RELATIONSHIP BETWEEN FOREIGN DIRECT INVESTMENT INFLOWS AND SELECTED MACROECONOMIC VARIABLES IN KENYA

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF THE DEGREE OF MASTERS OF ARTS IN ECONOMICS OF THE DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES, RONGO UNIVERSITY

2023

DECLARATION

Declaration by the Candidate

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The present endeavour is earnestly dedicated to the esteemed Ogero family, whose unwavering commitment and indefatigable endeavours have been instrumental in providing unwavering support for the advancement of my scholarly pursuits.

ACKNOWLEDGEMENT

I hereby extend my utmost gratitude and sincere recognition to the individuals enumerated herein, whose invaluable contributions have ultimately led to the successful culmination of this erudite undertaking. I request to extend my profound gratefulness to my esteemed mentors, Professor John Ernest Odada and Professor John Almadi Obere, for their invaluable scholarly contributions that have profoundly shaped and guided my academic odyssey. The resolute dedication exhibited by these individuals in disseminating their profound erudition, allocating their invaluable temporal resources, and furnishing steadfast assistance has proven pivotal in molding my scholarly endeavors. Moreover, I am compelled to articulate my profound appreciation to my esteemed progenitors and siblings for their invaluable bestowal of resolute moral support and unwavering commitment to nurturing my scholastic ambitions. I wish to outspread my utmost gratefulness to the esteemed associates of the faculty within the Faculty of Economics and Humanities for their unwavering and steadfast support throughout the entirety of my academic endeavors, as well as their invaluable guidance and aid in the formulation and development of my research proposal. The author wishes to express profound gratitude to the esteemed colleagues at Rongo University, whose unwavering reliability, benevolent disposition, and unwavering motivation have played a major task in enabling the successful completion of the author's scholarly endeavours. Primarily, I extend my deepest appreciation to the celestial being commonly denoted as my Heavenly Father, whose profound sagacity, unwavering patronage, and munificence have played a major task in elucidating my trajectory and endowing me with the requisite resilience to embark upon this erudite endeavour.

ABSTRACT

Foreign direct investment (FDI) emerges as a critical strategy in the pursuit of long-standing financial growth and advancement within the majority of evolving nations. This is primarily achieved by improving infrastructure, advancing information and communication technology, increasing productivity, creating employment openings, and enhancing export activities to bolster the balance of payments. The inflow of foreign direct investment (FDI) has shown fluctuations through the yonks from 1974 to 2018, notably experiencing a decline from 2013 to 2016. These fluctuations and need to understand the causal relations among the variables motivated the need for the study. The principal goals of this research were to find and investigate the causal associations between FDI and a specific set of macroeconomic indicators. Additionally, a secondary aim involved estimating the interconnections among these variables through parameter estimation. Spanning 45 years from 1974 to 2018, the research provided a comprehensive temporal framework for conclusive results. Data from the World Bank were used for methodological consistency. To ascertain the stationarity of individual variables, a unit root test was used. Christopher Sims' theoretical framework, which employs vector autoregressive models, was used to estimate complex interconnections between variables. The Granger causality test, a statistical methodology widely used in econometrics, serves to ascertain the directionality of causality between variables. The empirical examination has revealed a mutually reinforcing correlation amongst foreign direct investment (FDI) influxes and economic development. Notably, exchange rates, FDI influxes, and interest rates significantly influenced inflation dynamics. Vector autoregressive estimates of independent variables' impact on dependent variables were statistically examined at a significance level of 0.05. Results indicated that economic advancement, quantified by gross domestic product (GDP), constructively and significantly influenced immediate FDI influxes. Current-year GDP and FDI influxes constructively impacted economic development in the subsequent year. Exchange rates directly affected inflation trends, while the volume of FDI investments and combined interest and exchange rates inversely related to current and subsequent year inflation rates. Current inflation rates influenced subsequent year interest rates. The research advocates attracting foreign investors to augment FDI influxes, thereby boosting economic development and mitigating inflation. Furthermore, raising interest rates emerges as a significant measure to counteract inflationary pressures.

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ABBREVIATIONS AND ACRONYMS

CBK: Central Bank of Kenya

CPI: Consumer Price Index

COMESA: Common Market for Eastern and Southern Africa

FDI: Foreign Direct Investment

GDP: Gross Domestic Product

ICT: Information and Communication Technology

IFE: International Fisher Effect

INF: Inflation Rate

INT: Interest Rate

KIC: Kenya Investment Centre

KPSS: Kwiatkowski- Phillips-Schmidt-Shin

LDC: Less Developed Countries

LLDC: Landlocked Developing Countries

PPP: Purchasing Power Parity

SADC: South African Development Community

SIDS: Small Island Developing States

UNCTAD: United Nations Conference on Trade and Development

USD: United States Dollar

VIF: Vector Integrating Factor

XR: Exchange Rate

CHAPTER ONE

INTRODUCTION

1.1 Background of the Research

Foreign Direct Investment (FDI) denotes a modality of venture wherein external entities, be they individuals or corporations, engage in the direct allocation of capital towards the resources and assets within the host nation. Within the framework of this particular investment modality, the foreign investor acquires a form of ownership that grants them direct authority and oversight over the entities situated within the host nation. This entails the imperative need for the investor to be present at the designated investment location, thereby necessitating the assumption of commensurate financial obligations (Ostadi & Ashja, 2014). In the specific context of Kenya, Foreign Direct Investment (FDI) can be conceptualized as the deliberate allocation of resources towards foreign assets, encompassing external currency, rights, financing, benefits, or assets, accepted by an individual who is not a citizen of Kenya. The primary aim of such investment is the creation of properties and services intended for domestic consumption or exportation. This endeavor is carried out in line with the requirements outlined in the Investment Promotion Centre Act, more specifically delineated within Chapter 518 of said legislation.

As per the results elucidated in the 2008 statement delivered by the United Nations Conference on Trade and Development (UNCTAD), the concept of Foreign Direct Investment (FDI) encompasses enduring investments that perpetuate advantages derived from the corporeal or legal existence of a corporate entity beyond the confines of the investor's domestic jurisdiction. The present report elucidates the paramount necessity of Foreign Direct Investment (FDI) in shaping the trajectory of growth of nations, with a particular emphasis on the African continent. The aforementioned statement posits

that the act of augmenting the pool of investable capital serves as a catalyst for fostering indispensable economic expansion, thereby facilitating the amelioration of poverty and the enhancement of living standards within a given nation (Ribeiro, Vaicekauskas, & Lakstutiene, 2012). The present mechanism engenders externalities that confer advantages upon the entirety of the economy, albeit not being directly attainable by the host nations owing to a multitude of challenges, including but not limited to insubstantial internal savings, insufficient tax revenue, restricted output, and constrained foreign exchange earnings.

Foreign direct investment (FDI) influxes are commonly acknowledged as potent drivers for the diffusion of technology, augmentation of operational efficiency, and stimulation of economic development (Nihal, 2013). Foreign Direct Investment (FDI) is commonly regarded as a strategic mechanism for ameliorating the technological disparities prevalent in the least developed countries (LDCs) by means of both direct and indirect investments in the realm of technical disciplines (World Bank, 2011). The phenomenon of globalization has engendered a discernible augmentation in the fluidity of both labor and capital, thereby expediting the transnational allocation of resources (Hansson & Olofsdotter, 2010). Given the prevailing circumstances of aging populations and diminishing reproduction rates in developed nations, it is expected that the pursuit of international capital will become increasingly fierce as a consequence of the reduced inclination towards saving.

The empirical research carried out by Mwega (2009) revealed a noteworthy association between foreign direct investment (FDI), profitability, and augmented private domestic investment output. The pivotal significance of Foreign Direct Investment (FDI) while referring to the facilitation of novel technological advancements and the enhancement of operational efficacy, particularly in the domain of investable capital, is duly

underscored. The seminal works of Todaro (1977) and DeMello (1997) have underscored the implication of foreign direct investment (FDI) in mitigating the capital and productivity constraints prevalent in developing economies. The aforementioned studies provide empirical evidence that substantiates the manifold advantages of Foreign Direct Investment (FDI). These advantages encompass the optimization of resource allocation, the mitigation of risks through diversification, and the facilitation of knowledge and technology transfer.

Following the occurrence of the debt crisis in 1988, foreign direct investment (FDI) emerged as a viable remedy to address the diminished capacity of commercial banks to provide loans and the decreased availability of aid. Consequently, various economies resorted to implementing incentives in order to allure FDI (Sumner, 2005; Tobin & Kosak, 2006). Foreign direct investment (FDI) acts a pivotal part in fostering economic progress through its dual impact: direct financial support for development initiatives and the indirect diffusion of knowledge and technology (Liargovas & Angelopoulos, 2014). The assertion made by Demello (1997) found support in the observation that foreign direct investment (FDI) influxes serve as a catalyst for the introduction of novel products and production techniques, thereby fostering the dissemination of knowledge through the development of human resources.

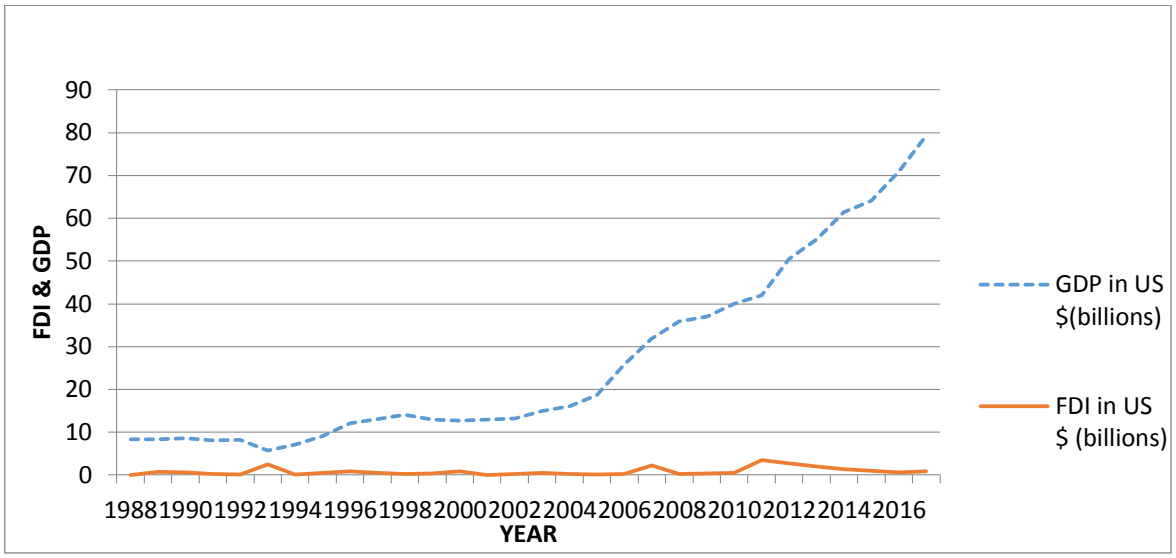

Figure 1.1 *GDP & FDI Trends in Kenya, 1988-2017*
Source: The World Bank, 2018

Figure 1.1 depicted a discernible pattern of Gross Domestic Product (GDP), wherein a persistent and incremental growth is observed throughout the designated temporal span, notwithstanding intermittent contractions in the years 1991, 1998, and 2008. Following a series of transient setbacks, the trajectory of the Gross Domestic Product (GDP) exhibited a gradual ascent in the subsequent years, culminating in its zenith towards the conclusion of the designated time frame. Upon a cursory examination of the graph, it becomes evident that the Gross Domestic Product (GDP) demonstrated an upward trajectory, whereas the influx of Foreign Direct Investment (FDI) displayed fluctuations.

The concept of economic evolution encapsulated the intricate and evolving mechanism through which a nation's economic system undergoes a gradual and incremental expansion in both its scope and magnitude. As the aggregate output of a given nation experiences an upward trajectory, a concomitant rise in its overall income is observed. The significance of economic development for a nation cannot be overstated, as it acts a major task in fostering enhanced societal welfare. The Gross Domestic Product (GDP),

an indicator that encapsulated alterations in economic production, is traditionally used as a means of quantifying economic development. The aforementioned metric holds significant importance for investors in the formulation and execution of their decision-making strategies. The strategic economic blueprint of Kenya, known as Vision 2030, is designed to foster a paradigm of robust economic expansion, with a particular emphasis on achieving an annual growth rate surpassing the threshold of 10%. The report printed by the Central Bank of Kenya in 2018 presented empirical evidence regarding the rates of actual gross domestic product (GDP) growth. Specifically, the data indicated that the growth rates were recorded as 5.4% in 2014, 5.7% in 2015, 5.9% in 2016, and experienced a subsequent decline to 4.9% in 2017. This downward trend in GDP growth signifies a lack of success in attaining the intended aim.

Exchange rates are of paramount importance in the realm of international finance, as they serve as a mechanism for gauging the relative worth of a nation's currency vis-à-vis other currencies. This metric served as a quantitative measure that denoted the relative worth of a nation's currency within the international economic landscape. In accordance with Cote's scholarly exposition in 2005, it is posited that exchange rates play a major task in ameliorating fiscal deficits within burgeoning economies, particularly when confronted with inadequate governmental revenue streams. Subsequently the termination of the Bretton Woods regime in 1971, the unpredictability of exchange tariffs has engendered apprehension within the investment community, as well as among analysts and managers. The extant system underwent a substitution whereby the determination of currency values was predicated upon the interplay between the quantities supplied and demanded. In light of the intricate and dynamic interplay between these multifaceted forces, the phenomenon of currency volatility has emerged as a formidable challenge, as expounded upon by Grier and Mark in their seminal work

of 2010. The escalating degree of openness within the global economic landscape, coupled with the burgeoning scope of international trade, engendered heightened vulnerability among nations to the capricious fluctuations in foreign exchange rates, thereby exerting a discernible influence on the determination of investment strategies.

The phenomenon of inflation is subject to diverse conceptualizations within the academic discourse. According to the World Bank (2007), inflation is characterized as a cyclical escalation in the worth of a diverse array of services and commodities that are acquired by individuals within a given economic system. According to the scholarly work of Mishkin (2008), inflation can be conceptualized as a gradual and unceasing escalation in the over-all price range of various commodities and amenities, thereby resulting in a concomitant erosion of the ability to acquire services and commodities. The disconcerting phenomenon of elevated inflation rates within developing nations has engendered a sense of apprehension among central banking institutions, thereby prompting the formulation of financial frameworks that prioritize the containment of inflationary pressures as a means to foster economic stability. The presence of elevated inflationary pressures has the potential to dissuade risk-averse foreign investors of a conservative disposition from embracing in foreign direct investment (FDI) endeavors, primarily owing to the concomitant uncertainties that are inherently linked to such a macroeconomic phenomenon. The ramifications of inflation on societal dynamics, such as the distortion of incentives pertaining to the domains of saving and investing, have been the subject of scholarly discourse (Kirimi, 2014). It is incumbent upon legislators to exercise prudence and circumspection in light of the extant and prospective escalation in inflationary tendencies.

Interest rates serve as a quantifiable representation of the expenses associated with borrowing or the perceived worth that lenders attribute to their financial resources. Brock and Franken (2005) expound upon the notion that these indicators serve as reliable barometers of prevailing market conditions, inflationary trajectories, and patterns of economic expansion. The dynamic nature of interest rates is intricately intertwined with a multitude of economic phenomena, policy adjustments, and market upheavals. The occurrence of events such as policy changes and market disruptions presents a formidable challenge to the realm of prognostication, rendering interest rate responses predominantly characterized by a reactive nature. Nevertheless, it is imperative to acknowledge that commonplace economic phenomena, such as business cycles, exert a discernible impact on the volatility of interest rates, as expounded upon by Bikbov and Chernov in their seminal work in 2004.

The abrupt escalation of interest rates engenders profound ramifications for corporations and the macroeconomic landscape at large. The effect of interest tariffs on the economy is of considerable significance, as it exerts a profound influence on various economic variables such as consumption, production, inflation, and exchange rates. The aforementioned factors exert a profound influence on various facets of economic activity, namely household expenditure patterns, corporate investment choices, and the strategic allocation of resources within investor portfolios across financial and foreign exchange markets.

1.1.1 Global Foreign Direct Investment Trend

The prevailing economic force in contemporary times is the phenomenon of global integration, characterized by the substantial expansion of international trade and the ascendance of multinational corporations. The subject matter at hand has garnered

considerable scrutiny within the realm of policy discourse and scholarly investigation, as evidenced by the seminal contributions made by Jingting in the year 2017. In accordance with the empirical evidence presented at the United Nations Conference on Trade and Development (UNCTAD) in 2018, a significant reduction of 21.8 percent was observed in the influx of foreign direct investment (FDI) on a global scale throughout the year 2017. The aforementioned decline resulted in a reduction of the monetary valuation from $2.47 trillion in the preceding year to $1.93 trillion. Curiously, this observed descent exhibited a divergent trajectory when juxtaposed against other macroeconomic indices, namely gross domestic product (GDP) and trade, both of which evinced noteworthy amelioration during the fiscal year of 2017. The observed decline in the aforementioned phenomenon can be attributed, at least in part, to a notable reduction of 22 percent in the aggregate size of cross-border fusions and procurements. Notwithstanding the exclusion of specific transactions and corporate restructurings that engendered an artificial inflation of foreign direct investment (FDI) metrics in the year 2016, the observed decrease in FDI throughout the year 2017 persisted as a remarkable phenomenon.

The examination of empirical evidence revealed a discernible decline in the assessment of publicly disclosed Greenfield investments, a metric that affords valuable insights into forthcoming patterns. The aforementioned decrease manifested as a substantial diminution of 14 percent, culminating in an aggregate sum of $720 billion, as reported by the United Nations Conference on Trade and Development in 2018.

The international trend in foreign direct investment (FDI) exhibited a consistent and incremental ascent from the year 1991 to 2000, subsequently giving way to discernible oscillations in the ensuing years. The zenith of international foreign direct investment (FDI) was attained in the year 2007, as meticulously chronicled by the esteemed World

Bank in 2017. In accordance with the empirical results presented by the United Nations Conference on Trade and Development (UNCTAD) in 2018, it is observed that developed economies encountered a significant decline of 37 percent in foreign direct investment (FDI) influxes throughout the duration of the calendar year 2017. This decline amounted to a substantial sum of $712 billion. Concomitantly, it is imperative to acknowledge that foreign direct investment (FDI) influxes targeted explicitly at the least developed countries (LDCs) experienced a simultaneous decrease of 17 percent, amounting to a cumulative sum of $26 billion. The aforementioned depiction encompassed a merger 4 percent of the aggregate foreign direct investment (FDI) influxes allocated to the entirety of evolving nations.

1.1.2 Rate of Foreign Direct Investment in African Regions

A multitude of African nations have conscientiously embarked upon substantial endeavors to cultivate a milieu that is propitious for investment, thereby nurturing both indigenous and international investment. Furthermore, it is worth highlighting the significant advancements that have been accomplished in attaining commendable thresholds of political and economic stability within these respective regions. In accordance with empirical evidence derived as of the proceedings of the United Nations Conference on Trade and Development (UNCTAD) in the year 2018, it becomes apparent that the African continent underwent a substantial contraction in the influx of foreign direct investment (FDI), culminating in a noteworthy reduction of $42 billion during the calendar year of 2017. The diagram presented herein depicts a conspicuous decline of 21 percent in foreign direct investment (FDI) influxes when juxtaposed through the levels recorded during the antecedent year, namely 2016. The decline in economic influxes, specifically in larger economies with a significant dependence on

commodity exports, can be ascribed to the confluence of diminished oil prices and the enduring adverse repercussions of commodity market downturns.

Nevertheless, it is valuable to note that the phenomenon of foreign direct investment (FDI) influxes in nations characterized by diverse export portfolios, such as Ethiopia and Morocco, has exhibited a greater degree of resilience when compared to their counterparts. According to the discoveries of the United Nations Conference on Trade and Development (UNCTAD), the North African region experienced a notable contraction of 4 percent in foreign direct investment (FDI) influxes, culminating in a cumulative sum of $13 billion.

The prospective resurgence of commodity prices, in conjunction with the notable advancements achieved in interregional collaboration via the establishment of the African Continental Free Trade Area pact, harbours the potential to augment foreign direct investment influxes in 2018. The realization of the said outcome is predicated upon the sustenance of a propitious global policy milieu, as postulated by the United Nations Conference on Trade and Development in 2018.

1.1.3 The Foreign Direct Investments in Kenya

These foreign direct investment influxes have been fluctuating in Kenya.

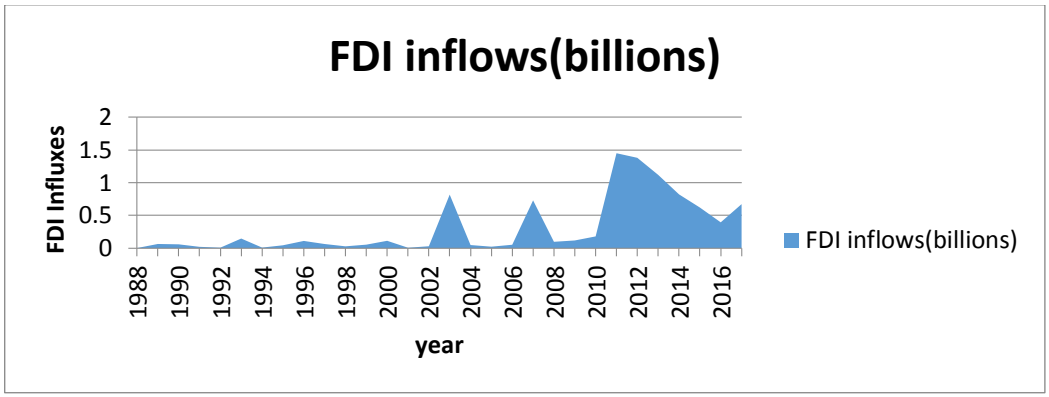

Figure 1.2 *FDI Influxes Trends in Kenya in US Dollars (Billions)*
Source: The World Bank, 20*18*

The temporal trajectory of foreign direct investment (FDI) influxes into the nation of Kenya, as visually represented in Figure 1.2, exhibits a discernible pattern characterized by recurrent fluctuations spanning the time frame from 1988 to 2017. Evidently, a conspicuous escalation was observed within the temporal confines of 2008 to 2011. The aforementioned pattern indicates a consistent upward trajectory in the manufacturing and rendering of services activities undertaken by large multinational companies and their associated entities within the territorial confines of Kenya. The fiscal year 2011 witnessed the culmination of foreign direct investment (FDI) influxes, characterized by an extraordinary upsurge in foreign capital influx into the nation. Contrarily, it is worth noting that the nadir of foreign direct investment (FDI) influxes materialized during the fiscal year 2001, marked by a notable descent in the influx of overseas capital investments. Between the temporal span of 2013 and 2016, a consistent downward trajectory was observed in the influx of foreign direct investment (FDI), subsequently succeeded by a resurgence in the year 2017.

1.2 Government Policies on Investment in Kenya

Following its attainment of independence, the Kenyan government has undertaken a series of policy measures with the explicit aim of enticing foreign direct investment (FDI) to its geographical domain (Ndolo, 2017). During the time frame spanning from 1965 to 1985, a series of policy incentives and economic transformations were implemented with the aim of facilitating the implementation of an import substitution strategy. The aforementioned approach, explicated in the scholarly publication Seasonal Paper No. 10 of the year 1965, was devised with the aim of substituting imported commodities with domestically manufactured alternatives. A momentous paradigm shift transpired in the year 1986 with the advent of Session Paper No. 10, which espoused the adoption of export-oriented strategies, with a particular emphasis on primary exports. In

the annals of historical chronology, it is worth noting that within the confines of the same temporal epoch, a momentous occurrence transpired, namely the inception of an institutional entity known as the Investment Promotion Centre (IPC), which was subsequently bestowed with the appellation of the Kenya Investment Centre (KIC). The primary aim of this entity was to strategically cultivate foreign direct investment (FDI) through the facilitation of Kenya's promotion and the establishment of a conducive business milieu, thereby engendering an environment that is conducive to the attraction of investment.

During the temporal span encompassing the years 2008 to 2030, the Republic of Kenya found it imperative to devise a comprehensive plan for its socio-economic advancement. In order to effectively execute this strategy, the Kenyan government recognized the necessity of establishing a robust legal structure to facilitate the desired developmental outcomes. Consequently, the legislative machinery was set into motion, culminating in the announcement of the Investment Promotion Act of 2004. The present endeavor was undertaken with the aim of propelling the nation of Kenya towards the esteemed echelons of a nascently developed, middle-income entity, thereby engendering a notable amelioration in the overall quality of life experienced by its populace. The legislative framework encompassed various provisions pertaining to fiscal and customs incentives, in addition to exemptions specifically targeting training expenditures. The aforementioned advantages were bestowed upon enterprises that exhibited a robust dedication to the luring of Foreign Direct Investment (FDI) to the nation of Kenya, all the while effectively tackling domestic obstacles (Ndolo, 2017).

1.3 Statement of the Problem

Developing nations, with a particular emphasis on the least developed countries, face formidable obstacles in their pursuit of foreign direct investment (FDI). Hence, the

aforementioned challenges encompass a diverse array of issues, spanning from inadequacies in physical infrastructure and restricted availability of financial capital, to more comprehensive strategic considerations such as the development and implementation of efficacious macroeconomic policies. The conventional inclination of global investors towards geographical areas characterized by reduced labor expenses, a phenomenon frequently witnessed in diverse African nations, has experienced a diminished pertinence within a worldwide milieu progressively marked by mechanized manufacturing procedures. In light of the aim of enhancing societal welfare, it is imperative for these economies to address the imperative for efficacious employment prospects, which frequently revolve around the realm of manufacturing (UNCTAD, 2018).

Given the ongoing depletion of resources, it has become imperative for developing nations to undertake a comprehensive re-evaluation of their investment strategies. The impetus behind this phenomenon stems from the proclivity of corporations to allocate resources towards geographical areas that offer requisite raw materials conducive to streamlined production processes and punctual distribution of cutting-edge commodities. The impetus behind such investments stems from the aspiration to establish geographical proximity to consumers, thereby enabling the optimization of supply chain management processes. Furthermore, these investments are strategically engineered to facilitate the implementation of versatile production methodologies, thereby enabling prompt adjustments to dynamic market exigencies.

The Republic of Kenya has extensively relied upon Foreign Direct Investment (FDI) in place of a crucial platform of acquiring external currency, injecting capital, and fostering employment opportunities. The recognition of the significance of attracting Foreign Direct Investment (FDI) has emerged as a prominent policy aim for the Kenyan

government. The spatiotemporal trajectory of foreign direct investment (FDI) influxes spanning the years 1988 to 2017 exhibited discernible oscillations and divergences. During the temporal span from 2008 to 2011, the nation of Kenya underwent a time frame characterized by an elevated level of desirability, which was subsequently succeeded by a time frame of diminished allure spanning from 2013 to 2016. Significantly, the inflow of foreign direct investment (FDI) experienced a notable surge, reaching a value of $0.67 billion in the year 2017. This represents a substantial increase when compared to the preceding year's FDI inflow of $0.39 billion, as reported by the World Bank in 2018.

A plethora of scholarly investigations have undertaken a comprehensive scrutiny of the multifaceted elements influencing foreign direct investment (FDI) in the Republic of Kenya. The present body of literature commonly posits foreign direct investment (FDI) as a dependent variable that is subject to the influence of various independent variables. These independent variables encompass economic development, which is archetypally quantified by gross domestic product (GDP), dynamics pertaining to exchange rates, inflationary trends, tax regulations, and fluctuations in interest rates. The examination of these variables has frequently revealed their inherent interconnectedness with foreign direct investment (FDI) within the extant body of scholarly inquiry. Notwithstanding, antecedent investigations may have inadvertently disregarded the historical values of foreign direct investment (FDI) and their plausible influence on the existing epoch. The principal goal of this research is to address the existing disparity by examining the historical associations between foreign direct investment (FDI) influxes and specific macroeconomic indicators. Additionally, this research endeavors to delve into the causal directions that may exist among these variables.

1.4 Research Objectives

1.4.1 Main Objective

The core research aim was to explore the affiliation amongst foreign direct investment influxes and certain macroeconomic factors in Kenya.

1.4.2 Specific Objective

i. To explore the causal relationship amongst FDI influxes and the selected macroeconomic factors.

ii. To estimate the relationships between FDI influxes, economic development, inflation, exchange tariff, and real interest rate in Kenya.

1.5 Research Proposition

The following null hypotheses were considered

H_1: inflation, exchange tariffs, economic development and interest rates do not impact foreign direct investment influxes in Kenya

H_2: inflation, exchange tariffs, foreign direct investment influxes and interest rates do not affect economic development in Kenya

H_3: economic development, exchange tariffs, foreign direct investment influxes and interest rates do not affect inflation in Kenya

H_4: economic development, inflation, foreign direct investment influxes and interest rates do not affect exchange tariffs in Kenya

H_5: inflation, exchange tariffs, foreign direct investment influxes and economic development do not affect interest rates in Kenya

1.6 Justification of the Research

Many Less Developed Countries (LDCs) have actively pursued the task of attracting foreign direct investment (FDI) into their economies as a means to promote economic development and growth. This circumstance has motivated numerous nations to work diligently towards creating favorable conditions that encourage increased influxes of foreign direct investment. Consequently, this research aims to contribute significantly to

understanding how foreign direct investment (FDI) responds to specific macroeconomic factors and the complex interactions among these factors. The ultimate goal is to gain a deeper insight into the optimal policies that should be adopted to enhance FDI influxes In the line of Kenya.

1.7 Significance of the Research

The discoveries of this inquiry bear substantial ramifications for both academics and practitioners, as they augment the extant corpus of understanding pertaining to influxes of foreign direct investment, the dynamics of economic development, the fluctuations in exchange rates, the trends in inflation, and the undulations in interest rates. The key resolution of this research is to augment comprehension pertaining to the causal interdependencies that exist among these macroeconomic variables. Furthermore, the integration of temporal lags into the process of estimating parametric projections serves to augment our understanding of the intricate interplay among these variables within distinct temporal intervals. Within the realm of academia, it is customary for scholars to employ research results as a fundamental framework upon which subsequent investigations are constructed. The aforementioned results function as pivotal reference markers for scholarly discourse and empirical investigations alike, affording scholars the opportunity to expand upon preexisting knowledge and propel the progress of their respective academic domains.

1.8 Scope of the Research

The current research was undertaken in the Republic of Kenya, a nation renowned for its distinguished position as the most rapidly expanding economy within the East African region. The present research endeavors to scrutinize the intricate interdependencies among influxes of foreign direct investment, patterns of economic

development, dynamics of exchange rates, trends in inflation, and fluctuations in interest rates. The investigation employs a comprehensive collection of time-series data encompassing the temporal span from 1978 to 2018. The data utilized in this scholarly investigation was procured from the esteemed World Bank database.

CHAPTER TWO

LITERATURE REVIEW

2.0 Overview

Within the confines of this particular section, an all-encompassing and meticulous examination of erudite literature is undertaken, with a particular emphasis placed upon the interrelated subjects of foreign direct investments and specific macroeconomic variables. The comprehensive examination of extant scholarly works can be bifurcated into two discrete constituents: the theoretical literature review and the empirical literature review. The former entails a meticulous and comprehensive scrutiny, coupled with a profound examination, of pertinent theoretical frameworks that bear direct relevance to the subject matter being investigated. Conversely, the latter entails a meticulous and comprehensive investigation and assessment of the scholarly endeavors undertaken by peers within the confines of the identical academic sphere.

2.1 Theoretical Literature Review

2.1.1 Standard Trade Theory

The domain of international trade encompasses the intricate dynamics of inbound imports, denoting commodities and services originating from foreign origins and consumed within domestic boundaries, alongside outbound exports, which entail commodities and amenities fashioned locally and consumed in foreign nations. The magnitude of outbound trade is predominantly shaped by exogenous levels of production and the export price vis-à-vis foreign commodities. Building upon the foundational scholarship of Samuelson and Nordhaus (2001), one can posit that in case of an appreciation in the exchange tariff, a cogent supposition emerges whereby there exists a reasonable anticipation that the prices of domestic goods will undergo a relative

escalation, thereby engendering a concomitant decline in the volume of exports. On the contrary, the phenomenon of currency devaluation elicits a substantial impetus towards the generation of alternative avenues for imported commodities and the augmentation of production with a focus on exports, thereby engendering an ultimate escalation in domestic price levels. The phenomenon of depreciation engenders inflationary tendencies by exerting influence on both import alternatives and export fees, which are pivotal constituents of the all-encompassing aggregate price index used domestically. Expanding upon the scholarly inquiry undertaken by Mikaela in the year 2006, it becomes apparent that a discernible correlation exists between the magnitude of currency devaluation and the intensity of inflationary forces that permeate an economic system.

The phenomenon of rising domestic prices for substitute goods to replace imports and exports results in a significant reallocation of resources within the production landscape. This shift entails a move towards import substitution and export-oriented activities, while diverting resources from non-tradable or solely domestic goods. This process, as outlined by Samuelson and Nordhaus in their seminal 2001 publication, serves to dampen the economic benefits stemming from domestic currency depreciation. Assessing the elasticity of demand and supply within a given nation becomes a vital metric that sheds light on the nation's ability to efficiently reallocate production resources from non-tradable and domestically exclusive goods to import alternatives and export-focused products. Moreover, it reveals the extent to which this transition might trigger inflationary tendencies (Salvatore, 2004).

2.1.2 Growth Proposition

The growth proposition posits the presence of a constructive connection amongst certain factors and the expansion of a particular phenomenon. In accordance with the postulated proposition, it is posited that as the aforementioned factors exhibit an upward trajectory, there is a concomitant amplification in the rate of expansion of the phenomenon under investigation.

The intricate interplay amid economic development and foreign direct investment (FDI) has engendered substantial scholarly discourse, thereby constituting a subject of considerable academic deliberation. The scholarly discourse by Chakrabarti (2001) delves into the development proposition posited by Lim (1983), wherein it is postulated that economies characterized by expeditious growth present more favorable prospects for profitability in contrast to economies exhibiting sluggish or stagnant growth. The notion at hand finds support in a corpus of empirical investigations carried out by esteemed scholars such as Lunn (1980), Schneider and Frey (1985), and Culem (1988). These studies have yielded persuasive evidence that substantiates the proposition positing a constructive influence of economic development on the phenomenon of foreign direct investment (FDI). In a parallel vein, the scholarly investigations carried out by Tsai in the year 1994 have substantiated this proposition with robust empirical support, specifically within the temporal confines spanning from 1983 to 1986. However, it is noteworthy that these results also unveil a comparatively feeble correlation amid economic development and foreign direct investment (FDI) throughout the earlier epoch of 1975 to 1978.

2.1.3 Rational Expectation Theory

Inflation assumes a pivotal and indispensable function within the intricate framework of macroeconomic regulation and fiscal administration. The rational expectations theory functions as a conceptual framework that elucidates the cognitive processes through which individuals form their economic expectations in the present, and the subsequent ramifications these expectations may have on future economic conditions. The seminal theoretical framework of rational expectations was postulated by the esteemed academician John F. Muth in the year 1961. This conceptual framework facilitates the attainment of a holistic comprehension pertaining to the projected trajectories of inflation. When confronted with substantial inflationary pressures, risk-averse investors frequently exhibit a proclivity for pursuing elevated price levels as a strategic approach aimed at ameliorating the potential adverse ramifications of inflation on their investment portfolios. The aforementioned proclivity possesses the potential to engender a diminution in the aggregate level of investment endeavors. Hence, the imperative of upholding stability in the inflationary trajectory cannot be overstated, as underscored by the seminal work of Gastanaga et al. (1998).

According to Nwankwo's seminal research carried out in 2006, the discernible phenomenon of foreign direct investment (FDI) deviating from its intended trajectory towards the African continent can be ascribed to inherent deficiencies in the execution of macroeconomic policies. The current research highlights the notion that insufficient monetary and fiscal policies serve as catalysts for unsustainable budget deficits and heightened inflationary pressures. As a consequence, the aforementioned scenario engenders a surge in domestic production costs, thereby giving rise to the occurrence of exchange rate fluctuations and an accompanying state of uncertainty. Consequently, the allure of the region experiences a decline while its risk profile escalates as a plausible

beneficiary of foreign direct investment (FDI). The existence of elevated inflation poses a significant impediment to a country's capacity to allure foreign direct investment (FDI), as it serves as an indicator of instability in macroeconomic determinants (Onyeiwu & Shrestha, 2004).

The manifestation of notable levels of inflation can be interpreted as a conspicuous indication of economic pressures within the socioeconomic milieu of a nation, thereby reflecting the government's reluctance to embrace a comprehensive and steadfast monetary framework. One may posit a plausible proposition that risk-averse foreign investors, in conjunction with heightened inflationary pressures, could potentially engender a diminution in the inflow of foreign direct investment (FDI) in the recipient nation. The aforementioned phenomenon can be ascribed to the reticence exhibited by investors in compromising their anticipated financial gains derived from various ventures (Kadongo, 2011).

2.1.4 Purchasing Power Parity

The seminal theoretical construct of purchasing power parity (PPP) was initially posited by the esteemed Swedish economist Gustav Cassel in the year 1918. The present theoretical framework posits that the attainment of equilibrium in exchange rates across diverse currencies is contingent upon the preservation of commensurate purchasing power parity among all nations engaged in the exchange. As per the scholarly results of Kidwell et al. (2008), it has remained detected that in numerous instances, exchange rates exhibit a tendency to converge towards levels of equilibrium. This convergence is characterized by the equalization of prices for goods across diverse nations, when expressed in terms of a universally recognized currency. In a theoretical construct wherein the principle of purchasing power parity (PPP) is upheld, the attainment of price parity necessitates the adoption of a unified currency encompassing all sovereign

states. Drawing upon the seminal works of Madura and Fox (2011) as well as Gitau (2014), the theoretical framework of absolute purchasing power parity (PPP) asserts that, in the absence of impediments to international trade, individuals exhibit a propensity to alter their consumption preferences in favor of regions characterized by relatively diminished price levels. Henceforth, the attainment of price parity between two nations shall be realized through the utilization of a universally standardized metric, whereby the pricing of identical assortments of goods shall be carried out.

In accordance with the theoretical underpinnings of the Purchasing Power Parity (PPP) framework, it is posited that exchange rates are not characterized by staticity, but rather exhibit dynamic tendencies as they endeavor to align with the fundamental principle of purchasing power parity. This proposition posits that fluctuations in the valuation of international currencies are undertaken with the aim of preserving a state of equilibrium between the recalibrated price indices of the two respective nations. Nevertheless, it is imperative to acknowledge that this particular theoretical framework possesses inherent limitations stemming from its underlying assumption of absolute homogeneity across various goods and the negligible existence of trade barriers and transportation costs between nations. Notwithstanding these inherent limitations, it is imperative to acknowledge the intrinsic value that the notion of purchasing power parity (PPP) holds in comprehending the intricate dynamics of exchange rates. In an optimal hypothetical context, it is postulated that foreign direct investment (FDI) would exhibit resilience in the face of fluctuations in exchange rates. The lack of realization of potential advantages stemming from participation in endeavors within a nation characterized by a depreciated monetary unit is attributable to this phenomenon. The homogeneity of expenditure patterns across various sectors obviates the necessity to pursue investment prospects

transcending domestic boundaries. The citation proffered by the user pertains to the erudite scholarly endeavors undertaken by Mishkin and Eakins in the year 2009.

The scholarly discourse, as elucidated by Asiedu (2008), delves into the genesis of foreign direct investment (FDI) and its intricate association with interregional discrepancies in currency valuation. In contradistinction, Dunning (1993) posited that the allocation of resources towards fixed capital investments necessitates a thorough examination of prospective oscillations in currency exchange rates, which in turn exert an influence on the magnitude of foreign direct investment (FDI) influxes. Goldberg (2011) concurred with the prevailing consensus that fluctuations in currency exchange rates exert a substantial influence on the investment choices undertaken by foreign entities within a particular economic milieu.

2.1.5 International Fisher Effect

The International Fisher Effect (IFE) research, originally postulated by the esteemed economist Irving Fisher during the 1930s, proffers a theoretical construct that facilitates comprehension of market anticipations. Fisher posited that an unanticipated augmentation in the extant interest rate would engender a proclivity among global investors to contemplate allocating their financial resources within the domestic market, enticed by the prospect of capitalizing on the elevated interest rate. In instances wherein a conspicuous dearth of foreign investment is discernible, it is plausible to deduce that the market anticipates a depreciation in the intrinsic worth of the domestic currency. This observation is congruent with the proposition posited by Njuguna (2016), which postulates that the foreign exchange market exhibits a high degree of efficiency in its operations. The Institute of Financial Economics (IFE) posits that the presence of arbitrage in the financial markets functions as a mechanism to guarantee that the interest

rate disparity amongst any dual nations functions as an impartial indicator of the forthcoming alteration in instant exchange rate. Nevertheless, the utilization of interest rate derivatives as a prognostic indicator exhibits a deficiency in precision, as empirical observations indicate that disparities in predictions have a tendency to nullify one another over the course of time (Shapiro, 1992).

The elucidation of economic theory pertaining to the intricate dynamics of capital mobility within the globalized economy posits that capital exhibits a propensity to gravitate towards nations exhibiting a superior return on assets, rather than confining its attention solely to countries characterized by higher interest rates (Pholphirul, 2002). Consequently, countries that demonstrate elevated investment yields, in conjunction with the attainment of financial stability through diminished interest rates and a favorable business milieu, observe a notable upsurge in investment endeavors. A direct relationship can be observed between the capital endowment of a nation and the inverse of its return rates. Nations characterized by diminished rates of return on investment exhibit a propensity for possessing elevated levels of capital in comparison to their counterparts characterized by augmented rates of return. While referencing Singhania (2011), she postulated that the adjustment of interest rates is conventionally undertaken to accommodate the vicissitudes inherent in the dynamics of inflation. Henceforth, it is imperative to acknowledge that the prevailing interest rate employs a substantial impact on the influx of foreign direct investment. Historically, investors have exhibited a proclivity towards pursuing economically efficient credit sources or securing loans at reduced interest rates. This strategic allocation of resources is typically directed towards economies that exhibit promising prospects for generating superior returns within the confines of the established framework.

2.1.6 Endogenous Growth Theory

The aforementioned models delve into equilibrium frameworks that intricately examine the multifaceted phenomenon of endogenous technological change. In the given framework, the enduring expansion of an economy is predominantly propelled by purposeful knowledge acquisition undertaken by forward-thinking agents driven by the pursuit of profit maximization (Romer, 1986). The tenets of endogenous growth theory posit that foreign direct investment (FDI) assumes a perpetual and ongoing function in augmenting output over a protracted temporal horizon. The seminal work by Barro and Sala-i-Martin (1995) has made a pivotal and noteworthy contribution towards shedding light on the complex dynamics of Foreign Direct Investment (FDI) In the line of sustained economic development in recipient countries. The seminal contributions of Lucas (1990), Mankiw (1992), and Romer (1987) have undeniably engendered a profound and enduring influence on the progression of the Solow neoclassical growth model. The aforementioned revisions have effectively integrated the concept of human capital in conjunction with physical capital as catalysts for economic development, thereby elucidating the significance of foreign direct investment (FDI) In the line of developing nations. The authors have adeptly devised a conceptual framework that holistically encapsulates the intricate dynamics of Foreign Direct Investment (FDI) as a multifaceted reagent for enduring economic expansion. The aforementioned aim is accomplished through the discernment and augmentation of foreign direct investment's intrinsic capacity to foster the uninterrupted dissemination of knowledge, thereby engendering holistic economic progress.

2.2 Empirical Literature Review

2.2.1 Foreign Direct Investment Influxes

The formative work steered by Nigh (1985) brought to light a nuanced constructive correlation observed among economies characterized by lower levels of development. Additionally, Nigh astutely observed a relatively feeble negative correlation within nations that have achieved a higher degree of advancement. The empirical inquiry carried out by Ancharaz (2003) revealed a constructive impact of delayed expansion on both population and non-Sub-Saharan African countries. However, the observed influence was not found to be statistically significant withIn the line of Sub-Saharan Africa. The seminal works of Gastanaga et al. (1998) and Schneider and Frey (1985) have elucidated the profound implications of economic development for the inflow of foreign direct investment (FDI). These studies have revealed compelling evidence of a robust and affirmative correlation amongst economic development and FDI.

The empirical investigation carried out by Grubert and Muiti (2000) delved into the intricate correlation amongst tax rates and the investment decisions of multinational enterprises (MNEs) within the United States. The empirical investigation presented herein has revealed a noteworthy correlation between tax rates and the investment decisions undertaken by multinational enterprises (MNEs). In the seminal work carried out by Simon (2001), a comprehensive examination was undertaken to explore the intricate dynamics of foreign direct investment (FDI). Specifically, the research delved into the examination of six distinct components that constitute FDI, thereby shedding light on the nuanced tax elasticities associated with each facet of FDI. The results of this rigorous investigation revealed notable variations in tax elasticities across the diverse dimensions of FDI, thereby contributing to a extra nuanced comprehension of this intricate phenomenon.

The scholarly work carried out by Summers (2011) has advanced the notion that alterations in interest rates do not wield a substantial impact on foreign direct investment (FDI), regardless of the prevailing corporate tax rates. The research carried out by Vesarach (2014) delved into an examination of various determinants that contribute to the inflow of Foreign Direct Investment (FDI) within Asian economies. The results of the said investigation revealed that interest rates emerged as a significant factor exerting influence on FDI. The scholarly investigation carried out by Munongo (2015) delved into the examination of the ramifications of tax enticements on foreign direct investment (FDI) withIn the line of the Southern African Development Community (SADC). The results of this rigorous inquiry revealed that tax incentives exerted a substantial and noteworthy impact on the inflow of FDI.

In the line of Kenya, Nyamwange (2009) carried out an investigation on the determining factors of Foreign Direct Investment (FDI), wherein the author identified exchange rates as a crucial factor. In a parallel vein, the scholarly work carried out by Njuguna (2013) delved into the intricate interplay between exchange rates and foreign direct investment (FDI), unearthing affirmative correlations with regard to economic development, while simultaneously revealing negative associations in relation to inflationary pressures. In the scholarly investigation carried out by Musyoka (2012), the focal point of inquiry revolved around the examination of the influence exerted by tax incentives on foreign direct investment (FDI). The discoveries of the said research revealed a discernible and affirmative association between the aforementioned variables. The research carried out by Mbayi (2013) delved into the examination of the impact of taxation on foreign direct investment (FDI), ultimately substantiating the beneficial consequences of tax incentives.

In their seminal work, Kwoba and Kibati (2016) undertook a comprehensive examination of the intricate correlation amongst macroeconomic indicators and the perception of Foreign Direct Investment (FDI) in the milieu of Kenya. Through a meticulous examination, the authors sought to shed light on the multifaceted dynamics that underpin this phenomenon, thereby contributing to the current form of information in the field of international economics. In a seminal research carried out by Njoroge (2016), it was derived that the economic performance of neighboring nations, real interest rates, and the level of urbanization exert noteworthy impacts on the inflow of foreign direct investment (FDI). In a seminal research carried out by Wanjiru (2013), the intricate interplay between economic development, inflation, and foreign direct investment (FDI) was meticulously examined. The results of this rigorous investigation revealed that inflation, in particular, emerged as a salient factor exerting a discernible impact on FDI. The scholarly investigation carried out by Nduati (2018) scrutinized the effect of inflation on foreign direct investment (FDI), thereby accentuating its significance within the realm of economic examination.

The research carried out by Ndolo (2017) delved into an examination of various factors that exert influence on Foreign Direct Investment (FDI) In the line of Kenya. The results of this investigation revealed that the variables of Gross Domestic Product (GDP), exchange rates, and inflation were derived to be inconsequential in their impact on FDI. In the realm of scholarly inquiry, Mbui (2017) carried out an empirical investigation pertaining to foreign direct investment (FDI) within the energy and petroleum sector. The research, employing a rigorous analytical framework, sought to discern the potential impact of various macroeconomic factors, namely interest rates, exchange rates, economic development, and inflation, on FDI. The results, derived from meticulous data examination, revealed a lack of statistically significant effects

stemming from the aforementioned variables. The scholarly inquiry carried out by Ndanu (2018) delved into the intricate dynamics of real interest rate, exchange rate, in addition affordability, ultimately unearthing profound implications for foreign direct investment (FDI) within the line of Kenya.

2.2.2 Real Exchange Rate

The noteworthy scholarly contribution of Kilicarslan (2018) centers on an extensive theoretical framework that elucidates the intricate determinants impacting the volatility of exchange rates. This comprehensive research, centered on the Republic of Turkey, rigorously investigates the multifaceted determinants that exert influence on the fluctuation of exchange rates within the temporal span ranging from 1974 to 2016. In order to establish the condition of stationarity, the researchers used the Augmented Dickey-Fuller Test (ADF) and the Phillips-Perron (PP) unit source examinations. The Johansen cointegration test has successfully ascertained the existence of enduring and interdependent relationships among the variables under consideration. Utilizing the Generalized Autoregressive Conditional Heteroskedasticity (GARCH) model, the present research undertook an examination to ascertain the instability of the actual operative exchange rate. The FMOLS (Fully Modified Ordinary Least Squares) methodology yielded estimated coefficients that capture the persistent relationships between factors. The outcomes of the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests have provided evidence in support of the existence of stalemate in the time series data, subsequent to the application of initial differencing. The empirical examination carried out using Johansen's test has yielded significant evidence of enduring interrelationships among the variables under investigation. The empirical investigation carried out through the employment of the Fully Modified Ordinary Least Squares (FMOLS) methodology has revealed that the phenomenon of foreign direct

investment (FDI), output levels, and government expenditures exhibit a discernible negative impact on the volatility of the economic system under scrutiny. In contrast, it can be observed that local ventures, the money supply, and trade sincerity have exhibited a constructive influence on the instability of the actual operative exchange rate.

The scholarly inquiry carried out by Adamu and Dantama (2017) delved into the multifaceted factors that underpin the instability of the exchange rate in the Nigerian context, spanning the temporal domain from 1989 to 2015. The research utilized the autoregressive Conditional Heteroscedasticity (ARCH) model, in conjunction with the Autoregressive Distributed Lag (ARDL) model and Granger Causality examination. The empirical results of this research indicate that various factors exert a discernible influence on volatility within the economic landscape. Specifically, fiscal balance, economic openness, and oil prices were observed to exhibit a constructive relationship with volatility. Furthermore, the impact of net foreign assets and interest rates on volatility was found to be statistically significant and constructively oriented. These results shed light on the intricate dynamics that underlie the fluctuations in economic volatility, thereby contributing to a deeper understanding of the complex interplay between these key determinants. The impact of nominal GDP was noted to be statistically inconsequential in the observed context. The application of Granger Causality examination has successfully discerned causal relationships within the given context.

The scholarly investigation carried out by Okoth (2013) delved into the intricate dynamics of the interplay amongst interest rates, inflation, and exchange rates within the specific context of Kenya. Through the utilization of a multifaceted regression

model, the empirical investigation has unveiled a noteworthy and statistically noteworthy correlation amidst the variables of inflation, interest rates, and exchange rates. The scholarly inquiry carried out by Kemboi and Kosgei (2018) delved into the intricate realm of economic determinants that underpin the volatility of exchange rates within the Kenyan context. Specifically, their investigation honed in on the temporal span spanning from 2000 to 2014, meticulously scrutinizing the multifaceted factors that contribute to this phenomenon. The researchers have successfully identified the salient determinants of exchange rates, namely the differentials in interest rates and inflation.

The research carried out by Odera (2015) delved into the ramifications of external public debt on the instability of the actual operative exchange rate within the Kenyan context, spanning the temporal time frame from 1993 to 2013. The experimental discoveries of this research have revealed that interest rates and the external debt-to-GDP ratio exerted noteworthy impacts on the level of volatility. Kibiy and Nasieku (2016) carried out an in-depth investigation into the intricate dynamics of exchange rate fluctuations withIn the line of Kenya. Their research placed particular emphasis on the multifaceted interplay between inflation, interest rates, money supply, and external public debt. The examination carried out by the authors brought to the forefront the major tasks played by the money supply and external public debt in exerting influence over volatility. Furthermore, the results of the research indicated that inflation and interest rates did not exhibit any discernible impact.

The research carried out by Kibiy and Nasieku (2016) delved into the intricate dynamics of exchange rates within the Kenyan context. Specifically, the researchers directed their attention towards the multifaceted interplay between inflation, interest rates, money

supply, and external public debt. The results of their examination unveiled the noteworthy effects exerted by the money supply and external public debt on volatility, concurrently highlighting the absence of any substantial impact attributable to inflation and interest rates.

2.2.3 Inflation

The scholarly inquiry carried out by Ryan and Milne (1994) delved into the intricate dynamics entailed in the estimation of inflation rates within developing nations. The primary aim of their scholarly investigation was to discern and delineate the distinction between evanescent, ephemeral fluctuations in price levels and the enduring trajectory of persistently mounting expenditures. Within the line of prevailing economic circumstances, the scholars used the utilization of annualized monthly inflation rates as a methodological tool to explicate the fundamental mechanisms driving inflationary tendencies. The practical facts outlined in this research unequivocally establishes the effectiveness of the proposed strategy in harmonizing the monetary and institutional dimensions for the purpose of ascertaining inflation rates. The primary aim of their scholarly investigation was to scrutinize the inflationary tendencies prevalent across disparate strata of income, while simultaneously undertaking a comprehensive examination of the multifarious variables that engender fluctuations in inflation rates within these delineated groups.

The prime aim of the present research is to offer further clarification regarding the mechanisms of inflation withIn the line of South Africa, as a point of departure from the previous investigation carried out by Akinboade, Siebrits, and Niedermeier (2004). The principal purpose of this research is to come up with a comprehensive theoretical outline that elucidates the intricate interplay between domestic inflation in the Republic

of South Africa and the prevailing dynamics within the spheres of monetary policy, labor market conditions, and foreign currency exchange rates. The initial results suggest a constructive correlation between labor expenditures, monetary holdings, and domestic inflation. The empirical evidence derived from this research posits that an augmentation in the valuation of the South African currency, known as the rand, or a heightened nominal effective exchange rate, possesses the capacity to alleviate domestic inflationary forces. However, over the course of temporal progression, the escalating expenditures linked to the workforce have had a substantial part in the overarching augmentation of inflationary tendencies. Whilst the initial consequences of an increase in the nominal interest rate may be relatively inconspicuous, it possesses the capacity to offer a measure of respite in ameliorating inflationary forces over an extended temporal horizon. Conversely, an augmentation in the aggregate money stock would substantively contribute to the perpetuation of indigenous inflationary forces.

In regional research, Mulwa (2013) undertook an inquiry into the ramifications of currency rate volatility on the dynamics of inflation within the Kenyan economy during the temporal interval encompassing 2003 to 2013. The utilization of ARIMA models was used to scrutinize the prevailing dynamics, whilst a regression model was used to ascertain the correlation between exchange rate volatility and inflation. The results of the investigation unveiled a discernible correlation of moderate magnitude between the volatility exhibited by foreign currency exchange rates and the magnitudes of inflationary pressures. However, the application of examination of variance (ANOVA) tests revealed a dearth of arithmetically important correlation at a confidence level of 95%. The empirical evidence derived from this research substantiates the presence of a discernible association amongst exchange rates and inflation. However, it is imperative

to acknowledge that this correlation exhibits certain constraints in its capacity to precisely prognosticate fluctuations in the inflationary trajectory.

In the realm of scholarly inquiry, Mmasi (2013) undertook an autonomous and original investigation with the aim of scrutinizing the intricate interplay between interest rates and inflation within the specific milieu of Kenya. The empirical application of Granger causality tests, correlation examination, and regression examination has yielded compelling evidence indicating that inflation exerts a unidirectional influence on interest rates. Notwithstanding, the outcomes resulting from the regression examination show a lack of statistically important influence exerted by inflation rates upon interest rates. Moreover, the empirical investigation undertaken has unveiled an inverse correlation between the augmentation of Gross Domestic Product (GDP) and the prevailing interest rates, while the influence of money supply on interest rates has been demonstrated to be constructive in nature.

The primary aim of Kirimi's (2014) research was to discern the underlying aspects that exerted impact on the inflationary trends in Kenya over the extensive temporal span encompassing the years 1970 to 2013. The present research used a comprehensive approach by integrating both academic and experimental literature reviews, thereby augmenting the robustness of the research design. Additionally, the estimation technique used was Ordinary Least Squares (OLS), a widely recognized and extensively utilized statistical method in the field of econometrics, which further enhances the rigor and validity of the results. The present research undertook an exhaustive examination of various macroeconomic determinants, encompassing but not limited to the money supply, central bank rates, currency exchange rates, remuneration levels, fluctuations in food and oil prices, and the intricate interplay between political instability and

corruption. The empirical evidence derived from the carried out research elucidates that alterations in the rates implemented by central banks exhibit a statistically substantial impact on the phenomenon of inflation, wherein the threshold for significance has been established at the conventional level of 5%. There is existence of a discernible constructive connection between the aggregate money supply and exchange rates vis-à-vis inflationary trends, while conversely, negative associations are observed between the growth of gross domestic product and the perception of corruption. The observed statistical significance pertaining to wage rates was deemed insufficient, while the discernibility of the impact of political instability on wage rates remained inconclusive.

In a subsequent inquiry, Ochieng, Mukras, and Momanyi (2016) carried out an extensive examination of the myriad variables that wield considerable influence over the inflationary dynamics within the Kenyan economy. Employing an illustrative research methodology, the present research has unveiled that inflation exhibits a constructive correlation with price fluctuations and a lagged effect on inflation rates. Conversely, real gross domestic product (GDP) growth demonstrates a negative relationship with inflation. The empirical examination carried out in this research reveals a lack of statistically substantial associations amongst inflation and the augmentation of money supply, fluctuations in foreign exchange rates, as well as variations in interest rates. The empirical evidence gleaned from this research elucidates that the fundamental determinants exerting influence on the phenomenon of inflation encompass the augmentation of real gross domestic product, the vicissitudes in the prices of petroleum, and the inflationary tendencies witnessed in antecedent time time frames. It is advised that policymakers accord primacy to the regulation of inflation and the facilitation of real gross domestic product (GDP) expansion, while concurrently exercising effective oversight over inflationary propensities.

2.2.4 Economic development

Chirwa and Odhiambo (2016) undertook a comprehensive qualitative evaluation of extant empirical literature with the aim of scrutinizing the principal macroeconomic determinants that underpin growth in the economy in developed as well as developing countries. The comprehensive examination carried out by the researchers has revealed that within the line of developing nations, the fundamental macroeconomic factors that wield a substantial impact on the trajectory of economic development encompass a multitude of variables. These variables include, but are not limited to, natural resources, foreign direct investment, fiscal policy, monetary policy, human capital development, investment, foreign aid, trade, demographics, reforms, as well as factors such as geography, region, politics, and finance. In the line of developed nations, the aforementioned research elucidated the salient influence of financial and technological considerations, fiscal policy, tangible and intangible assets, population characteristics, international trade, and monetary measures as pivotal determinants intricately associated with the trajectory of economic expansion.

In the realm of localized investigation, Kigume (2011) undertook an empirical inquiry into the intricate interplay between inflationary dynamics and the trajectory of economic development within the geographical confines of Kenya, encompassing the temporal span from 1963 to 2003. Utilizing the Philips curve framework in conjunction with secondary time series data, the present research undertook an examination of variable stationarity and carried out granger causality tests. The empirical observations revealed that the phenomenon of inflation exhibited a characteristic of first-order stationarity, while the variable representing Gross Domestic Product (GDP) exhibited a characteristic of zero-order stationarity. The Granger causality tests carried out in this research have yielded results that indicate the absence of a causal connection amongst

inflation and economic development rates. Utilizing the Ordinary Least Squares (OLS) methodology, the application of regression examination has yielded results that indicate a transitory adverse association between inflation and economic development, which subsequently transitions into a constructive relationship over an extended temporal horizon. The empirical investigation further unveiled that inflation was subject to the influence of its own lagged values, interventions in monetary policy, climatic perturbations such as drought, exogenous shocks like fluctuations in oil prices, and the trajectory of economic development. On the contrary, it can be posited that the trajectory of economic development was predominantly shaped by the antecedent values of the same variable.

In a seminal research, Wanjiku Ngeny and Mutuku (2014) undertook an empirical investigation to elucidate the ramifications of fluctuations in foreign direct investment (FDI) on the economic development of Kenya. Employing a comprehensive time sequence dataset spanning the years 1970 to 2011, the researchers meticulously scrutinized the intricate correlation amongst FDI volatility and the nation's development trajectory. The researchers utilized the endogenous growth model in conjunction with the Ordinary Least Squares (OLS) method to establish the correlation amongst Foreign Direct Investment (FDI) volatility and economic development. The practical investigation carried out in this research reveals that the phenomenon of FDI volatility has been seen to exert a detrimental effect on the sustained economic development trajectory of the Republic of Kenya. This conclusion is derived from the rigorous application of bounds testing methodology, which has been widely acknowledged as a robust econometric technique for investigating the correlation amongst variables of attention. The practical results of the research suggest a discernible and affirmative correlation amongst foreign direct investment (FDI) and economic development.

Conversely, it is observed that the volatility in FDI exhibits an adverse influence on growth dynamics. In a parallel vein, the scholarly work carried out by Wanjiku (2016) delved into the intricate dynamics surrounding the influence of Foreign Direct Investment (FDI) on the trajectory of economic development withIn the line of Kenya. The results of this research depicted that the mere presence of FDI did not exert a statistically significant upshot on the development of the economy. Rather, it was contingent upon the interplay between FDI, infrastructure development, and economic openness, wherein the confluence of these factors was found to be imperative in order to engender the desired impact on economic development. In contradistinction, the scholarly inquiry carried out by Maingi (2014) delved into the ramifications of foreign direct investment (FDI) on the economic landscape of Kenya, employing a comprehensive examination of FDI and gross domestic product (GDP) inflow data spanning the temporal domain from 2004 to 2013. The application of inferential examination techniques, specifically Examination of Variance (ANOVA) and Correlation examination, has yielded noteworthy results regarding the correlation amongst Foreign Direct Investment (FDI) and economic development. The results indicate a robust and constructive association amongst these two variables. The research proffered a set of policy recommendations pointed at augmenting the influx of foreign direct investment (FDI) whilst concurrently mitigating the potential deleterious ramifications thereof on indigenous enterprises.

In a seminal research, Mosiori (2014) carried out an empirical investigation into the intricate connection amongst foreign direct investment (FDI) and the trajectory of economic development In the line of Kenya. The results of this rigorous examination revealed that the interplay between exchange rates and FDI exhibited a salutary influence on the overall economic development of the nation. Conversely, the research

unearthed a deleterious association between interest rates and inflation rates with the aforementioned economic development. The research proposed a set of policy recommendations aimed at fostering a favorable domestic milieu conducive to the luring of Foreign Direct Investment (FDI). The scholarly investigation carried out by Musyoki, Pokhariyal, and Pundo (2012) was centered upon the examination of the ramifications of volatility in the real exchange rate (RER) on the economic development of the nation of Kenya. The researchers utilized both descriptive and quantitative methodologies in order to elucidate the detrimental effects of exchange rate volatility on economic development.

In a parallel vein, the scholarly inquiry carried out by Oude (2015) delved into the intricate dynamics of exchange rate fluctuations and their consequential effect on the gross domestic product (GDP) of Kenya, spanning the temporal domain of 2008 to 2012. The results of the regression investigation show that the adverse effect of exchange rate fluctuations on GDP was indeed significant. However, it is noteworthy that the impact of government expenditure on GDP was found to be even more substantial. Various policy measures were proposed with the aim of guaranteeing the stability of exchange rates and mitigating the enduring effects of inflation. In the research carried out by Kaara (2015), an investigation was undertaken to explore the various factors influencing the trajectory of economic development within the Kenyan context spanning the temporal time frame from 1971 to 2011. Specifically, the researcher scrutinized the impact of interest rates, savings, and inflation rates on the overall economic development dynamics of the nation. The empirical results of this research demonstrate the presence of unidirectional causality, whereby the factors under investigation exert a noteworthy impact on the GDP per capita. It is important to note that the effects of these factors on the GDP per capita are observed to be variable in the

short-term. The research proposed a set of policy recommendations aimed at harmonizing these determinants in order to bolster economic development.

2.2.5 Real Interest Rate

The seminal research carried out by Coorey (1991) delved into an investigation of the multifaceted determinants that exert an influence on the intricate dynamics of long-term real interest rates within the United States. The research used unit root testing to examine the real and nominal returns of bonds and equities, in addition to inflation data. The empirical results of this research suggest that the variables of inflation, real interest rates, and nominal interest rates demonstrate a primary level of integration. However, the outcomes pertaining to equity returns exhibit a more diverse and inconclusive pattern. The research successfully established the presence of cointegration between long- and short-term real interest rates, as well as various factors including government deficits, real balances in relation to Gross National Product (GNP), private wealth, government debt in relation to GNP, demographic factors, and the marginal productivity of capital. Significantly, the variables of monetary policy, demographic characteristics, and fiscal factors exhibited noteworthy importance.

In a similar vein, Ailouni (2018) embarked upon an empirical investigation aimed at elucidating the fundamental determinants that exert influence over the dynamics of long-term interest rate yields. The present research additionally undertook an extensive examination of pertinent theories and scholarly works pertaining to the factors influencing interest rate determination. This empirical inquiry sought to assess the ramifications of money supply, risk-free rate, business cycles, budget deficit and capital influxes on the real interest rate withIn the line of Jordan. The research used data spanning the dates from 1990 to 2015 to conduct its examination. Utilizing Johansen's

co-integration test as a methodological framework to address the existence of long-term asynchronous relationships, the dataset was subjected to meticulous examination pertaining to symmetric correlations, normality assumptions, unit root properties, and the covariance diagonal. The experimental outcomes of this research have discovered that several key factors, namely the short-term risk-free interest rate, government budget deficit, capital influxes, business cycle, and money supply, exert a noteworthy impact on the long-term dynamics of the real interest rate withIn the line of Jordan. The real interest rate is subject to inverse effects from various factors, namely the money supply, short-term risk-free rate, government budget deficit, and business cycle. Conversely, capital influxes wield a constructive influence on the real interest rate.

In a separate scholarly inquiry, Jayasinghe (2014) undertook an investigation into the factors that influence the prevailing interest rates withIn the line of Sri Lanka. Drawing upon the theoretical framework proposed by Edwards and Khan in 1985, the present research used a comprehensive model that integrates liquidity preference theory, interest rate parity theory, and the Fisher proposition, while also incorporating the element of inflation uncertainty. To capture the enduring associations among the variables, the Autoregressive Distributed Lag (ARDL) approach was used as the analytical tool. The dataset under examination encompasses the temporal span from the first quarter of the year 2001 to the second quarter of the year 2012. The empirical results of this research reveal a conspicuous absence of any discernible indications of inflation uncertainty throughout the designated time frame. The empirical results derived from the ARDL bound testing approach reveal a lack of discernible long-term influence exerted by the variables of money supply, national income, inflation, net foreign assets, and foreign interest rates on domestic interest rates. In addition to the examination of interest rate parity conditions, it is noteworthy to observe that both the Fisher effect and liquidity

preference theory have proven to be inadequate in providing a comprehensive explanation for the fluctuations in short-term interest rates within the time frame under investigation.

In the realm of local research, Tarus, Chekol, and Mutwol (2012) undertook an investigation into the aspects that impact the net interest margin of commercial banks in Kenya, employing secondary data as their primary source of information. The present research used collective and fixed paraphernalia regression techniques to analyze a comprehensive pane dataset consisting of 44 Kenyan banks, from the time frame of 2000 to 2009. The empirical results of this research demonstrate a statistically significant and constructive correlation amongst credit risk and operating expenses, and their impact on the net interest margin of commercial banks operating within the Kenyan context. The research additionally observed that market concentration and growth exhibited an adverse impact on the net interest margin, whereas elevated inflation levels were found to widen the net interest margin.

In contradistinction, the scholarly inquiry carried out by Amata, Muturi, and Mbewa (2016) delved into the intricate interplay between interest rates, inflation, and stock market volatility within the Kenyan context. Employing a comprehensive research approach, the investigators judiciously used both primary and secondary data sources to illuminate their investigation. The Granger causality tests were used to scrutinize the directional associations between variables, whereas the vector error correction model was utilized to analyze time series data in order to identify long-term causal relationships. The results of the research unveiled a robust and statistically significant constructive association of a long-term nature between the inflation rate and the volatility of the stock market. A robust and statistically significant constructive

correlation between inflation and the stock market has been discerned within the confines of a limited temporal scope. In contrast, it is worth noting that the association between interest rates and stock market volatility exhibits a negative and tenuous level of statistical significance, both within the immediate and extended time frames. The present discourse elucidates the discernment of investors, wherein it is posited that alterations in the inflation rate exert a discernible influence on the vicissitudes of share prices. Furthermore, empirical evidence derived from primary sources substantiates the notion that abrupt modifications in interest rates bear a consequential impact on the returns of the stock market.

These exhaustive inquiries provide invaluable elucidations on the intricate dynamics of interest rates and their determinants, thereby furnishing pivotal knowledge for comprehending the economic terrain and guiding policy-making endeavors.

2.3 Summary of Literature Review

After conducting a comprehensive examination of the extant scholarly works, it becomes evident that a multitude of interconnections have been investigated, wherein a particular variable is deemed reliant upon others, which are, in turn, regarded as autonomous factors. Within the economic framework, the phenomenon of Foreign Direct Investment (FDI) has garnered considerable attention and has been the subject of rigorous examination. Scholars have postulated that FDI is susceptible to direct or indirect influences stemming from a multitude of variables, including but not limited to tax rates, exchange rates, inflation, and the overarching trajectory of economic development. Concomitantly, the examination of economic development has been undertaken In the line of its intricate interplay with foreign direct investment, inflationary pressures, interest rate dynamics, and exchange rate fluctuations.

Furthermore, the phenomenon of inflation has been subject to rigorous examination in terms of its intricate interplay with capital asset influxes, interest rates, exchange rates, and the overarching trajectory of economic development. The correlation amongst exchange rates and various macroeconomic factors has been conceptualized as a linear dependence on inflation, interest rates, foreign direct investment, and economic development. In conclusion, it has been posited that the determination of interest rates is contingent upon a confluence of factors, namely inflationary pressures, exchange rate dynamics, the presence of foreign assets, and the trajectory of economic development.

Numerous methodological approaches have been used in order to ascertain the interrelationships between Foreign Direct Investment (FDI), economic development, interest rates, exchange rates, and inflation. The utilization of the ordinary least squares (OLS) method has become prevalent in numerous scholarly investigations, operating under the assumption of a unidirectional correlation amongst a singular variable and its counterparts, thereby frequently neglecting the possibility of intricate interdependencies among said variables. The adoption of this particular approach is highly favored owing to the remarkable regularity of fluctuations exhibited by various variables across diverse temporal intervals, thereby facilitating the process of policy formulation. Nevertheless, the extant body of literature commonly operates under the assumption of instantaneous effects between variables, thereby disregarding the potential ramifications of time lags.

In light of this contemplation, the present research endeavors to elucidate the complex interconnections between foreign direct investment (FDI) influxes and designated macroeconomic indicators by incorporating temporal lags into the examination. By integrating the temporal dimension, the present research endeavors to ascertain efficacious strategies and policies that can augment Kenya's allure to Foreign Direct

Investment (FDI) and, in turn, foster economic expansion. The utilization of time series data examination shall be used for the aforementioned aim. The imperative for foreign investors to attain economic benefits within the host economy highlights the theoretical frameworks pertaining to Foreign Direct Investment that have been embraced in this inquiry.

CHAPTER THREE

METHODOLOGY

3.0 Overview

This section provides an all-inclusive outline of the methodology utilized in the research, including the analytical model adopted. It covers an exploration of both the theoretical and empirical frameworks, the structure of the model, the estimation technique used, the sources of data utilized for the research, as well as the techniques used to analyze both the model and the data.

3.1 Analytical Framework

The present research employs Sims' modeling theory, a theoretical framework that poses a challenge to the widely held assumption that any prederived causal relationship is inherently valid. Sims' theory posits that identification assumptions, which underpin causal inference, may exhibit an excessive degree of rigidity. Sims (1980) posited that the dynamism inherent in economic theories and their resultant outcomes renders them susceptible to perpetual oscillations and scholarly deliberations. The author posited that in accordance with economic theory, it is imperative that any variable featured on the right-hand side of an equation should, in principle, be consistently present on the right-hand side of all models. Nevertheless, the author duly acknowledges a salient dichotomy: the cyclical undulations discernible in macroeconomic phenomena hold a distinct allure, owing to their interconnected nature. This assertion posits that macroeconomic theories are not only confronted by the empirical reality, but also by one another, thereby necessitating a comprehensive examination of their interplay and potential conflicts.

Therefore, Sims espoused the utilization of Vector Autoregressive (VAR) models as a means to estimate all-encompassing macroeconomic models. Within the present framework, the investigation commences by contemplating five macroeconomic variables, namely Foreign Direct Investment influxes (FDI), Exchange Rate (XR), Economic development (GDP), Inflation (INF), and Real Interest Rate (INT). The models used for the examination of causal relationships are outlined as follows:

$$FDI_t = \sum_{i=1}^{p} \beta_{1i} FDI_{t-i} + \sum_{i=0}^{p} \beta_{2i} GDP_{t-i} + \sum_{i=0}^{p} \beta_{3i} INF_{t-i} + \sum_{i=0}^{p} \beta_{4i} INT_{t-i} + \sum_{i=0}^{p} \beta_{5i} XR_{t-i} + c_1 + \mu_{1t} (3.1)$$

$$XR_t = \sum_{i=1}^{p} \gamma_{1i} XR_{t-i} + \sum_{i=0}^{p} \gamma_{2i} FDI_{t-i} + \sum_{i=0}^{p} \gamma_{3i} GDP_{t-i} + \sum_{i=0}^{p} \gamma_{4i} INF_{t-i} + \sum_{i=0}^{p} \gamma_{5i} INT_{t-i} + c_2 + \mu_{2t} (3.2)$$

$$INT_t = \sum_{i=1}^{p} \text{þ}_{1i} INT_{t-i} + \sum_{i=0}^{p} \text{þ}_{2i} XR_{t-i} + \sum_{i=0}^{p} \text{þ}_{3i} FDI_{t-i} + \sum_{i=0}^{p} \text{þ}_{4i} GDP_{t-i} + \sum_{i=0}^{p} \text{þ}_{5i} INF_{t-i} + c_3 + \mu_{3t} (3.3)$$

$$INF_t = \sum_{i=1}^{p} \gamma_{1i} INF_{t-i} + \sum_{i=0}^{p} \gamma_{2i} INT_{t-i} + \sum_{i=0}^{p} \gamma_{3i} XR_{t-i} + \sum_{i=0}^{p} \gamma_{4i} FDI_{t-i} + \sum_{i=0}^{p} \gamma_{5i} GDP_{t-i} + c_4 + \mu_{4t} (3.4)$$

$$GDP_t = \sum_{i=1}^{p} \alpha_{1i} GDP_{t-i} + \sum_{i=0}^{p} \alpha_{2i} INF_{t-i} + \sum_{i=0}^{p} \alpha_{3i} INT_{t-i} + \sum_{i=0}^{p} \alpha_{4i} XR_{t-i} + \sum_{i=0}^{p} \alpha_{5i} FDI_{t-i} + c_5 + \mu_{5t} (3.5)$$

In the line of this discussion, we denote the variable GDPt as the annual growth rate of the gross domestic product at year t.

Similarly, INFt represents the real inflation rate observed in year t, while INTt signifies the real interest rate prevailing during the same time frame.

The variable denoted as XRt represents the authentic exchange rate pertaining to the specific year denoted as t.

The variable "i" denotes the lag time frame, where "i" takes on integer values ranging from 0 to p.

The parameter estimates in question include β, α, γ, þ, ɤ, and c.

The variables denoted as "and μ" represent the residuals, which are postulated to conform to a normal distribution.

The relationships documented by the causality test were estimated by use of the VAR regression model.

3.2 Specification of the Model

The primary aim of the research was to ascertain causal relationships among the variables under investigation. In order to accomplish this aim, the present research used the Granger causality test as a methodological tool to scrutinize the interconnections delineated in equations 3.1, 3.2, 3.3, 3.4, and 3.5, prior to embarking upon the estimation of the Vector Autoregressive (VAR) model. The selection of the Granger causality test as a methodological approach was predicated upon the prerequisite of stationarity exhibited by the variables under investigation. When the estimated coefficients of the lagged independent variables in equation 3.1 exhibited statistical significance as a collective ($\beta \neq 0$), whereas the sets of coefficients for the lagged independent variables in equations 3.2, 3.3, 3.4, and 3.5 did not demonstrate statistical significance (ɤ, þ, γ, and α = 0), the inference of unidirectional causality was made. In contrast, the manifestation of feedback causality was discerned when the statistical significance of both sets of coefficients (β, ɤ, þ, γ, and $\alpha \neq 0$) was observed.

The secondary aim of the research sought to establish the interrelationships among the variables via the process of estimation. Subsequent to the outcomes derived from the rigorous causality tests, the estimation of the Vector Autoregressive (VAR) model was undertaken. The quantification of the relationship, ascertained through the application

of the causality test, was accomplished by employing the Vector Autoregressive (VAR) model. In order to ascertain the optimal lag order, the research used a methodology whereby the desired quantity of lags was chosen by means of minimizing the preferred selection criteria's probability value. The present selection process was carried out under the auspices of the pertinent information criterion.

3.3 Diagnostic Tests

3.3.1 Integration Properties (Stationarity)

The scholar used the KPSS unit root test as a means of assessing the stationarity of the temporal series data. The present research used a unidirectional likelihood ratio test statistic to scrutinize the proposed proposition:

The null proposition (Ho) posits a supposition wherein it is postulated that no substantial relationship or disparity exists between the variables under investigation. The series exhibits the characteristic of trend stationarity.

In the event that the computed LM statistic surpasses the asymptotic critical value, the null proposition is deemed invalid, thereby indicating that the stochastic process being examined is non-stationary. Conversely, in the event that the Lagrange Multiplier (LM) statistic exhibited a value lower than the critical threshold assigned for the specified alpha levels, the null proposition was not deemed to be subject to rejection.

Upon completion of a comprehensive investigation, it was derived that the aforementioned variables, namely Inflation, Interest Rate, and Exchange Rate, demonstrated characteristics indicative of stationarity. However, it has been ascertained that both the influxes of Foreign Direct Investment (FDI) and the Gross Domestic Product (GDP) demonstrate non-stationarity. The existence of non-stationarity within temporal data sets can potentially engender adverse consequences for the dependability and comprehensibility of empirical discoveries, thereby impeding the capacity to

precisely apprehend and prognosticate forthcoming outcomes. To address the aforementioned issue, a course of action was implemented by employing the natural logarithm transformation on the non-stationary temporal data. The transformation of the data into a state of stationarity has facilitated the execution of analyses with enhanced efficiency and reliability.

3.4 Measurement of the Variables

Foreign Direct Investment (FDI) pertains to the capital influxes originating from foreign entities, wherein said entities establish and manage enterprises within distinct economic systems. Within the framework of this scholarly investigation, it is imperative to expound upon the notion that foreign direct investment (FDI) stocks serve as a comprehensive quantification of the amassed capital injections, which are meticulously gauged on an annual basis. The concept of FDI inflow stock pertains to the assessment of assets and liabilities that are transacted between domestic enterprises engaged in direct investment activities and foreign investors. The aforementioned metric encompasses the transactions involving the conveyance of assets and obligations between corporate entities domiciled within a given jurisdiction and those situated outside said jurisdiction, on the condition that the ultimate authoritative body exerting control over said entities is of non-residential origin.

Inflation, in its essence, can be defined as the dynamic process by which the aggregate prices of services and commodities undergo a discernible augmentation, thereby engendering a concomitant diminution in the relative value of a given currency in terms of its purchasing power. This phenomenon engenders a diminution in the veritable worth of the means of exchange. The consumer price index (CPI) serves as a quantitative gauge used to assess the magnitude of inflation within a designated timeframe. The Consumer Price Index (CPI) is a metric used to ascertain the relative

magnitude of the aggregate expenditure associated with a prederived assortment of commodities and amenities at a specific juncture, in relation to a reference epoch. Significantly, this research utilizes the Laspeyres price index methodology, wherein the year 2010 is designated as the reference year for conducting these comparative analyses.

$$\text{Laspeyres price index } = \frac{\sum(P_t)\times(Q_0)}{\sum(P_0)\times(Q_0)} \times 100 \quad (3.6)$$

In this context:

- P_0 represents the value of the hamper of properties through the base duration.

- P_t signifies the value of the same hamper of properties at the scrutiny duration.

- Q_0 is the constant quantity of properties held within the hamper, maintained across both time frames.

The manifestation of economic development was epitomized by the metric of real gross domestic product (GDP). Real GDP, a fundamental measure in macroeconomics, encompasses the intricate process of adjusting for inflationary effects, thereby capturing the veritable market value of the multitude of services and commodities that are meticulously generated within an economy during a well-defined temporal interval. In light of the phenomenon of inflation, it is imperative to acknowledge that a mere augmentation in Gross Domestic Product (GDP) fails to adequately encapsulate authentic economic expansion. Henceforth, it becomes imperative to undertake the conversion of nominal Gross Domestic Product (GDP) into an index that duly accommodates the entirety of output, thereby yielding real GDP. This transformation is indispensable in order to obtain a more precise and reliable gauge of economic development.

$$\text{Real GDP} = \text{Nominal GDP}/(R) \qquad (3.7)$$

Where R is the GDP deflator given as $\frac{nominal\ GDP}{real\ GDP}$

The concept of exchange rate pertains to the comparative valuation of a particular nation's monetary unit in relation to the monetary unit of another nation. The foreign exchange market, an integral component of the global financial system, acts a major task in facilitating international trade and fostering foreign direct investments, thereby yielding substantial economic significance. The present research undertook the annual assessment of the exchange rate dynamics between the Kenyan shilling (KES) and the United States Dollar (USD), symbolized as KES/USD, with due consideration to the influence of inflationary forces in order to aptly administer the currency's valuation. The adoption of the United States dollar as the predominant means of exchange for international transactions can be ascribed to the pervasive convention of denoting a majority of global dealings with the US dollar as the benchmark currency.

The equation (3.8) posits that the real exchange rate can be derived by multiplying the nominal exchange rate with the ratio of domestic goods prices to United States goods prices.

The variables in question were assessed utilizing prices held constant at the level observed in the year 2010. The selection of this particular year is predicated upon the conviction that Kenya's economic trajectory in 2010 functions as an intermediary juncture between epochs characterized by elevated and diminished performance.

3.5 The Data Source

The current research used secondary data obtained from the World Bank database, encompassing a temporal domain extending from 1974 to 2018. The aforementioned

measure was implemented with the primary aim of ensuring temporal uniformity and facilitating any requisite modifications that may arise. The employment of secondary data has demonstrated its inherent benefits in the course of model identification and subsequent empirical examinations of said model.

3.6 Data Examination

The principal aim of this inquiry was to explicate the complex interdependencies that are present among foreign direct investment, inflation, real gross domestic product, real interest rate, and the real exchange rate. The principal aim of this research involved the evaluation of integration properties with regard to the stationarity of time series data. Motivated by an extensive understanding of the inherent characteristics of stationarity manifested by these variables, a meticulous empirical investigation was undertaken with the aim of elucidating the causal nexus between them. In accordance with the pursuit of deeper examination, a subsequent endeavor was undertaken to engage in an estimation procedure for the Vector Autoregressive (VAR) model, wherein the inclusion of a single lag was deemed to be appropriate. The estimation process described above demonstrated a high degree of congruence with the outcomes obtained from the causality examination previously carried out.

3.7Testing of Hypotheses

The current investigation utilized the methodological framework of proposition testing in order to accomplish a multitude of aims: evaluating the stationarity of the data, scrutinizing causal relationships through the usage of the Granger causality test, and ascertaining the significance of parameter estimates. With the aim of evaluating the stationarity of the data, a significance level of 1% was used. The rationale behind this decision arises from the acknowledgment that the utilization of non-stationary data has the potential to engender deceptive and undependable outcomes. Henceforth, the

employment of an elevated degree of assurance, particularly at the 99% level, is of utmost importance so as to guarantee the resilience and legitimacy of the attained results.

The Granger causality test, a statistical tool used to investigate causal relationships, was carried out at a significance level of 5%, thereby adhering to the conventional threshold for statistical significance in empirical research. In the process of assessing the numerical implication of parameter estimates, the utilization of the test statistic was undertaken, employing a confidence level of 95%, which is conventionally denoted as (1 - α). The aforementioned observation aligns with a prederived level of statistical significance set at 5% (α). The utilization of equidistant time lags in the estimation of Vector Autoregressive (VAR) models is credited to this particular approach, which guarantees the maintenance of consistent sample sizes for the variables being examined.

CHAPTER FOUR

PRESENTATION, INTERPRETATION AND DISCUSSION OF RESULTS

4.0 Introduction

This section provides an in-depth examination of the econometric examination carried out on the time series data. It encompasses the interpretation of the results obtained and a comprehensive discussion of the implications of these econometric results.

4.1 Econometric Analyses

4.1.1 Stationarity Tests

The application of the Kwiatkowski–Phillips-Schmidt-Shin (KPSS) test was utilized to assess the null proposition positing the presence of stationarity in a specific time series. Time series data that manifest seasonality or trends often yield estimations that are susceptible to uncertainty, thereby engendering the possibility of misleading and unreliable inferences. The KPSS test is used to scrutinize the subsequent null proposition:

The null proposition postulates that the observed temporal sequence exhibits the property of stationarity.

The testing processes were carried out with strict adherence to the principles of statistical inference, as indicated by the utilization of a threshold of significance of 1%. The outcomes of the KPSS examination are presented in Table 4.1.

Table 4.1

Stationarity Test

VARIABLE	ASYMPTOTIC CRITICAL VALUES	KPSS TEST STATISTIC VALUE	COMMENT
FDI	1% level 0.216000 5% level 0.146000 10%level 0.119000	0.219422*	Non-stationary
GDP	1% level 0.216000 5% level 0.146000 10%level 0.119000	0.287885*	Non-stationary
INF	1% level 0.216000 5% level 0.146000 10%level 0.119000	0.061200*	stationary
INT	1% level 0.216000 5% level 0.146000 10%level 0.119000	0.151035*	stationary
XR	1% level 0.216000 5% level 0.146000 10%level 0.119000	0.108431*	stationary

Asterisk (*) 1% level

Source: Researcher, 2021

The outcomes presented in Table 4.1 have unambiguously provided evidence to refute the null proposition that suggests the stationary nature of Foreign Direct Investment (FDI). The decision in question was made according to the employment of the KPSS test statistic, which demonstrated a value of 0.219422, exceeding the critical threshold of 0.216 at a significance level of 1%. Henceforth, it was postulated that foreign direct

investment (FDI) exhibited characteristics of non-stationarity. In a congruent trajectory, it is noteworthy to acknowledge that the null proposition concerning the stationarity of Gross Domestic Product (GDP) was similarly invalidated. The computed statistic resulting from the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test applied to the Gross Domestic Product (GDP) dataset yielded a value of 0.287885, surpassing the critical threshold of 0.216 at a significance level of 1%. Therefore, as per the aforementioned examination, it is deduced that the temporal series of Gross Domestic Product (GDP) manifests non-stationarity.

In contrast, the null hypotheses regarding the stationarity of Inflation (INF), Real Interest Rate (INT), and Real Exchange Rate (XR) were found to be non-rejectable. The computed KPSS test statistics for the variables representing inflation (INF), interest rates (INT), and exchange rates (XR) were derived to be 0.01612, 0.151035, and 0.108431, respectively. It is of considerable import to acknowledge that each of these values were observed to exhibit a lower magnitude in comparison to the critical test statistic of 0.216, thereby attaining statistical significance at the 1% level of significance. Henceforth, it was ascertained that the variables INF, INT, and XR evinced discernible attributes of stationarity.

Given the presence of non-stationary variables, which can introduce uncertainties in estimations, the current research has adopted a methodological framework that incorporates the utilization of common logarithms to address stationarity concerns in the line of Foreign Direct Investment (FDI) and Gross Domestic Product (GDP). The aforementioned alterations have been scrupulously documented and elucidated within the confines of Table 4.2. The employment of this specific methodology was compelled

by the amalgamation of both stationary and non-stationary variables within the stochastic processes under investigation.

Table 4.2
Stationarity Test for Common logs

VARIABLE	ASYMPTOTIC CRITICAL VALUES	KPSS TEST STATISTIC VALUE	COMMENT
log(FDI)	1% level 0.216000 5% level 0.146000 10%level 0.119000	0.202273*	stationary
log(GDP)	1% level 0.216000 5% level 0.146000 10%level 0.119000	0.183780*	stationary

Asterisk (*) 1% level

Source: Researcher, 2021

The results presented in Table 4.2 above provide a clear elucidation of the outcomes. These results indicate that the null proposition, which posits the stationarity of log(FDI), did not demonstrate a statistically significant threshold of significance that would justify its rejection. The rationale behind the choice to embark upon this particular course of action can be substantiated by the computed KPSS t-value of 0.202273, which exhibited a relatively diminished magnitude when juxtaposed with the asymptotic critical t-value of 0.216000 at a significance level of 1%. In accordance with the aforementioned examination, it is imperative to acknowledge the necessity of recognizing that the null proposition pertaining to the stationarity of the logarithm of Gross Domestic Product (GDP) was likewise not subjected to rejection. The t-value derived from the implementation of the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test, denoted as 0.183780, exhibited a magnitude that fell below the asymptotic critical t-value of 0.21600. The aforementioned determination was rendered at a level of statistical significance set at a p-value threshold of 0.01. The results of the current research

indicate that the utilization of logarithmic transformations, specifically those involving common logarithms, in the examination of foreign direct investment (FDI) and gross domestic product (GDP) has resulted in the attainment of stationarity for these variables.

The decision to employ common logarithms for all variables, excluding the interest rate, bears considerable significance within the purview of this research endeavor. The determination of this decision was influenced by the presence of negative values within the interest rate variable, as the utilization of common logarithms is intrinsically appropriate for non-negative values.

4.1.2 Granger Causality

The primary aim of this research endeavor was to establish the causal relationships between the influx of Foreign Direct Investment (FDI) and the designated macroeconomic variables. To accomplish the aforementioned aim, the researchers used the Granger causality test. The aim of this examination is to determine the existence of a statistically significant predictive capability of one temporal sequence in relation to another. This aim is achieved by evaluating the capacity to effectively predict forthcoming values of a designated time series by employing past values derived from a distinct time series. Within the confines of the examined time series, it was discerned that a causal nexus was present for every dyadic association.

The null proposition (H0) postulates that there exists no discernible manifestation of Granger causality between the variable Y and the variable X.

The null proposition (H0) postulates the absence of any Granger causality between variable X and variable Y.

To achieve a comprehensive determination of potential causal associations, the research used a significance level of 0.05 as the critical value for null proposition rejection.

Within the framework of proposition testing, it is imperative to acknowledge that the null proposition was deemed to be rejected when the calculated p-value exceeded the critical p-value threshold of 0.05. In contrast, it was derived that the null proposition was to be embraced when the calculated p-value descended below the prederived level of significance, set at 0.05.

The outcomes pertaining to the Granger causality examinations are appropriately exhibited within the confines of Table 4.3.

Table 4.3
Paired Granger Causality Examinations
Granger Causality Tests in Pairs
Date: 01/20/21 Time: 20:51
Lags: 2 Sample: 1974 2018
Granger Causality Tests in Pairs

Null Proposition:	Obs	F-Statistic	Prob.
log(GDP) does not Granger Cause log(FDI)	43	9.22417	0.0005
log(FDI) does not Granger Cause log(GDP)		3.71241	0.0302
log(XR) does not Granger Cause log(FDI)	43	2.70759	0.0796
log(FDI) does not Granger Cause log(XR)		1.51286	0.2333
log(INF) does not Granger Cause log(FDI)	43	1.99437	0.1501
log(FDI) does not Granger Cause log(INF)		3.88286	0.0292
INT does not Granger Cause log(FDI)	43	0.47347	0.6265
log(FDI) does not Granger Cause INT		0.45536	0.6376
log(XR) does not Granger Cause log(GDP)	43	1.31453	0.2805
log(GDP) does not Granger Cause log(XR)		0.64919	0.5282
log(INF) does not Granger Cause log(GDP)	43	0.94235	0.3986
log(GDP) does not Granger Cause log(INF)		1.58801	0.2176
INT does not Granger Cause log(GDP)	43	0.20585	0.8149
log(GDP) does not Granger Cause INT		0.75917	0.4750
log(INF) does not Granger Cause log(XR)	43	0.02908	0.9714
log(XR) does not Granger Cause log(INF)		3.50173	0.0402
INT does not Granger Cause log(XR)	43	0.67667	0.5143
log(XR) does not Granger Cause INT		4.47449	0.0180
INT does not Granger Cause log(INF)	43	3.66404	0.0327
log(INF) does not Granger Cause INT		3.90133	0.0288

Source: Researcher, 2021

The Granger causality results, as depicted in Table 4.3, definitively repudiated the null proposition positing that the logarithm of GDP lacks a Granger-causal effect on the logarithm of Foreign Direct Investment (FDI). The rejection of the null proposition was buttressed by empirical evidence, wherein the calculated p-value of 0.0005 surpassed the prederived critical threshold of 0.05. It is of utmost significance to acknowledge that the present research has used the natural logarithm of foreign direct investment (FDI) as the dependent variable, while the natural logarithm of gross domestic product (GDP) has been designated as the independent variable. In a parallel vein, the null proposition positing the absence of Granger-causal impact of the logarithm of foreign direct investment (FDI) on the logarithm of gross domestic product (GDP) was invalidated on account of a p-value of 0.0302, which descends below the critical threshold of 0.05. As a result, the research used the logarithmic transformation of Gross Domestic Product (GDP) as the dependent variable and the logarithmic transformation of Foreign Direct Investment (FDI) as the independent variable, with a prederived level of significance set at 5%. The aforementioned observation implies the existence of a reciprocal causal nexus between the logarithm of Gross Domestic Product (GDP) and the logarithm of Foreign Direct Investment (FDI).

The empirical investigation yielded inconclusive evidence regarding the presence of Granger causality between the logarithmic conversion of the exchange rate (XR) and the logarithmic conversion of foreign direct investment (FDI), as indicated by a p-value of 0.0796. Nevertheless, the null proposition positing the absence of Granger causality between the natural logarithm of foreign direct investment (FDI) and the natural logarithm of exchange rates (XR) was not deemed worthy of rejection, given that the calculated p-value of 0.2333 surpassed the critical threshold of 0.05.

The examination of the correlation between the logarithm of inflation (log(INF)) and the logarithm of foreign direct investment (FDI) yielded intriguing results. The carried out examination failed to yield adequate evidence to warrant the rejection of the null proposition positing that the logarithm of foreign direct investment (FDI) inflow, denoted as log(INF), lacks a Granger-causal effect on the logarithm of FDI. The computed p-value of 0.1501, surpassing the prederived threshold of 0.05, lends credence to the aforementioned assertion. Nevertheless, the null proposition postulating the absence of Granger-causal impact of the logarithm of Foreign Direct Investment (FDI) on the logarithm of inflation (INF) was refuted, given that the calculated p-value of 0.0292 descended beneath the critical threshold of 0.05. The empirical evidence presented herein posits a unidirectional causality, whereby the logarithm of foreign direct investment (FDI) exerts an influence on the logarithm of inflation.

In a parallel vein, it is noteworthy to highlight that no statistically significant Granger causality has been discerned between the variable of interest, denoted as INT, and the logarithm of Gross Domestic Product, represented as log(GDP). This assertion is substantiated by the p-value of 0.6265, which fails to reach the conventional threshold of statistical significance. Moreover, the null proposition, positing that there is no evidence to suggest a Granger causal correlation amongst the logarithm of Gross Domestic Product (GDP) and the variable of interest (INT), remains unrefuted, as indicated by a p-value of 0.6376. This observation posits the absence of an ascertainable causal nexus between INT, denoting international trade, and the logarithm of GDP, representing the measure of economic output.

The null proposition positing the absence of Granger causation between the logarithm of the inflation rate (log(INF)) and the logarithm of the exchange rate (XR) was not rejected in light of the computed p-value of 0.97714, surpassing the critical p-value

threshold of 0.05. Nevertheless, the null proposition positing the absence of Granger-causal impact of the logarithm of XR on the logarithm of INF has been refuted, as evidenced by a p-value of 0.0402. This outcome suggests the existence of a unidirectional causal association between the logarithms of XR and INF.

In conclusion, the empirical inquiry has unveiled that the focal variable of interest, denoted as INT, exerts a Granger-causal influence on the logarithm of inflation, represented as log(INF), as evidenced by a statistically significant p-value of 0.0827. Furthermore, the null proposition, positing the absence of Granger causality between the natural logarithm of the independent variable (INF) and the natural logarithm of the dependent variable (INT), was refuted on account of a p-value of 0.0288. The results of this research indicate the presence of a feedback causation correlation amongst the variable of interest (INT) and the logarithm of the variable of inflation (INF) at a statistically significant level of 5%.

In summary, the research's Granger causality results indicated various causal relationships and lack thereof between the examined variables. These results provide insights into the complex interplay among these variables and contribute to a deeper understanding of their dynamics:

$$\text{Log (FDI)} = f\ [\log (\text{GDP})] \quad (4.1)$$

$$\text{Log (GDP)} = f\ [\log (\text{FDI})] \quad (4.2)$$

$$\text{Log (INF)} = f\ [\log (\text{FDI}), \log (\text{XR}), \text{INT}] \quad (4.3)$$

$$\text{INT} = f\ [\log (\text{XR}), \log (\text{INF})] \quad (4.4)$$

The functions were estimated in the following VAR models

$$\log(FDI)_t = \beta_0 + \sum_{i=1}^{p} \beta_1 \log(FDI)_{t-i} + \sum_{i=0}^{p} \beta_2 \log(GDP)_{t-i} + \mu_t \quad (4.5)$$

$$\log(GDP)_t = \alpha_0 + \sum_{i=1}^{p} \alpha_1 \log(GDP)_{t-i} + \sum_{i=0}^{p} \alpha_2 \log(FDI)_{t-i} + \mu_t \quad (4.6)$$

$$\log(INF)_t = \gamma_0 + \sum_{i=1}^{p} \gamma_{1\mathrm{i}} \log(INF)_{t-i} \sum_{i=0}^{p} \gamma_2 \log(FDI)_{t-i} \sum_{i=0}^{p} \gamma_3 \log(\mathrm{XR})_{t-i} + \sum_{i=1}^{p} \gamma_4 \mathrm{INT}_{t-i} + \mu_t \quad (4.7)$$

$$INT_t = \text{þ}_0 + \sum_{i=1}^{p} \text{þ}_1 \mathrm{INT}_{t-i} + \sum_{i=0}^{p} \text{þ}_2 \log(\mathrm{INF})_{t-i} + \sum_{i=0}^{p} \text{þ}_3 \log(XR)_{t-i} + \mu_t \quad (4.8)$$

4.1.3 Lag Selection

The computation of the Vector Autoregressive (VAR) model mandates the discerning selection of an optimal delay order. To achieve the aforementioned aim, the researchers implemented a methodical methodology to determine the most optimal temporal interval that exhibits the highest degree of alignment with the underlying theoretical framework. The task at hand was effectively accomplished by employing a variety of lag selection criteria, encompassing but not restricted to the logarithmic, likelihood ratio (LR), Final Prediction Error (FPE), Akaike Information Criterion (AIC), Hannan-Quinn (HQ), and Schwarz (SC) criteria.

Enders (1995) highlights the necessity of upholding a uniform temporal lag across the variables utilized in the equations that govern the system. By implementing a methodology that incorporates variables exhibiting disparate temporal delays, the onset of asymmetry within the system is efficiently mitigated. The application of different lag lengths for discrete variables has the potential to result in excessively prolonged lag lengths, consequently reducing the inherent degrees of freedom within the model.

The presented information in Table 4.4 provides a comprehensive overview of the VAR lag order criteria for choice, which serve as a valuable resource for gaining profound

insights into the complex procedure of determining the most suitable lag length for the estimation of a Vector Autoregressive (VAR) model.

Table 4.4
VAR Lag Order Criteria of Choice
Selection of VAR Lag Order Criteria
Endogenous variables include log(FDI), log(GDP), log(INF), and log(XR).
C is an exogenous variable.
Date: January 25, 21 Time: 09:42
Exemplification: 1974-2018
40 observations were included.

Lag	logL	LR	FPE	AIC	SC	HQ
0	-303.7847	NA	3.489999	15.43923	15.65034	15.51557
1	-95.60096	353.9123	0.000372	6.280048	7.546708*	6.738032
2	-61.93314	48.81834	0.000256	5.846657	8.168866	6.686295
3	-40.83600	25.31657	0.000367	6.041800	9.419559	7.263091
4	-16.42840	23.18722	0.000534	6.071420	10.50473	7.674364
5	48.26693	45.28673*	0.000143*	4.086654*	9.575512	6.071251*

Source: Researcher 2021
*The asterisk symbol (*) denotes the lag order that has been chosen according to the criterion used.

The present research employs a sequential modified likelihood ratio (LR) test statistic, with each individual test carried out at a significance level of 5%.

The Akaike Information Criterion (AIC) is a statistical measure that is widely used in the field of model selection and inference. Developed by the renowned Japanese statistician Hirotugu Akaike, the AIC serves as the Schwarz information criterion (SC), also known as the Bayesian information criterion (BIC), is a statistical measure used in model selection and proposition testing. It was developed by Gideon E. Schwarz, a prominent statistician, and the Hannan-Quinn information criterion (HQ) is a statistical measure that is widely used in the field of econometrics and time series examination.

The examination carried out in Table 4.4 demonstrates the utilization of the Schwarz information criterion, a statistical metric renowned for its inclination to adopt a more

conservative stance in the allocation of degrees of freedom, thereby exhibiting a preference for lower-order models. The information criterion has suggested that a lag length of 1 is the most optimal choice for utilization in the estimation of vector autoregressive (VAR) models.

4.2 Estimation of VAR

The secondary aim of this inquiry aimed to elucidate the associations identified through the Granger causality results. The previously stated aim was effectively accomplished through the application of Vector Autoregressive (VAR) models in order to derive estimates using the VAR methodology. The inferences deduced from these estimations were formulated with a prederived level of statistical significance established at 5%.

The critical t-statistics were obtained through the utilization of a tabular representation encompassing the distribution of t-statistics. The determination of degrees of freedom involved the calculation of the difference between the total number of observations (n) and the necessary number of interrelationships among these observations (k), symbolized as n - k. In the course of this inquiry, a bivariate t-test was utilized, compelling the division of the p-value of 0.05 to accommodate the dual-sided character of the test, thus resulting in a p-value of 0.025.

In light of the aforementioned deliberations, it is of utmost importance to underscore that the null proposition, which postulates that variable X lacks substantive significance in determining variable Y, has been invalidated under two discrete circumstances: Upon surpassing the critical value of +1.96, the t-statistics demonstrated a statistically significant constructive effect. When the t-statistics demonstrated a magnitude lesser than -1.96, signifying an adverse influence.

4.2.1 VAR Estimation of log (FDI) as a Function of log (GDP) and log (XR)

The VAR model was estimated in accordance with equation 4.9, and the ensuing outcomes are presented in table 4.5.

$$Log(FDI)_t = \beta_0 + \beta_1 log(FDI)_{t-1} + \beta_2 log(GDP)_t + \beta_3 log(GDP)_{t-1} + \beta_4 log(XR)_t + B_5 log(XR)_{t-1} + \mu_{1t} \quad (4.9)$$

Table 4.5
VAR Estimates for log (FDI)=f(log [GDP], log[XR])
Vector Autoregression Estimates
Date: 01/25/21 Time: 09:43
Sample (adjusted): 1975 2018
Included observations: 44 after adjustments
Standard errors in ( ) & t-statistics in [ ]

V

	log(FDI)
log(FDI(-1))	-0.032105
	(0.16604)
	[-0.19336]
C	-13.42108
	(3.13480)
	[-4.28132]
log(GDP)	6.201103
	(3.00583)
	[2.06302]
log(GDP(-1))	-4.190853
	(2.95676)
	[-1.41738]
log(XR)	4.977436
	(3.10755)
	[1.60173]
log(XR(-1))	-5.558262
	(3.10659)
	[-1.78919]
R-squared	0.606385
Adj. R-squared	0.554594
Sum sq. resids	51.96477
S.E. equation	1.169399

Source: Researcher 2021

The results presented in Table 4.5 provide a comprehensive depiction of numerous significant results regarding the intricate relationships among various variables.

Upon initial examination, it was derived that the levels of Foreign Direct Investment (FDI) in the year t, which coincided with the time frame of investigation, did not demonstrate a noteworthy impact on the levels of FDI in the subsequent year, referred to as t+1. The deduction in question is derived from the computed t-statistic of -0.19336, which exceeds the critical t-value of -1.96 at a significance level of 5%. As a result, the null proposition ($\beta 1 = 0$) did not exhibit a statistically significant level of significance that would warrant its rejection.

The Gross Domestic Product (GDP) exhibited a significant and rapid impact on Foreign Direct Investment (FDI), as indicated by the t-statistic of 2.06302, surpassing the critical t-value of 1.96 required to establish a constructive correlation at a significance level of 5%. This finding highlights the contrasting nature of the correlation amongst GDP and FDI. The repudiation of the null proposition, which postulates the equality of the coefficient $\beta 2$ to zero, provides corroboration for the assertion that Gross Domestic Product (GDP) exerts a statistically significant impact on Foreign Direct Investment (FDI). The present discourse presents empirical evidence that suggests a marginal increase of 1% in gross domestic product (GDP) leads to a corresponding rise of 6.201103% in foreign direct investment (FDI), thereby revealing a clear and constructive correlation amongst these economic indicators.

It is of intellectual interest to observe that the gross domestic product (GDP) of the current year (t) did not exhibit a significant impact on the inflow of foreign direct investment (FDI) in the subsequent year (t+1). The current examination draws its conclusions according to the t-statistic of -1.41738, which exceeds the critical t-value of -1.96 required to establish a statistically significant inverse relationship at a significance level of 5%. As a result, the null proposition ($\beta 3 = 0$) did not attain a level of statistical significance that warranted its rejection.

In the line of examining the immediate impact of the Real Exchange Rate (XR) on Foreign Direct Investment (FDI), no significant correlation of noteworthy magnitude was observed. The null proposition ($\beta 4 = 0$) was not rejected, as indicated by the t-statistic of 1.60173, which is below the critical t-value of 1.96. The observed result implies a scarcity of a straightforward correlation at the 5% level of statistical significance. Moreover, it is imperative to acknowledge that the variable XR in the present temporal epoch (t) did not manifest a statistically substantial prognostic association with the magnitude of Foreign Direct Investment (FDI) in the subsequent temporal epoch (t+1). The present observation is readily perceptible through the computed t-value of -1.78919, which surpasses the critical t-value of -1.96 that signifies a negative correlation at a significance level of 5%.

Upon conducting a thorough examination of the available data, it was derived that the adjusted R-squared value obtained was 0.554594. This particular value signifies that approximately 55.45% of the observed fluctuations in foreign direct investment (FDI) can be comprehended by the independent variables that were considered in the examination. The residual variance can be attributed to the existence of temporal dependencies and latent covariates that were not integrated into the established model.

4.2.2 VAR Estimation for log(GDP) as a Function of log (FDI)

The VAR model in equation 4.10 was estimated and the results are as shown in Table 4.6

$$Log(GDP)_t = \alpha_0 + \alpha_1 \log(GDP)_{t-1} + \alpha_2 \log(FDI)_t + \alpha_3 \log(FDI)_{t-1} + \mu_{2t} \text{ …….. (4.10)}$$

Table 4.6 VAR
Estimates for log (GDP) = ƒ [log (FDI)]
Vector Autoregression Estimates
Date: 01/25/21 Time: 09:35
Sample (adjusted): 1975 2018
Included observations: 44 after adjustments
Standard errors in ( ) \
& t-statistics in [ ]

	log(GDP)
log(GDP(-1))	0.952344
	(0.03355)
	[28.3885]
C	0.355546
	(0.25508)
	[1.39384]
log(FDI)	0.012706
	(0.01468)
	[0.86534]
log(FDI(-1))	0.029071
	(0.01477)
	[1.96780]
R-squared	0.985574
Adj. R-squared	0.984493
Sum sq. resids	0.524490
S.E. equation	0.114509

Source: Researcher, 2021

The results obtained from the equation (4.10) of the Vector Autoregressive (VAR) model, as delineated in Table 4.6, provide significant and noteworthy revelations. The preliminary examination revealed a discernible constructive correlation between the Gross Domestic Product (GDP) in the current year (t) and its consequential impact on the GDP level in the subsequent year (t+1). The deduction in question originates from

the negation of the null hypotheses ($\alpha 1 = 0$), as the computed t-statistic of 28.3885 exceeds the critical t-value of 1.96 required to establish a statistically significant relationship at a significance level of 5%. The statement put forth above asserts that a slight increase of 1% in Gross Domestic Product (GDP) during the current fiscal time frame results in a subsequent growth of 0.952344% in GDP in the following fiscal year. Consequently, an indisputable association between the gross domestic product at a given point in time t (GDPt) and the gross domestic product at the subsequent point in time t+1 (GDPt+1) is undeniably ascertained.

In sharp juxtaposition, the discernible influence of Foreign Direct Investment (FDI) on Gross Domestic Product at a given point in time (GDPt) was not regarded as possessing substantial significance. The null proposition ($\alpha 2 = 0$) was not rejected, as the calculated t-statistic of 0.86534 was observed to be lower than the critical t-value of 1.96, which is required to establish a statistically significant relationship at a significance level of 5%. In light of the intricate nature intrinsic to the examination of foreign direct investment (FDI) dynamics, it is crucial to recognize the substantial ramifications engendered by FDI in the current fiscal epoch (t) on the ensuing fiscal epoch (t+1), specifically in relation to its direct sway over the gross domestic product (GDP). The null proposition ($\alpha 3 = 0$) was successfully rejected on the grounds that the t-statistic value of 1.96780 surpassed the critical t-statistic of 1.96, thereby signifying a statistically significant constructive correlation. The empirical observations derived from this research indicate a constructive and statistically significant correlation between the inflow of foreign direct investment (FDI) and the growth of gross domestic product (GDP). The coefficient estimate in question pertains to the correlation amongst FDI influxes and subsequent GDP expansion. It elucidates that a minute incremental rise of 1% in FDI

influxes during the current year is associated with a subsequent year's expansion of GDP amounting to approximately 0.029071%.

The coefficient of determination, commonly referred to as the adjusted R-squared, exhibits a noteworthy value of 0.984493. This value serves as an indication that a considerable portion of the variations observed in the Gross Domestic Product (GDP) can be comprehended by taking into account the historical data of GDP alongside the influxes of Foreign Direct Investment (FDI) from both the immediate and preceding year. The aforementioned value, in a precise manner, indicates that an estimated 98.45% of the variance observed in Gross Domestic Product (GDP) can be ascribed to the factors previously mentioned. The statistical measure mentioned above serves to emphasize the strong explanatory power of the aforementioned variables when utilized in the modeling of fluctuations in Gross Domestic Product (GDP).

4.2.3 VAR estimation for log (INF) as a function of log (FDI), log (XR), and INT

The research estimated the VAR model in equation 4.11 and the results were presented in table 4.7.

$$\log(INF)_t = \gamma_0 + \gamma_1 \log(INF)_{t-1} + \gamma_2 \log(FDI)_t + \gamma_3 \log(FDI)_{t-1} + \gamma_4 \log(XR)_t + \gamma_5 \log(XR)_{t-1} + \gamma_6 INT_t + \gamma_7 INT_{t-1} + \mu_{3t} \quad \ldots\ldots (4.11)$$

Table 4.7

VAR estimates for log (INF) = f [log (FDI), log (XR), INT]

Vector Autoregression Estimates
Date: 01/25/21 Time: 09:45
Sample (adjusted): 1975 2018
Included observations: 44 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	log(INF)
log(INF(-1))	-0.008115
	(0.14967)
	[-0.05422]
C	2.474680
	(0.54160)
	[4.56923]
log(FDI)	-0.133097
	(0.06311)
	[-2.10901]
log(FDI(-1))	0.074874
	(0.06334)
	[1.18201]
log(XR)	2.640724
	(0.76575)
	[3.44856]
log(XR(-1))	-2.549074
	(0.76752)
	[-3.32117]
INT	-0.028320
	(0.01490)
	[-1.90089]
INT(-1)	-0.032999
	(0.01668)
	[-1.97871]
R-squared	0.495672
Adj. R-squared	0.397609
Sum sq. resids	9.810759
S.E. equation	0.522036

Source: Researcher, 2021

The results obtained from the Vector Autoregression (VAR) model, as illustrated in Table 4.7, offer significant and noteworthy contributions in understanding the complex interrelationships between inflation (INF) and the other variables under consideration.

Upon initial examination, it has been derived that the inflation rate (INF) observed in the current year (t) does not play a significant role in predicting changes in inflation for the following year (t+1). The null proposition ($\gamma 1 = 0$) was not rejected, as evidenced by the t-statistic of -0.05422, which exceeded the critical t-value of -1.96 required to establish a negative association.

In the line of the phenomenon known as Foreign Direct Investment (FDI), a notable and expeditious negative correlation with inflation has been duly established. The null proposition, which postulates that the parameter $\gamma 2$ is equal to zero, was successfully rejected according to the calculated t-statistic of -2.10901, which fell below the critical t-value of -1.96. The aforementioned observation postulates that a slight increase of 1% in foreign direct investment (FDI) during the current fiscal time frame resulted in an immediate reduction of 0.133097% in the trajectory of inflation for the corresponding year. However, it is imperative to acknowledge that the Foreign Direct Investment (FDI) observed within the present fiscal time frame (t) did not manifest a significant propensity to prognosticate inflationary tendencies in the subsequent fiscal time frame (t+1). The aforementioned deduction is derived from the observation that the null proposition ($\gamma 3 = 0$) remains unchallenged, as evidenced by the computed t-statistic of 1.18201, which falls below the critical t-value of 1.96.

Moreover, empirical evidence has revealed that the Real Exchange Rate (XR) exerts a substantial and affirmative influence on inflation in a prompt fashion. The aforementioned deduction is derived from the rejection of the null proposition ($\gamma 4 = 0$), as evidenced by the calculated t-statistic exceeding the critical t-value ($3.44856 > 1.96$).

Henceforth, it is duly noted that a marginal increase of 1% in the exchange rate during the current fiscal year is accompanied by an immediate and proportional rise of 2.640724% in the inflation rate. In a manner akin to analogy, it can be observed that the exchange rate (XR) manifests a noteworthy inverse correlation in its aptitude to prognosticate inflation in the ensuing year (t+1) vis-à-vis the current year (t). The null proposition ($\gamma 5 = 0$) was not rejected, as the calculated t-statistic was derived to be less than the critical t-value (-3.32117 < -1.96). The empirical results presented in this research indicate that a marginal increase of 1% in the exchange rate during the observed time frame leads to a significant decrease of approximately 2.549074% in the inflation rate in the subsequent time frame.

In summary, it is evident that the real interest rate (INT) does not demonstrate statistical significance in its direct influence on inflation, as evidenced by the calculated t-value of -1.90089 exceeding the critical t-value of -1.96, thereby indicating a negative correlation. The null proposition, which postulates that the parameter $\gamma 6$ is equivalent to zero, did not attain a statistically significant level of rejection according to the extant empirical data. However, it has been ascertained that the variable denoted as INT possesses considerable significance in the determination of inflation in the subsequent year, specifically referred to as t+1. The deduction in question is a consequence of the rejection of the null proposition ($\gamma 7 = 0$), as demonstrated by the calculated t-statistic of -1.97871, which is below the critical t-value of -1.96, thereby suggesting an inverse correlation. The empirical evidence suggests that a marginal increment of one unit in the prevailing interest rate within the current fiscal year is correlated with a subsequent reduction of approximately 0.032999% in inflationary tendencies during the following fiscal year.

4.2.4 VAR Estimation for INT as a function of log INF and log XR

Lastly, the research estimated the VAR model represented in equation 4.12 and the results shown in Table 4.8

$$INT_t = þ_0 + þ_1 INT_{t-1} + þ_2 \log(INF)_t + þ_3 \log(INF)_{t-1} + þ_4 \log(XR)_t + þ_5 \log(XR)_{t-1} + \mu_{4t} \quad \ldots\ldots(4.12)$$

Table 4.8

VAR Estimates for INT = f [log (INF), log (XR)]

Vector Autoregression Estimates
Date: 01/29/21 Time: 16:19
Sample (adjusted): 1976 2018
Included observations: 43 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	INT
INT(-1)	-0.419731
	(0.13094)
	[-3.20541]
C	-8.951974
	(6.97406)
	[-1.28361]
log(INF)	-1.122682
	(1.65204)
	[-0.67957]
log(INF(-1))	5.400071
	(1.45296)
	[3.71661]
log(XR)	-13.98894
	(9.15930)
	[-1.52729]
log(XR(-1))	14.05090
	(9.12183)
	[1.54036]
R-squared	0.404655
Adj. R-squared	0.324203
Sum sq. resids	1318.698
S.E. equation	5.969966

Source: Researcher, 2021

The results derived from the Vector Autoregressive (VAR) model, as explicated in Table 4.8, offer substantial scholarly contributions by illuminating the complex interdependencies surrounding the variables of real interest rate (INT), inflation (INF), and real exchange rate (XR).

First and foremost, it is imperative to acknowledge the existence of a remarkable correlation between the real interest rate (INT) in the current year (t) and its aptitude to effectively predict its own magnitude in the subsequent year (t+1). The deduction in question arises from the rejection of the null proposition (þ1 = 0), as the calculated t-statistic displayed a smaller magnitude compared to the critical t-value (-3.20541 < -1.96) required to establish a statistically significant negative correlation at the 5% level of significance. Upon careful examination, it becomes evident that a minute augmentation of 1 unit in the prevailing interest rate during the current year has engendered a subsequent reduction of 0.419731 units in the interest rate during the ensuing year.

In relation to the phenomenon of inflation (INF), it has been established that the inflation rate observed in the current year does not exert a significant impact on the determination of the prevailing interest rate (INT) within the same year. The null proposition (þ2 = 0) was not rejected, as evidenced by the observed t-statistic exceeding the critical t-value (-0.67957 > -1.96) at a significance level of 5%. The significance of the prevailing inflation rate in the current year on the direct anticipation of the interest rate level in the subsequent year (t+1) is of considerable importance. The null proposition (þ3 = 0) was refuted, given that the calculated t-statistic surpassed the critical t-value (3.71661 > 1.96) at the 5% level of significance. The aforementioned proposition postulates that a marginal increase of 1% in the inflation rate within the

current year gives rise to a corresponding increase of 5.400071 units in the interest rate during the subsequent year.

In contrast, it was observed that the levels of interest rates in the present year and the following year were not influenced by the prevailing exchange rate. Consequently, the exchange rate can be deemed inconsequential in this particular context. The null hypotheses ($\beta 4 = 0$ and $\beta 5 = 0$) were not rejected, as the calculated t-statistics ($-1.52729 > -1.96$) for the inverse relationship and ($1.54036 < 1.96$) for the direct relationship at the 5% significance level did not yield compelling evidence to warrant the rejection of the null hypotheses. This empirical observation implies a paucity of substantial correlations between the prevailing annual currency exchange rate and oscillations in interest rates.

In conclusion, the aforementioned discoveries give rise to a thorough understanding of the complex dynamics between the real interest rate, inflation, and the real exchange rate within the scope of the examined model.

4.3 Discussions of Research Results

The empirical investigation carried out in the current research has yielded a plethora of significant results and insights, thereby enhancing our understanding of the complex interrelationships among various economic factors.

The current research has effectively established a statistically significant and constructively inclined correlation between the phenomenon of economic development and the influx of foreign direct investment (FDI). The present finding aligns with previous inquiries carried out by Gastnanga et al. (1998), Alcharaz (2003), Nyamwange (2009), and Njuguna (2013), who also observed a constructive association between the inflow of foreign direct investment (FDI) and the occurrence of economic development.

Moreover, the empirical outcomes of this investigation are in concordance with the scholarly contributions put forth by Wanjiru (2013) and Ndanu (2018), who advanced the argument that the influence exerted by inflation on the influx of foreign direct investment (FDI) in Kenya lacks statistical significance. However, the current inquiry diverges from the results posited by Wanjiru (2013) and Ndolo (2017), whose scholarly endeavors suggested an inverse correlation amongst the expansion of the economy and the influx of foreign direct investment (FDI). Moreover, the current research functions as a departure point from the assertions made by Mbui (2017) and Nduati (2018), who proposed a lack of identifiable correlation between the occurrence of economic development and the surge of foreign direct investment (FDI). This research presents a notable departure in its comprehensive methodological approach, encompassing a broader scope of examination pertaining to the inflow of foreign direct investment (FDI) into the Republic of Kenya, as opposed to previous investigations that focused on specific sectors or industries.

The empirical inquiry carried out in this research has yielded additional results that indicate a discernible and substantial influence of contemporaneous levels of gross domestic product (GDP) on the subsequent year's GDP level. The current finding aligns with the scholarly inquiry undertaken by Kigume (2011), in which a constructive correlation between economic development and its temporal lag was established. Furthermore, the empirical inquiry has elucidated that the variables pertaining to exchange rates, interest rates, and inflation have not exhibited significant statistical significance within the confines of this specific analytical framework. The results presented in this research are consistent with the scholarly publications of Ngeny and Mutuku (2014), Maingi (2014), and Mosiori (2014), in which a constructive association between the inflow of foreign direct investment (FDI) and economic development was

empirically demonstrated. However, it is imperative to acknowledge that within the realm of scholarly discourse, a divergence of perspectives manifests itself concerning the implications of foreign direct investment (FDI) on diverse economic indicators, encompassing but not limited to economic development, exchange rates, and interest rates. The manifestation of this incongruity becomes apparent upon contemplation of the scholarly oeuvres of Wanjiku (2016), Mosiori (2014), and Musyoka et al. (2012), whose erudite endeavors proffer divergent perspectives on the subject at hand.

In relation to the phenomenon of inflation, the empirical inquiry has revealed that the inflow of foreign direct investment (FDI) within a specific year exerts an adverse impact on the inflationary dynamics of the subsequent year. The current finding deviates from the assertions posited by Njuguna (2013), thus indicating an inverse correlation between the influx of foreign direct investment (FDI) and the phenomenon of inflation. Moreover, the incorporation of a temporal delay has brought to light a paradigm-shifting revelation - the introduction of foreign direct investment (FDI) manifests a postponed adverse effect on inflation, emerging following a temporal span of one year.

The examination carried out in the current research regarding the intricate correlation amongst exchange rates and inflation has unveiled a noteworthy observation of significant significance: a rapid increase in the exchange rate within the present year has been identified as causally connected to a subsequent decrease in the inflation rate within the subsequent year. The present finding is congruent with the scholarly literature of Okoth (2013) and Kemboi and Kosgei (2018), wherein a constructive association between inflation and exchange rates was similarly identified.

The empirical examination undertaken in this research offers supplementary evidence to substantiate the proposition positing a negative correlation between the prevailing interest rate in a particular year and the subsequent year's inflationary tendencies. The present empirical observation aligns with the discoveries made by Siebrits and Nierdermeier (2004), although it deviates from the conclusions put forth by Mmasi (2013) and Mukras et al. (2016), who argued that the association between interest rates and inflation lacks statistical significance. The incorporation of temporal lags within the research framework has engendered innovative perspectives on the temporal discrepancy that exists between fluctuations in interest rates and their subsequent implications on inflationary dynamics.

The comprehensive empirical investigation provides invaluable elucidations regarding the intricate interdependencies among economic development, influxes of foreign direct investment (FDI), inflation, exchange rates, and interest rates. The aforementioned discoveries function as a valuable contribution to the existing body of scholarly research, thereby enhancing our understanding of the complex economic dynamics within the specific scope of this inquiry.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Introduction

This section serves as a comprehensive synthesis of the results elucidated in the antecedent chapter, in conjunction with the overarching deductions derived from the entirety of the investigative procedure. Moreover, this chapter proffers policy prescriptions that policymakers can employ to augment levels of foreign direct investment and engender economic expansion. In conclusion, this chapter proffers recommendations for prospective research undertakings, thereby furnishing invaluable perspectives for emerging scholars.

5.2 Summary of Results

5.2.1 Causal Relationship Summary

The principal aim of this research was to establish a causal correlation amongst the influx of foreign direct investment (FDI) and a particular set of macroeconomic indicators. The results of the causality examination have revealed the presence of a Granger causality nexus between influxes of foreign direct investment (FDI) and two pivotal determinants: economic development, as indicated by gross domestic product (GDP), and the exchange rate. The carried out empirical examination has produced noteworthy results, suggesting that the variables concerning the inflation rate and real interest rate do not exhibit a significant Granger causality relationship with the influx of foreign direct investment (FDI). Contrary to prevailing notions, the ongoing investigation has illuminated the verity that the influx of foreign direct investment (FDI) demonstrates a Granger causal relationship in relation to the advancement of the economy, as evidenced by the oscillations in gross domestic product (GDP). Moreover,

it has been derived that the variables encompassing inflation, exchange rate (KSH/US$), and interest rate demonstrate a Granger causality relationship with inflation itself. Through rigorous examination and empirical investigation, a coherent body of evidence has unequivocally demonstrated the existence of a causative relationship, as posited by the Granger causality framework, between the interest rate and the intricate dynamics of both inflation and exchange rates. In contrast to prevailing conceptions, extant scholarly investigations have brought to light a notable scarcity of substantial statistical significance pertaining to the interplay between influxes of foreign direct investment (FDI) and economic development, particularly in relation to their impact on the interest rate.

5.2.2 VAR Estimate Summary

The secondary aim of this inquiry was to assess the estimations derived from the established causal relationships derived through the implementation of the causality examination. The application of the causality test enabled the estimation of four distinct functions through the utilization of a Vector Autoregressive (VAR) model. Within the existing paradigm, the focal point of inquiry revolved around the intricate phenomenon of foreign direct investment (FDI) influxes, the metric of gross domestic product (GDP), and the intricate dynamics governing the exchange rate. The estimations derived from the Vector Autoregression (VAR) model have unveiled that the current yearly growth of the economy, as measured by Gross Domestic Product (GDP), exerts a significant impact on the magnitude of foreign direct investment. However, it is imperative to acknowledge that the lag 1 values of the aforementioned variables exhibited a conspicuous dearth of statistical significance in their ability to determine the extent of influxes of foreign direct investment.

The present research's empirical investigation has unveiled a remarkable and statistically substantial association between the Gross Domestic Product (GDP) and two pivotal determinants: the delayed values of Foreign Direct Investment (FDI) influxes, alongside the initial lag of GDP and FDI influxes. The factors mentioned above exhibit a perceptible ability to exert a substantial influence on the complex dynamics that govern the trajectory of economic development. Nevertheless, it has been ascertained that the direct impact of foreign direct investment (FDI) influxes on the economic development of the present fiscal time frame is deemed to be statistically inconsequential.

The investigation further explicated that the prevailing currency conversion rate in the present year demonstrated a significant and causally consequential correlation with the extent of inflation. Moreover, the contemporaneous inflow of foreign direct investment (FDI), in tandem with the antecedent levels of interest rate and exchange rate, evinced a significant and inverse influence on the inflation rate within the current temporal context. However, the empirical examination elucidates that the initial lag of foreign direct investment (FDI) influxes and the initial lag of the inflation rate manifest a dearth of statistical significance in their capacity to ascertain the magnitude of inflation.

In the most advanced iteration of the model, the inquiry has derived that the initial temporal delay of the interest rate demonstrates a negative correlation with the magnitude of the interest rate in the subsequent year. Moreover, empirical evidence has substantiated the proposition that the primary delay in the inflationary process, when examined at the first-order, exhibits a statistically significant and causative impact on the level of interest rates in the subsequent fiscal year. However, it has been derived that the current inflation rate and exchange rate, when combined with the first-order lag of

the exchange rate, have been deemed insignificant in relation to their influence on the magnitude of interest rates.

5.3 Conclusions

5.3.1 Causal Relationship Conclusions

Drawing upon the extant empirical evidence, the study surmised that the interplay between the exchange rate and gross domestic product (GDP) exerted a substantial influence on the inflow of foreign direct investment (FDI). In a contrasting vein, the inquiry has also unveiled that foreign direct investment (FDI) influxes wield a decisive impact on gross domestic product (GDP). Furthermore, the empirical examination posits that the inflationary tendencies observed within the Kenyan economy are contingent upon the influx of Foreign Direct Investment (FDI), the intricate dynamics of exchange rates, and the oscillations in interest rates. In summation, the empirical inquiry posits that the oscillations of interest rates are substantially impacted by the confluence of both the inflationary trajectory and the fluctuation in the exchange rate.

5.3.2 VAR Estimates Conclusions

The empirical investigation has yielded a conclusive revelation, elucidating a mutually beneficial association among the inundation of foreign direct investment (FDI) and the enhancement of the economy. The contemporaneous increase in the gross domestic product (GDP) during the current temporal epoch has been accompanied by a simultaneous surge in the inflow of foreign direct investment. The aforementioned proposition postulates that the augmentation of an economy fosters a favorable environment conducive to the allure of foreign direct investment (FDI). Moreover, it is imperative to underscore the salient fact that the empirical scrutiny of the Gross Domestic Product (GDP) expansion in the extant fiscal year has evinced a propitious impact on the magnitudes of GDP in the ensuing fiscal year. The aforementioned

observation elucidates a temporal dynamic response in relation to the influx of Foreign Direct Investment (FDI).

The research results, in addition, posited a prompt inverse correlation between influxes of foreign direct investment (FDI) and inflation, while the exchange rate demonstrates a prompt direct correlation with inflation. The profound impact of the exchange rate on inflation is observed to extend into the subsequent temporal interval, specifically the year t+1, wherein it exhibits a detrimental effect. The empirical investigation also posits that an increase in the current interest rate during the ongoing fiscal time frame is accompanied by a subsequent decrease in inflation in the following year.

In conclusion, the results of this inquiry validated the existence of a correlation among heterogeneous economic determinants, thereby underscoring the intricate interplay between foreign direct investment, gross domestic product, inflation, currency exchange rates, and interest rates. The aforementioned insights elucidate and augment the understanding of the intricate interdependencies intrinsic to the economic milieu.

5.4 Recommendations

The principal aim of the present inquiry is to explicate the intricate dynamics between the inflow of foreign direct investment (FDI) and a carefully selected assortment of macroeconomic determinants within the distinct context of the Kenyan economy. The chosen macroeconomic indicators encompass the measurement of inflation, the quantification of economic expansion through gross domestic product (GDP), the examination of currency exchange rates, and the examination of real interest rates.

The current research postulated a proposition that advocates for the utmost significance of fostering economic expansion as a strategy to attract increased occurrences of foreign direct investment (FDI). The phenomenon of economic expansion presents a captivating

trajectory for the allure of foreign direct investment (FDI), driven by the emergence of technological advancements, increased capital infusion, and the adoption of cost-effective production methodologies. As a result, the amplification of influxes of foreign direct investment (FDI) functions as a catalyst for the escalation of levels of economic development.

The investigation put forth an additional noteworthy argument that highlights the importance of enhancing the inflow of foreign direct investment (FDI) as a strategic approach to alleviate the exacerbation of inflationary forces. Empirical evidence has substantiated the assertion that Foreign Direct Investment (FDI) exerts a favorable impact on production processes by virtue of its facilitation of the assimilation of state-of-the-art technologies. The process of integration, in its entirety, ultimately leads to the enhancement of the availability and economic efficiency of commodities. The previously mentioned phenomenon functions as a mitigating agent against the adverse repercussions of inflationary pressures, thus underscoring the necessity of enhancing the influx of foreign direct investment (FDI).

The research further emphasized the necessity of effectively managing exchange rates, considering their prompt impact on inflationary dynamics. The phenomenon of currency depreciation harbors the inherent capacity to augment the attractiveness of domestic goods to foreign investors, thereby instigating a notable upsurge in demand and subsequent inflationary tendencies. However, it is crucial to acknowledge the inherent necessity of recognizing that this specific phenomenon possesses the capacity to elicit alterations within the domain of production, consequently exerting a constraining impact on the prevailing magnitudes of inflation in the subsequent temporal interval.

Furthermore, the research elucidated the paramount importance of interest rates in the efficacious administration of inflationary forces. The empirical inquiry elucidates a conspicuous correlation between increases in interest rates and the phenomenon of inflation, thereby implying that the management of inflationary pressures through the implementation of interest rate mechanisms can yield efficacious results.

In conclusion, this erudite inquiry expounded upon the intricate interdependencies that exist between foreign direct investment (FDI), the proliferation of the economy, inflationary forces, oscillations in exchange rates, and the dynamics of interest rates. The explications presented herein provide astute guidance for policymakers striving to enhance economic stability and cultivate appeal for foreign investments.

5.5 Suggestions for Further Research

The present inquiry was centered on a distinct array of macroeconomic indicators, specifically inflation, exchange rates, economic development, and interest rates. The principal aim entailed the elucidation of the intricate interdependencies among these variables, in conjunction with their associations with the influx of foreign direct investment within the specific framework of Kenya. Moreover, a multitude of other variables exhibited the potential to establish significant correlations with the phenomenon of foreign direct investment. Henceforth, this scholarly investigation accentuates the imperative exigency for additional research endeavors aimed at exhaustively delving into the intricate interplay between foreign direct investments (FDIs) and a plethora of other influential factors

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APPENDICES

Appendix I: Summary of Literature Review

Table 6.1

Summary of Literature Review

	Year	Author	Topic	Variables	Gaps
FDI	2000	Grubert and Muiti	Effects of the tax rate on investment of MNEs in the US	carried in the united states	Assumes a unidirectional relationship ignoring other possible relationships
	2009	Nyamwange	Factors that influence FDI decisions in Kenya	Human capital, taxation, market size	Did not include interest rate, exchange rate, and inflation variables
	2015	Munongo	Impact of tax incentives on FDI influxes in South Africa	studied in South Africa	Assumes a unidirectional relationship ignoring other possible relationships
	2012	Musyoka	The correlation amongst tax incentives and FDI in Kenya	Trade incentives, import duty exemption, investment incentives, and FDI influxes for 10 years	Economic development, inflation, interest rate, and exchange rate
	2013	Geoffrey Mbayi	Effects of Taxation on FDI in Kenya	tax incentives	Did not include interest rate, inflation, GDP, and exchange rate
	2013	Gumo	Effect of tax incentives on FDI in Kenya	tax incentives	Did not include interest rate, inflation, gap, and exchange rate
	2013	Muema	FDI determinants in Kenya	Exchange rate	Assume a unidirectional relationship. Did not include interest rate, inflation, GDP, and taxation

	2014	Vesarach	The role of interest rate in attracting FDI in Asian economies	Interest rate, inflation, GDP, labour cost, money growth, and political rights	Assumes a unidirectional relationship. Does not reflect the situation in the Kenyan economy
	2018	Nduati	Impact of inflation rate on FDI in Kenya	Inflation, exchange rate, and GDP	Did not include taxation and interest rate as variables
	2017	Mbui	Effect of interest rate on FDI influxes in energy and petroleum industry in Kenya	Inflation, exchange rate, interest rate, and GDP	Assumes a unidirectional relationship. Did not include taxation as a variable
	2018	Ndanu	Effect of real interest rate, exchange rate, and competitiveness on FDI in Kenya	Real interest rate, exchange rate, and competitiveness	Assumes a unidirectional relationship. Did not include taxation, GDP, and inflation
Exchange rate	2013	Okoth	effects of interest rate and inflation rate on exchange rates in Kenya	inflation and interest rate	The research assumes a unidirectional influence running from Inflation and interest rate to Exchange rate
	2015	Odera	An examination of the effect of external public debt on exchange rate volatility in Kenya.	inflation, interest rate, GDP growth, money supply, and external debt	assumes a unidirectional relationship
	2016	Kibiy &Nasieku	Determinants of exchange rate volatility of the Kenyan Shilling against world major currencies.	interest rate, inflation, external debt, and money supply	assumes a unidirectional relationship.
	2017	Dantama	Determinants of exchange rate volatility: new estimates from Nigeria.	GDP, interest rates, and net foreign assets	do not estimate the granger causality results

	2018	Kilicarlson	Determinants of exchange rate volatility: empirical evidence for Turkey.	FDI, money supply, local investments, GDP, Exports, and government expenditure	assumes a unidirectional relationship
	2018	Kosgei and Kemboi	Economic determinants of exchange rate volatility in Kenya	inflation and interest rate	The research assumes a unidirectional influence running from Inflation and interest rate to Exchange rate
Inflation	2004	Siebrits & Niedermeyer	The determinants of inflation in South Africa: An econometric examination.	money market, labour market, and foreign market	assumes a unidirectional relationship
	2013	Mmasi	an investigation of the correlation amongst interest rate and inflation in Kenya	interest rate, GDP, and money supply	Carries causality test between inflation and interest rates and assumes GDP and money supply to have a unidirectional impact on inflation
	2013	Wanjiru	Effect of economic development and inflation volatility on FDI in Kenya	GDP and Inflation	Did not include taxation, interest rate, and inflation rate as variables
	2013	Mulwa	The effect of exchange rate volatility on inflation rates in Kenya.	Exchange rate	assumes a unidirectional relationship
	2014	Kirimi	The determinants of inflation in Kenya (1970–2013)	money supply, Central bank rates, exchange rates, wages, food prices, and GDP	assumes a unidirectional relationship
	2016	Ochieng, Mukras and Momanyi	The determinants of inflation in the Kenyan economy.	exchange rate&interest rates	assumes a unidirectional relationship

Growth	2011	Kigume	the correlation amongst inflation and economic development in Kenya for the time frame 1963-2003	Inflation	the research tests for granger causality a VAR-based test and estimates the relationship derived using OLS
	2012	Musyoki, pokhanyal& Pundo	The impact of real exchange rate volatility on economic development: Kenyan evidence	exchange rate	assumes a unidirectional relationship
	2014	Ngeny and Mutuku	the impact of foreign direct investment volatility on growth in Kenya	foreign direct investment	assumes for a unidirectional influence from FDI to economic development
	2014	Maingi	The effect of foreign direct investments on economic development in Kenya.	FDI	assumes a unidirectional relationship and ignores other variables
	2014	Mosiori	The correlation amongst foreign direct investments and economic development in Kenya.	FDI, exchange rates, interest rate, and inflation	assumes a unidirectional relationship and stationarity of variables
	2015	Kaara	Determinants of economic development In Kenya.	interest rate, inflation, savings	does not estimate the granger causality results
	2016	Wanjiku	the impact of foreign direct investments on economic development in Kenya	FDI, infrastructure openness of the economy	assumes a unidirectional influence from FDI, infrastructure, and openness of the economy to economic development
Interest Rate	1991	Coorey	The determinants of US real interest rates in the long run.	Inflation	does not reflect the Kenyan context

	2014	Jayasinghe	Determinants of interest rates: The case of Sri Lanka	inflation, net foreign assets	assumes a unidirectional relationship and does not reflect Kenya's context
	2018	Ailouni	Determinants of real interest rates: The case of Jordan Long-Fei	budget deficits and capital influxes	assumes a unidirectional relationship and does not reflect Kenya's context

Appendix II: KPSS Stationarity Tests

Table 6.2

KPSS Stationarity Tests

Null Proposition: FDI is stationary

Exogenous: Constant, Linear Trend

Bandwidth: 4 (Newey-West automatic) using Bartlett kernel

		LM-Stat.
Kwiatkowski-Phillips-Schmidt-Shin test statistic		0.219422
Asymptotic critical values*:	1% level	0.216000
	5% level	0.146000
	10% level	0.119000

*Kwiatkowski-Phillips-Schmidt-Shin (1992, Table 1)

Null Proposition: GDP is stationary

Exogenous: Constant, Linear Trend

Bandwidth: 3 (Used-specified) using Bartlett kernel

		LM-Stat.
Kwiatkowski-Phillips-Schmidt-Shin test statistic		0.287885
Asymptotic critical values*:	1% level	0.216000
	5% level	0.146000
	10% level	0.119000

*Kwiatkowski-Phillips-Schmidt-Shin (1992, Table 1)

Null Proposition: INF is stationary

Exogenous: Constant, Linear Trend

Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		LM-Stat.
Kwiatkowski-Phillips-Schmidt-Shin test statistic		0.061200
Asymptotic critical values*:	1% level	0.216000
	5% level	0.146000
	10% level	0.119000

*Kwiatkowski-Phillips-Schmidt-Shin (1992, Table 1)

Null Proposition: INT is stationary

Exogenous: Constant, Linear Trend

Bandwidth: 4 (Newey-West automatic) using Bartlett kernel

		LM-Stat.
Kwiatkowski-Phillips-Schmidt-Shin test statistic		0.151035
Asymptotic critical values*:	1% level	0.216000
	5% level	0.146000
	10% level	0.119000

*Kwiatkowski-Phillips-Schmidt-Shin (1992, Table 1)

Null Proposition: XR is stationary
Exogenous: Constant, Linear Trend
Bandwidth: 3 (Used-specified) using Bartlett kernel

		LM-Stat.
Kwiatkowski-Phillips-Schmidt-Shin test statistic		0.108431
Asymptotic critical values*:	1% level	0.216000
	5% level	0.146000
	10% level	0.119000

*Kwiatkowski-Phillips-Schmidt-Shin (1992, Table 1)

Null Proposition: log(FDI) is stationary

Exogenous: Constant, Linear Trend

Bandwidth: 4 (Newey-West automatic) using Bartlett kernel

		LM-Stat.
Kwiatkowski-Phillips-Schmidt-Shin test statistic		0.202273
Asymptotic critical values*:	1% level	0.216000
	5% level	0.146000
	10% level	0.119000

*Kwiatkowski-Phillips-Schmidt-Shin (1992, Table 1)
Null Proposition: log(GDP) is stationary
Exogenous: Constant, Linear Trend
Bandwidth: 5 (Newey-West automatic) using Bartlett kernel

		LM-Stat.
Kwiatkowski-Phillips-Schmidt-Shin test statistic		0.183780
Asymptotic critical values*:	1% level	0.216000
	5% level	0.146000
	10% level	0.119000

*Kwiatkowski-Phillips-Schmidt-Shin (1992, Table 1)

Appendix III: Introduction Letter from Rongo University

RONGO UNIVERSITY

OFFICE OF THE DEAN
SCHOOL OF GRADUATE STUDIES

Tel. 0771349741

P.O. Box 103 - 40404
RONGO

Our Ref: **MECO/6305/2017**

Date: 27/05/2022

The Chief Executive Officer,
National Commission for Science, Technology & Innovation,
off Waiyaki Way, Upper Kabete,
P.O Box 30623-00100,
Nairobi-KENYA.

Dear Sir,

RE: RESEARCH PERMIT FOR MR. TITUS MOSOTI OGERO-MECO/6305/2017

We wish to inform you that the above person is a bona fide graduate student of Rongo University in the School of Arts and Social Sciences pursuing a Masters degree in Economics. He has been authorized by the University to undertake research titled; **"The Relationship between Foreign Direct Investment inflows and selected macroeconomic variables in kenya".**

This is, therefore, to request the commission to issue him with a research permit to enable him proceed for field work.

Your assistance to him shall be highly appreciated.

RONGO UNIVERSITY
THE DEAN
27 MAY 2022
SCHOOL OF GRADUATE STUDIES
P. O. BOX 103 - 40404, RONGO

Thank you.

for Dr. Edward Anino
DEAN, SCHOOL OF GRADUATE STUDIES

Copy to: Vice Chancellor
Deputy Vice Chancellor (Academic and Student Affairs).
Dean, School of Arts and Social Sciences
HoD, Economics

Figure 6.1: ***Introduction Letter from Rongo University***

Appendix IV: Research Permit

NATIONAL COMMISSION FOR
SCIENCE,TECHNOLOGY & INNOVATION

REPUBLIC OF KENYA

Date of Issue: 22/June2022

Ref No: 50153

RESEARCH LICENSE

This is to Certify that Mr. Titus Mosoti Ogero of Rongo University, has been licensed to conduct research in Nairobi on the topic: Relationship between foreign direct investment inflows and selected macroeconomic variables in Kenya for the period ending:

License No:NACOSTI/P/22/18385

Director General
NATIONAL COMMISSION
SCIENCE.TECHNOLOGY
INNOVATION

50153
Applicant Identification Number

Verification QR

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner

Figure 6.2: *Research Permit*

Appendix V: Data

Table 6.3

Data

GDP and FDI in billions INF, XR and INT in percentage

YEAR	INFLATION	EXCHANGE RATE	INTEREST RATE	FDI INFLUXES	REAL GDP
1974	17.81	7.143	-5.644	23.42	2973
1975	19.12	7.343	-1.641	17.159	3259
1976	11.449	8.367	-7.49	46.372	3475
1977	14.821	8.277	-5.09	56.545	4494
1978	16.932	7.729	6.712	34.414	5304
1979	7.979	7.475	4.129	84.01	6234
1980	13.858	7.42	0.943	78.973	7265
1981	11.603	9.047	1.411	14.148	6854
1982	20.667	10.922	2.605	13.001	6432
1983	11.389	13.313	3.572	23.739	5979
1984	10.284	14.414	3.835	10.754	6190
1985	13.007	16.432	5.258	28.846	6135
1986	2.534	16.226	4.864	32.726	7239
1987	8.638	16.454	8.157	39.381	7971
1988	12.265	17.747	8.026	0.394	8355
1989	13.789	20.572	6.815	62.19	8283
1990	17.782	22.915	7.333	57.081	8572
1991	20.084	27.508	5.746	18.831	8151
1992	27.332	32.217	1.825	6.363	8209
1993	45.979	58.001	3.413	145.655	5752
1994	28.814	56.051	16.428	7.432	7148

1995	1.554	51.43	15.802	42.289	9046
1996	8.864	57.115	-5.777	108.673	12046
1997	11.362	58.732	16.88	62.097	13116
1998	6.722	60.367	21.096	26.548	14094
1999	5.742	70.326	17.454	51.953	12896
2000	9.98	76.176	15.327	110.904	12705
2001	5.739	78.563	17.813	5.303	12986
2002	1.961	78.749	17.358	27.618	13148
2003	9.816	75.936	9.771	81.738	14905
2004	11.624	79.174	5.045	46.064	16095
2005	10.313	75.554	7.61	21.212	18738
2006	14.454	72.101	-8.01	50.674	25826
2007	9.759	67.318	4.819	729.055	31958
2008	26.24	69.175	-0.985	95.585	35895
2009	9.234	77.352	2.837	116.259	37022
2010	3.961	79.233	12.028	178.064	40000
2011	14.022	88.811	3.839	1450	41953
2012	9.378	84.53	9.457	1380	50413
2013	5.717	86.123	11.548	1119	55097
2014	6.878	90.55	7.815	820.934	61448
2015	6.582	102.3	5.509	619.719	64008
2016	6.297	102.5	7.792	678.803	68189
2017	8.006	103.2	4.628	1266	78965
2018	4.69	101.302	9.939	1626	87779

Source: World Bank Country Data Portal, 2021