInte	X4_GDP	X5	
Spearman's rho	Y_Interestratespread	Correlation Coefficient	--					
		Sig. (2-tailed)	.					
		N	40					
	X1_FDI	Correlation Coefficient	-.051	--				
		Sig. (2-tailed)	.757	.				
		N	40	40				
	X2_inflationRate	Correlation Coefficient	-.034	.178	--			
		Sig. (2-tailed)	.837	.271	.			
		N	40	40	40			
	X3_RealInterestRates	Correlation Coefficient	.561**	.297	-.305	--		
		Sig. (2-tailed)	<.001	.063	.056	.		
		N	40	40	40	40		
	X4_GDP	Correlation Coefficient	-.402*	-.691**	-.266	-.669**	--	
		Sig. (2-tailed)	.010	<.001	.097	<.001	.	
		N	40	40	40	40	40	
	X5_ExchangeRateVolatility	Correlation Coefficient	-.008	.015	.204	-.084	-.178	--
		Sig. (2-tailed)	.959	.926	.208	.608	.272	.
		N	40	40	40	40	40	40

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

\*. Correlation is significant at the 0.05 level (2-tailed).

Correlation table 4.6 indicates that all the independent variables had insignificant effect on interest rate spread, apart from real interest rate and GDP that had significant correlation. FDI did not have a significant correlation with interest rate spread, and therefore FDI inflows did not affect the money market in the country. The factors that had significant correlation with interest rate spread was GDP that had negative correlation of  $-0.0402$  meaning that increasing GDP in the country would translate to more goods and services being produced that would lead to decrease in interest rate spread as the people who desire loan facilities would decrease and therefore decrease the interest rate differential.

Increasing real interest rates would result in upturn in interest rate differential and therefore loans would become more expensive. The correlation between real interest rates and interest rate spread is positive and significant at  $0.561$ .

Despite the fact that both inflation rate and exchange rate volatility had negative correlation, they were insignificant and very close to zero indicating that they had weak correlation with interest rate spread. The variables had interest rate spread of  $-0.034$  and  $-0.008$  respectively.

#### **4.5 Regression Analysis**

Regression analysis was undertaken by the study where the regression summary indicated that the coefficient of determination (R squared) was  $0.591$  and therefore the prediction model could only predict  $59.1\%$  of the changes in the dependent variable. The other changes could only be predicted by other factors that are outside the model. The adjusted R square was  $0.531$ , slightly

below R squared. This shows that there was a factor in the model that did not contribute towards improving the analytical model

**Table 4. 7: Regression Summary**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.769 <sup>a</sup>	.591	.531	.68497623

a. Predictors: (Constant), Zscore(X5\_ExchangeRateVolatility), X3\_RealInterestRates, Zscore(X1\_FDI), Zscore(X2\_inflationRate), Zscore(X4\_GDP)

The test of significance of the model was undertaken by use of F test. The significance of the test was below 0.05 and the study therefore concluded that there was statistically significant effect of FDI on interest rate spread in Kenya.

**Table 4. 8: ANOVA TABLE**

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.047	5	4.609	9.824	<.001 <sup>b</sup>
	Residual	15.953	34	.469		
	Total	39.000	39			

a. Dependent Variable: Zscore(Y\_InterestRateSpread)

b. Predictors: (Constant), Zscore(X5\_ExchangeRateVolatility), X3\_RealInterestRates, Zscore(X1\_FDI), Zscore(X2\_inflationRate), Zscore(X4\_GDP)

Source: Researcher, (2022)

The model coefficients indicate the extent to which the independent variable would change if all other factors are held constant and the variable increased by 1 unit.

**Table 4. 9: Regression Coefficients**

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.719	.925		.777	.442
	Zscore(X1_FDI)	-.494	.151	-.494	-3.268	.002
	Zscore(X2_inflationRate)	-.503	.226	-.503	-2.227	.033
	X3_RealInterestRates	-.085	.109	-.228	-.783	.439
	Zscore(X4_GDP)	-1.168	.308	-1.168	-3.785	<.001
	Zscore(X5_ExchangeRate volatility)	-.227	.125	-.227	-1.827	.077

a. Dependent Variable: Zscore(Y\_InterestRateSpread)

Source: Researcher, (2022)

Table 4.9 indicates that the analytical model of the study  $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$

Is transformed into:  $Y = -0.494X_1 - 0.503X_2 - 1.168X_4$

The significance of the coefficients for each variable indicate that they are less than 0.05 and therefore they have significant effect on the dependent variable, apart from real interest rates and exchange rate volatility that have insignificant effect on the independent variable.

The coefficients are also negative indicating that increasing FDI by one unit, while holding all other factors constant, then interest rate spread would decrease by 0.494%. It indicates that FDI improves the economic factors in the country such that commercial banks reduce their interest rates, to attract more loans.

On the other and increasing inflation rate by one unit while holding other factors constant, then interest rate spread would decrease by 0.503%. This shows that inflation rate as an effect of acting as a stimulus in the economy and therefore enabling banks to reduce their interest rate charges and hence recording an inverse relationship between inflation rate and interest rate spread.

GDP has a negative significant effect on interest rate spread. This means that increasing interest rate spread by one unit while maintaining all other factors constant, then interest rate spread would decrease by 1.168%. This means that improving GDP of a country would also lead to improved economic conditions that commercial banks are under pressure to reduce interest rates to remain competitive in issuance of loans.

#### **4.6 Summary and Interpretation of Findings**

The data analysis involved quarterly data for macroeconomic variables that were proposed to have an influence on interest rate spread. The specific variables included FDI variable, inflation rate, real interest rates, GDP and exchange rate volatility. The analysis involved undertaking descriptive statistics of each variable, undertaking correlation analysis as well as regression analysis, to identify the relationship between these independent variables and interest rate spread.

The study collected quarterly data for FDI inflows for the period of ten years, from 2012 to 2021. The mean FDI inflows were low with low standard deviation, indicating that within the study period, there were no spikes of FDI or huge fluctuations. The Spearman's correlation that was undertaken by the study was -0.05, but insignificant. It was negative to indicate that increasing FDI would lead to decrease in interest rate spread, however the value was insignificant and very close to zero meaning the correlation was weak. The regression analysis however indicated that FDI had a significant coefficient of -0.494 indicating that increasing FDI by one unit while holding other factors constant would lead to decrease in interest rate spread.

Inflation rate was also determined where it was found that there were no many variations between the inflation rate as the standard deviation from the mean was also small. The correlation coefficient with interest rate spread was negative and close to zero at -0.034. This



indicated that increasing inflation rate would reduce interest rate spread, although the correlation was insignificant. The regression coefficient of inflation rate was significant at -0.503. This would indicate that if all factors were held constant and inflation rate increased by one unit, then interest rate spread would reduce by 0.503%. It indicates that increasing inflation in the short run had a surplus effect on the economy, and thereby reducing demand for loans, commercial banks result in decreasing the interest rate charged, decreasing the interest rate spread.

However, real interest rates had no effect on the interest rate spread. Because the regression coefficient had a p-value greater than 0.05, even though the coefficient was negative, indicating that rising real interest rates would have a negative impact on interest rate spread, the impact was not significant. This could be explained by the economy's preference for working with real interest rates. The issue of inflation disrupts the market, affecting interest rate spreads and other macroeconomic factors.

GDP on the other hand was determined by the value of goods and services produced within the boundaries of the country. Quarterly data was also obtained for the study period, where natural logarithm of the total value of GDP was determined by the study. The mean of the GDP collected was 14.35 with a very low standard deviation. It was an indication that the GDP did not have great variations within the study period. The correlation coefficient was significant at -0.402. This indicated that increasing GDP in the economy increased economic activity and therefore less people need to borrow loans from commercial banks. The commercial banks, therefore, reduce their interest rates, and thereby reducing the interest rate spread. The regression analysis had a similar finding where the coefficient of GDP was significant but negative at -1.17. If all factors were held constant and GDP was increased by one standard deviation point, then the interest rate spread would reduce by 1.17%.

Exchange rate volatility on the other hand measured the exchange rate between the Ksh and USD. The volatility of the exchange rate from one quarter to the other was determined. The volatility had negative and insignificant correlation while at the same time the regression coefficient was negative and insignificant. This indicates that exchange rate fluctuations did not have significant impact on interest rate spread. This would be explained by the fact that although Kenya is involved in undertaking imports and exports of goods and services. The level of imports and exports in the country is not developed to a point that it would have significant impact on macroeconomic factors in the country.

The findings of the study are consistent with findings by Nyanyuki (2018) who found that interest rates had significant impact on FDI. Palmgren and Ylander (2011) also had findings that were consistent to findings of this study when their initial population was reduced to cover Kenya, Mauritius and Morocco. They found FDI had significant impact on market efficiency. Njane (2017) on the other hand found that FDI had a positive and significant impact on technological development, while at the same time significant impact in reducing unemployment rate. Financial development had positive significant impact on FDI a study conducted by Hajilee and Nassser (2015). Tahir and Alam (2020) on the other hand found that FDI inflows had significant but negative effect on bank performance. Dimelis and Louri (2002) found a significant effect of FDI on productivity that increased with a share of foreign ownership. Similar findings were also indicated in other studies (Kariuki and Sang, 2018; & Pradhan, 2010).

The findings of the study are however inconsistent with findings by Nyanyuki (2018) who found that BOP had positive impact on FDI, and economic growth had insignificant impact on FDI. Ng'etich and Wanjau (2011) found that interest rate spread had positive significant effect on non-performing loans. While among the findings by Palmgren and Ylander (2015) FDI did not

have significant impact on market efficiency. Similar findings were indicated by Ng'etich and Wanjau (2011).

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

The chapter summarizes the study, draws conclusions from the findings, and makes recommendations based on the findings. The study also undertakes study limitations in the form

of policy and practice recommendations, while the study's limitations are enumerated and areas for further research are highlighted.

## **5.2 Summary of the Study**

Foreign direct investments have been associated with the streamlining the local economy, through provision of new technology, providing increased employment opportunities as well as enhancing that provision of exemplary and unique services that the local economy would not obtain the expertise or the resources to undertake. However, FDI inflows on the other hand, means that the local industry are faced with stiff competition and may be required to increase their investments and their standards, to compete with the multinational companies. The increased borrowing of funds is expected to increase demand for loans and increase interest rate spread. This study therefore sought to determine the effect of FDI on interest rate spread in Kenya.

The study sought to determine the impact of FDI on the interest rate spread among Kenya's listed local banks. The study sought to ascertain the impact of other macroeconomic factors on the interest rate spread. These variables included the inflation rate, real interest rate, GDP, and currency volatility. For a period of ten years, quarterly data for these variables was collected (2012-2022). The study used both correlation and regression analysis to determine the relationship between the study variables.

The regression analysis that was undertaken by the study indicated that FDI had significant negative effect on interest rate spread. The Spearman's correlation that was undertaken by the study was -0.05, but insignificant. It was negative to indicate that increasing FDI would lead to decrease in interest rate spread, however the value was insignificant and very close to zero

meaning the correlation was weak. The regression analysis however indicated that FDI had a significant coefficient of -0.494 indicating that increasing FDI by one unit while holding other factors constant would lead to decrease in interest rate spread.

Inflation rate was also determined where it was found that there were not many variations between the inflation rate as the standard deviation from the mean was also small. The correlation coefficient with interest rate spread was negative and close to zero at -0.034. This indicated that increasing inflation rate would reduce interest rate spread, although the correlation was insignificant. The regression coefficient of inflation rate was significant at -0.503. This would indicate that if all factors were held constant and inflation rate increased by one unit, then interest rate spread would reduce by 0.503%. It indicates that increasing inflation in the short run had a surplus effect on the economy, and thereby reducing demand for loans, commercial banks result in decreasing the interest rate charged, decreasing the interest rate spread.

Real interest rates, however, did not have significant effect on interest rate spread. The regression coefficient had a p-value greater than 0.05 and therefore despite the coefficient being negative indicating that increasing real interest rates would have a negative impact on interest rate spread, the impact was not significant. This could be explained by the fact that increases and decreases in real interest rates have equal impact on interest rate charged by banks to lenders and the interest rate that CBK charges the banks, and therefore increase in real interest rate makes the margin (interest rate spread) to remain unchanged.

GDP on the other hand was determined by the value of goods and services produced within the boundaries of the country. Quarterly data was also obtained for the study period, where natural logarithm of the total value of GDP was determined by the study. The mean of the GDP

collected was 14.35 with a very low standard deviation. It was an indication that the GDP did not have great variations within the study period. The correlation coefficient was significant at -0.402. This indicated that increasing GDP in the economy increased economic activity and therefore less people need to borrow loans from commercial banks. The commercial banks, therefore, reduce their interest rates, and thereby reducing the interest rate spread. The regression analysis had a similar finding where the coefficient of GDP was significant but negative at -1.17. If all factors were held constant and GDP was increased by one standard deviation point, then the interest rate spread would reduce by 1.17%.

Exchange rate volatility on the other hand measured the exchange rate between the Ksh and USD. The volatility of the exchange rate from one quarter to the other was determined. The volatility had negative and insignificant correlation while at the same time the regression coefficient was negative and insignificant. This indicates that exchange rate fluctuations did not have significant impact on interest rate spread. This would be explained by the fact that although Kenya is involved in undertaking imports and exports of goods and services. The level of imports and exports in the country is not developed to a point that it would have significant impact on macroeconomic factors in the country.

### **5.3 Conclusion of the Study**

The study concluded that FDI inflows have significant but negative effect on interest rate spread. This means that increasing FDI inflows, it improves the economic activities in the economy and therefore the demand for loans from commercial banks decreases. The commercial banks in the effort to boost their performance and attract lenders to borrow, lower their interest rates. Similarly, the study found that there was a significant but negative effect of inflation rate on

interest rate spread, this would be explained from the same point of view, where inflation provides an illusionary increase in income where the wages increase as a result of inflationary pressure. The increase in wages improve the economic activities, thereby reducing the appetite for loans. The decrease in loan appetite reduces interest rate spread among the commercial banks. The study also concludes that there is a negative significant effect of GDP on interest rate spread. This would also be explained that increase in GDP indicates that there is improved output of goods and services produced. It is an indicator of positive stimulus to the economy and therefore loan appetite decreases. The decrease in loan appetite leads to decrease in interest rate spread among commercial banks.

The study, however, concludes that there is insignificant effect of real interest rates on interest rate spread. It is an indicator that an increase or decrease in real interest rate leads to a similar increase or decrease in both the rate banks are able to acquire loans from CBK and the rate at which the commercial banks lend their clients. The overall effect is that the interest rate spread (margin) remains the same and therefore no significant impact on interest rate spread.

The study also indicates that increasing exchange rate volatility has insignificant effect on interest rate spread. This could be explained by the fact that BOP (Balance of payments) volumes are not significant enough to affect the overall economic activity. The study concludes that the level of imports and exports in the country, are yet to have significant impact on the national output level. Kenya is a net importer; the net imports of the country do not have significant impact on the national output to affect the interest rate spread among commercial banks.

#### **5.4 Recommendations of the Study**

The study therefore undertakes several recommendations that would impact policy and practice. Policy recommendations include the government to ensure that it implements policies that would improve FDI inflows. Increasing FDI inflows enhances market productivity including reducing the rate of unemployment and providing new technology that would benefit the economic status of the country. The study shows that increasing FDI inflows, the interest rate spread decreases, meaning that local investors do not increase their borrowing from the commercial banks, but rather reduce their borrowings in the local commercial banks, forcing the banks to reduce lending rates that results in decreased interest rate spread.

The study also recommends the government to ensure that they establish factors of production that improves GDP. The production of goods and services should be supported by the government as they act as a stimulus to the economic well being of the country. The improved economic well-being reduces borrowing appetite among local investors, forcing the commercial banks to reduce their lending rate.

The study also recommends that trade unions may stimulate increase in wages that would increase inflation in the short run, as it would have an effect of improving consumption that leads to decreases in interest rate spread. The Study recommends the improvement of BOP trade tat ensures that the country imports more to improve the economic well-being. The study also recommends that the cost of inputs such as power and land should be decreased to help support and attract FDI.

## **5.5 Study Limitations**

There are different limitations that would impact the study findings. The study collected secondary data from economic websites and from CBK website. The data collected may at times



be erroneous, in that it may not give an accurate position in terms of the variable observed. This would mean that there would be a possibility that the data could be prone to errors, though the researcher took great interest and care to rely on genuine websites such as CBK's website, which is known to accommodate factual data. Other websites relied by the study include KNBS websites as well as other genuine sites.

The study was also limited by the fact that the study period was within the period where the world was affected by Covid-19 pandemic. The pandemic brought disruptions of microeconomic nature as well as macroeconomic nature, and therefore data from this period is expected to indicate abnormal relationships due to the disruptions. The impact of these data is therefore expected to impact the study findings despite the fact that the study also collected data from the year 2012 to 2019, which are considered a period devoid of a global pandemic.

The study only observed 5 independent factors. The coefficient of determination of the study was 59.1% indicating that there were other factors to the tune of 40.9% that affected interest rate spread. The use of these factors in the study also limited the study findings.

## **5.6 Areas for Further Research**

The study recommends areas where future research could be conducted. A study that uses primary data could be adopted, where similar variables could be used in the study but modelled in a way that primary data is used, and therefore avoid errors and biases from secondary data. The study findings from such a study could be compared to the findings in this study.

Similarly, future research could be conducted from the study variables but a different period covered, where there is not effect of global pandemics. The findings from such a study would be

compared to findings of this study to determine the impact of such a global pandemic on the study variables.

A similar study could also be undertaken, but in different jurisdictions such as different countries in the EAC, in Africa, Europe or among other countries. The findings could be compared with findings from this study to determine the extent to which the variables change from one region to the other.

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## APPENDICES

### APPENDIX 1: DATA COLLECTION FORM

Year	Quarter	FDI Inflows	Inflation Rate	Real Interest Rates	GDP	Ksh-USD Exchange Rate	Interest rate charged by banks	Interest Rate Banks pay Depositors
2012	1 <sup>st</sup>							
	2 <sup>nd</sup>							
	3 <sup>rd</sup>							
	4 <sup>th</sup>							
2021	1 <sup>st</sup>							
	2 <sup>nd</sup>							
	3 <sup>rd</sup>							
	4 <sup>th</sup>							

### APPENDIX 2: DATA USED

Year	Quarter	FDI Inflows	Inflation Rate	CBK Rate	GDP	Ksh-USD Exchange Rate	Interest rate charged by banks	Interest Rate Banks pay Depositors
2012	1 <sup>st</sup>	345	15.61	18	1074451	82.9	20.34	8.01
	2 <sup>nd</sup>	345	10.05	18	1058067	84.79	20.3	7.88
	3 <sup>rd</sup>	345	5.32	13	1039582	84.61	19.73	7.4
	4 <sup>th</sup>	345	3.2	11	1089031	85.99	18.15	6.8
2013	1 <sup>st</sup>	280	4.11	9.5	1223271	85.64	17.73	6.54
	2 <sup>nd</sup>	280	4.91	8.5	1202416	86.01	16.97	6.65
	3 <sup>rd</sup>	280	8.29	8.5	1179732	86.65	16.86	6.55

	4th	280	7.15	8.5	1125382	86.31	16.99	6.65
2014	1 <sup>st</sup>	205	6.27	8.5	1380225	86.44	16.91	6.61
	2 <sup>nd</sup>	205	7.39	8.5	1327337	87.63	16.36	6.56
	3 <sup>rd</sup>	205	6.6	8.5	1312133	89.28	16.04	6.64
	4th	205	6.02	8.5	1337976	90.6	15.99	6.81
2015	1 <sup>st</sup>	155	5.82	8.5	1434537	91.53	15.62	6.66
	2 <sup>nd</sup>	155	6.99	9	1442511	95.87	15.57	6.6
	3 <sup>rd</sup>	155	6.14	11.5	1417338	102.95	16.09	6.83
	4th	155	7.35	11.5	1429033	102.38	17.35	7.65
2016	1 <sup>st</sup>	117.5	7.02	11.5	1865055	101.9	17.79	7.17
	2 <sup>nd</sup>	117.5	5.36	10.5	1918939	101.04	18.15	6.78
	3 <sup>rd</sup>	117.5	6.33	10	1895281	101.34	13.84	6.94
	4th	117.5	6.5	10	1914788	101.73	13.69	7.33
2017	1 <sup>st</sup>	337.5	8.8	10	1965097	103.39	13.61	7.12
	2 <sup>nd</sup>	337.5	10.8	10	1981364	103.36	13.66	7.15
	3 <sup>rd</sup>	337.5	7.5	10	1956143	103.52	13.69	7.66
	4th	337.5	5	10.5	1981211	103.35	13.64	8.22
2018	1 <sup>st</sup>	192.5	4.5	9.5	2066814	101.86	13.49	8.16
	2 <sup>nd</sup>	192.5	4	9.5	2100854	100.75	13.22	8.04
	3 <sup>rd</sup>	192.5	4.7	9	2059359	100.71	12.66	7.76
	4th	192.5	5.6	9	2100577	101.91	12.51	7.41
2019	1 <sup>st</sup>	179.25	4.4	9	2165942	100.73	12.51	7.22
	2 <sup>nd</sup>	179.25	5.9	9	2224683	101.3	12.47	7.19
	3 <sup>rd</sup>	179.25	5	9	2158331	103.42	12.47	6.89
	4th	179.25	5.8	8.5	2193456	102.52	12.24	7.11
2020	1 <sup>st</sup>	107.5	6.8	7.25	2261242	101.88	12.09	7.07
	2 <sup>nd</sup>	107.5	5.3	7	2119995	106.5	11.89	6.86
	3 <sup>rd</sup>	107.5	4.3	7	2113144	107.94	12.12	6.41
	4th	107.5	5.3	7	2220390	109.49	12.21	6.3
2021	1 <sup>st</sup>	112	5.8	7	2307206	109.75	12.05	6.46
	2 <sup>nd</sup>	112	6	7	2373240	107.76	12.02	6.37
	3 <sup>rd</sup>	112	6.7	7	2323009	109.18	12.1	6.34
	4th	112	6	7	2345566	111.9	12.16	6.5