Does FDI Matter for the Economic Growth of West Sub-Saharan African Countries? A Panel VECM Approach

Edward Nicholas

Department of Economic Development and Financial Studies, Faculty of Economics and Business, Syiah Kuala University, Banda Aceh, Indonesia

Keywords

FDI, Economic Growth, Relationship, VECM, West Sub-Saharan African countries

Abstract

This study analyzes foreign direct investment (FDI) and economic growth in fifteen West Sub-Saharan African countries' relationship from 1990 to 2020, with secondary panel data from the World Bank (2022), at the expense of both interest rate and exchange rate effect. The main model used is Panel VECM. The results shows that FDI helps enhance economic growth in the long run, as the estimate in the long-run indicates an increase of -121.16, which can be interpreted inversely with a 1% level of significance, with t-statistics -14.94, despite FDI's negative impact in the short run with an estimate of -3.5 with a level 5% of significance, likewise, the effect of interest rate with t-statistics of -0.1 for economic growth and 0.1 for FDI and exchange rate with t-statistics of -0.43 for economic growth and -0.12 for FDI. Thus, both parameters are deemed insignificant. Therefore, policymakers should adopt policies that will support FDI for the long term to enhance economic growth, and reduce interests' rate and exchange rates by establishing usage of a single currency or flexible exchange rates. This study aims to help policymakers and analysts determine the advantages of monitoring changes in macroeconomic fundamentals and economic growth for attracting FDI. The results of the study have significant policy repercussions, particularly for fiscal and monetary policies, particularly to resolve problems of slow economic growth to a low proportion of appropriate FDI in West Sub-Saharan African countries and other developing countries.

1. Introduction

For African countries with insufficient financial resources, technological infrastructures, and manufacturing capacities, large foreign direct investment (FDI) inflows would stimulate economic growth, and Sub-Saharan African governments are eager to draw it. To support their investment objectives, countries in the area first put in place FDI-specific regulatory frameworks Boǧa, (2019). In Sub-Saharan Africa, FDI has been one of the major sources of cross-border investment inflows World Bank, (2014). According to research by Jugurnath, Chuckun, and Fauzel (2016), FDI significantly affects the economies of Sub-Saharan Africa and is considered a source of economic growth through increased employment, income, and modernization Anyanwu, (2012). FDI inflows to Sub-Saharan Africa have remained high since the turn of the millennium and even after the 2008 global financial crisis, rising from a modest USD18 billion in 2004 to USD98 billion in 2013 UNCTAD, (2013). However, in 2015, this amount dropped to USD54 billion UNCTAD, (2016). The 2015 global economic crisis had a significant negative impact on weak economies, especially those in Sub-Saharan Africa, as foreign investors withdrew their capital due to the decline in investment profit and the global oil shock, which caused severe decline in economies dependent on natural resources such as Nigeria and Angola, UNCTAD, (2018).

The FDI experience of Africa is contradictory to the share of economic growth in African countries as in the past ten years, the amount of foreign direct investment FDI received by Africa declined as a proportion of global foreign direct investment (FDI) despite yielding high returns of 11.1% compared to regions such as Asia and Latin America, Odusola,(2018). The labour force and natural resource endowments of Africa appear insufficient to draw investment capital. Other factors include low institutional capital, low human and public capital (infrastructure), weak judicial system, weak property rights, political instability, corruption, low absorptive capacity to manage shocks, and high interest rates, Odusola (20,18). Nevertheless, since the start of the twenty-first century, the inflows to poor countries have significantly increased, reaching USD 706 billion (54% of overall investment in Africa) in 2018, up from USD 24 billion (24% of total investments) in 1990 UNCTAD, (2019). Research has attempted to explain this growth through a variety of different variables (Anyanwu, 2012; Asongu & Odhiambo, 2020; Obeng *et al.*, 2021; Odugbesan *et al.*, 2022; Opoku *et al.*, 2019), such as greater infrastructure needs, lower income levels, and smaller market sizes. Moreover, due to the region's geopolitical tensions and COVID-19, expectations grew as FDI inflows were

predicted to return in 2022 after declining in 2019 and 2020, UNCTAD, (2022).

Despite the frequently highlighted negative aspects of FDI, data from UNCTAD (2019) shows that considerable inflows had accompanied recent economic growth in Africa. Even while FDI decreased overall by 11% from 2019 to 2020, falling to USD 28 billion, states including Nigeria, South Africa, Ethiopia, Senegal, Rwanda, and Mozambique were predicted to revive quickly as top FDI-receiving countries in Sub-Saharan Africa (UNCTAD, 2020). Additionally, the optimism around economic integration might create long-lasting and fair riches through industrialization, employment, macroeconomic stability, and the spread of innovation (Asongu & Odhiambo, 2020; Obeng *et al.*, 2021; Odugbesan *et al.*, 2022; Opoku *et al.*, 2019). Following a lackluster investment climate in 2022, it is anticipated that the flows of FDI into Africa will rise in 2023, as mining and gas projects will be the top priorities, Mitchell, (2022). . Based on UNCTAD (2022), FDI to African nations reached a record USD 83 billion in 2021, a significant recovery for the continent following a severe decrease in 2020 brought on by the Covid-19 pandemic. This was more than twice as much as what was disclosed in 2020. Although the continent experienced strong growth in 2021, only 5.2% of worldwide FDI in 2020 went to Africa, up from 4.1% (Mitchell, 2022). While FDI increased moderately in most African nations, the year 2021 reported that approximately 45% of the total was attributable to one indigenous firm financial transaction in South Africa. Additionally, although the year 2022 do not give account of official foreign direct investment report, experts assert that individual evidence suggests that 2022's inflows were less than 2021's as a result of the depreciating international economic background and security condition (Mitchell, 2022).

However, some scholars suggest that the constrained Russian supply of gas and oil to European countries has been encouraging investors in Europe to pay closer attention to Africa (Mitchell, 2022). As a result, this study focuses on fifteen selected West Sub-Saharan African countries, who received a large share of the region's FDI (31.3% in 2018) but have experienced less economic progress of recent. In addition, studying West Sub-Saharan Africa, which has the highest population density in Sub-Saharan Africa, is essential since anything that negatively impacts this region can have repercussions for the entire continent or even the whole world. Thus, this study proposes and seek answers to questions of "Does FDI matter for economic growth of Sub-Saharan African countries? "Is there relationship between FDI and economic growth of fifteen West Sub-Saharan African countries in the short-term and long-term? Do interest rates and exchange rates effect on both the FDI

and economic growth of fifteen West Sub-Sharan African countries in the short-term and long-term? Furthermore, multiple studies investigating the connection between foreign direct investment and economic growth in Sub-Saharan African countries have produced conflicting results. Most of these studies either focus on the entire region or just one country, exclusively analyzing the short-term unidirectional relationship utilizing ordinary least square and generalized method of moments techniques. Additionally, no studies have made a clear-cut point of how a bidirectional significance can help the establishment of this relationship, nor concluded as to what types of FDI and policies best suit these countries and should be adopted to enhance growth and avoid resource exploitation for self-interested purposes. Therefore, in contribution to previous research on this same issue, and for motivation, this study fills the gap by analyzing the connection between FDI and economic growth of fifteen West Sub-Saharan African countries in the short-term and long-term. It also analyzes the effect of both interest rates and exchange rates on FDI and economic growth of the selected countries in the short-term and long-term from 1990 to 2020. Finally, it also stands out as one of the few studies to analyze this relationship in both directions for these nations using a panel vector error correction model (VECM), and is one of the few studies that considers the effect of interest rates and exchange rates on both parameters.

Lastly, the contribution of this literature is as follows: to help academics and other researchers, especially in the field of economics, to determine the advantages for policymakers and analysts of monitoring changes in macroeconomic fundamentals and economic growth for attracting FDI. The results of the study will have significant policy repercussions, particularly for fiscal and monetary policies, and will help to solve problems of slow economic growth to a low proportion of FDI in fifteen West Sub-Saharan African countries and other developing countries with the same situation.

2. Literature Review

The initial transaction and ongoing capital transfers between resident entities in one country and firms in another are referred to as FDI (OECD, 2008). As stated by (Dinh, Vo, and Vo 2019), experts from all over the world are very interested in the connection between FDI and economic growth. In the past few decades, developing countries, especially those in Sub-Saharan Africa, have been trying hard to attract FDI because they have a lower level of domestic capital accumulation and hope that FDI would have a good ripple effect (Farole and Winkler, 2014). Additionally, FDI

boosts the economies of recipient countries by transferring knowledge, fostering the development of human capital, creating jobs, increasing competitiveness, and enhancing export capabilities (Makiela and Ouattara, 2018). Malchow, Markusen, and Schjerning (2013) assert that there are three distinct causes for large wage premiums wherein an increased production of employees in foreign firms gain from better training, more advantageous experiences, and the development of new ideas. According to neoclassical theory (Iamsiraroj & Ulubaşoğlu, 2015; Reiter & Steensma, 2010), FDI improves technological development, increases labour force growth, and stimulates economic growth in the host country. As a result, FDI plays an increasingly important role in developing countries as the main source of foreign finance for these countries (UNCTAD, 2017).

There are three main types of investments - market-seeking, resource-seeking, and efficiency-seeking – and depending on which of these investments a person makes, different considerations should be taken into account (Dunning, 1993). For instance, access to raw materials, low-cost labour, or natural resources (such as gas, oil, and minerals) in the host nation is the primary driver of resource-seeking FDI. The aspect of investments in the host country will be a significant draw, particularly for multinational corporations considering investments in the industrial sector for export reasons. Increased Official Development Assistance (ODA) has long been promoted by the United Nations (UN) as a means of financing poor countries' economic growth, with an emphasis on Africa (Addison *et al.*, 2013; Anguelov & Martin, 2018). We are conscious of the importance of this source of funding for poor countries, yet FDI is a bigger source of funding than ODA in Africa. Increased FDI is encouraged by the Millennium Declaration, especially in Africa, as it is crucial for developing countries owing to its positive effects on technology and job development (Anguelov & Martin, 2018; Asiedu, 2006).

Politicians are aware that FDI might improve technological development in the host country, create jobs, and overall benefit (Abbas *et al.* 2011; Adofu 2010; S.O. M and Agnes 2014). FDI has been the most significant source of capital flow for increasing private loans, state development assistance, and portfolio equity investment in developing countries (Wajid, 2017). To address budgetary shortfalls, foreign financial inflows offer an alternative source of funding (Jain & Arya, 2015). In settings of constrained domestic resources, FDI in developing countries can be justified by the impacts on economic growth, poverty reduction, the inflow of financial resources, opening up to foreign markets, and improving local management capabilities and technology transfer (Tiwari, Aviral, and Mutascu, 2011). However,

multinational organizations that produce for host countries have a detrimental effect on the development of domestic entrepreneurship since they compete with local small businesses, which usually shut down (Sothan, 2017). Due to their contribution to technology and skills, which are essential to industrialization, FDI offers a vector of industrial growth, which is the first step to achieving sustainable growth (Jie and Shamshedin, 2019). Furthermore, multinational corporations effectively contribute to economic growth when they help countries build their economies to take advantage of their comparative advantages as demonstrated by their factor endowments (Pineli, Narula, and Belderbos, 2019). By creating new jobs, introducing cutting-edge technology, and identifying management, organization, communication, and marketing techniques, FDI helps countries' investment bases expand and contributes to the reduction of unemployment (Hamoudi and Aimer, 2017).

FDI is a useful tool for obtaining access to foreign currency and raising the amount of physical capital in the host countries (Hamoudi and Aimer, 2017). However, foreign investors may introduce technology that is incompatible with the conditions created by the high unemployment rates in developing countries, which is a way in which FDI can reduce the economic growth of those countries. The existing empirical research on the relationship between FDI and economic growth is not conclusive. Therefore, using recent developments in econometric modeling, this has been utilized as the beginning point for academics and decision-makers to further analyze this relationship (Asghar, Nasreen, and Rehman, 2012).

2.1. Factors of Interest Rate and Exchange Rate Affecting Both FDI and Economic Growth Relationship

2.1.1. Interest Rate

According to Brand and Bielecki (2018), one of the main factors influencing savings and investment is the interest rate. This is true for individuals as well as for countries. The cost of borrowing or profit on lending is what is referred to as the interest rate. An increase in interest rates typically encourages people to save more money. However, an increase in the interest rate also raises the cost of capital, which discourages investment in a given country. When borrowing rates rise, both businesses and individuals will reduce their expenditures (Blanchard, 2019). Interest rates have an impact on economic growth (Haidery, Shokuri, and Mohsen, 2021), and economies grow more quickly when interest rates are reduced. As consumers can buy more goods and make more investments in businesses due to the low lending rates, the economy benefits. However, the research of

(Nwagu, Imoagwu & Nwoba, 2022) found that real interest rates have no impact on investment in the nations of the West African Monetary Zone.

2.1.2. Exchange Rate

The exchange rate, which has a significant influence on capital flows, is both the most significant adjustment mechanism in international trade and the most significant signal for resource allocation in the global market. Additionally, internal connections with diverse economic activities including investment, consumption, pricing, money supply, foreign exchange reserves, employment, international trade, and capital movements have significant influence on economic growth of a nation. Due to its importance for economic growth, the study of exchange rates has raised concerns (Han, 2020).

2.2. Empirical Review

Based on the conclusions of many scholars, the findings of prior empirical studies on FDI influence on economic growth are disputed and debatable. Prior empirical investigations, including (Isaac and Simplice, 2022), investigated whether the massive FDI inflow into Sub-Saharan Africa assists in the region's inclusive growth. The findings of the generalized method of moments estimator reveals that FDI promotes inclusive growth in Sub-Saharan Africa, although the effect is limited. Meanwhile, using a threshold regression framework to investigate how FDI impact economic growth in Sub-Saharan African countries, (Ibhagui, 2020) discovered that FDI stimulates economic growth once Sub-Saharan Africa countries have attained particular threshold levels of inflation, population growth, and financial market development.

(Makiela and Ouattara, 2018) utilized the system generalized method of moments, while (Joshua and Babatunde, 2021), used pooled ordinary least square, fixed effects, random effects, and system generalized method of moments in their study in Sub-Saharan Africa. According to the above-mentioned research, FDI boosts economic growth. In Ethiopia, (Mohd, 2021) undertook research using the vector autoregressive model. They determined that both in the short and long run, FDI had a favorable and considerable influence on economic growth. (Dinh, Vo, & Vo, 2019) examined developing countries between 2000 and 2014 using VECM and FMOLS. According to their results, FDI slows down economic growth temporarily but helps it later on. (Adegboye *et al.* 2020) looked at how FDI affected the growth of the Sub-Saharan Africa economies. Following the application of the fixed and random effects models, the study concluded that FDI has a significant role in affecting the pace of growth in Sub-Saharan Africa. However, quantile

regressions are used by (Khobai *et al.* 2018) to analyze the association between FDI and economic growth in South Africa from 1970 to 2016. The findings indicate that whereas FDI has little effect at the top quantiles, it has a large detrimental effect at the lower extreme quantiles.

2.3. An Overview of GDP and FDI of Fifteen West Sub-Sharan African Countries

Nigeria has by far the largest economy in West Africa, accounting for 76.9% of the region's GDP. At the start of 2020, Nigeria produced more than two million barrels of oil every day, with the oil industry's share of the nation's GDP reaching 7.5% in the third quarter of 2021 (Statista, 2022). Ghana, which has West Africa's second highest GDP, reduced inflation from 17% in 2016 to 7.2% in 2019. Mining (bauxite, gold, diamond, aluminum, and manganese) and agriculture (coconut, cocoa, cashew, and coffee) have been the top drivers of growth. All West African nations sit below the 111th rank (out of 144 economies for significant development performance), with Mauritania and Guinea having two of the five poorest performances. Except for Ghana (114), which is rated at the top of the list of 189 nations in the (World Bank 2015) Doing Business ranking, all West Sub-Saharan African countries were below 140 (Appendix 1, Total GDP of Fifteen (15) West Sub-Sharan African Countries 1990 to 2020).

The top four recipients of FDI in the fifteen West Sub-Saharan Africa Countries between 1990 and 2013 were Nigeria (57.5%), Ghana (12.4%), Cote d'Ivoire (4.8%), and Mauritania (3.4%). The majority of these nations are producers and exporters of fossil fuels and metals, with their combined inflows accounting for more than 80% of all inflows. The oil production in Ghana and Côte d'Ivoire, for instance, lure significant investment from foreign transnational corporations in 2013, including Royal Dutch Shell, ExxonMobil, China National Offshore Oil Company, China National Petroleum Corporation, and Thailand's and India's state-owned petroleum companies. Nigeria, the largest oil producer in the subregion, was the exception. Among the top four, the top two recipients were the smaller economies of Mauritania (4.2%) and Cape Verde (2.9%).

3. Research Methodology

3.1. Types and Sources of Data

The World Development Indicator was used to obtain secondary panel data for this study's fifteen West Sub-Saharan African countries: Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Mali, Mauritania,

Niger, Nigeria, Senegal, Sierra Leone, and Togo. Indicators were documented for the period from 1990 to 2020 (World Bank, 2022). Additionally, grouped panel data were collected and integrated into a Microsoft Excel interface. The panel data variant used in this study is categorized as heterogeneous dynamic panel data (N < T) and the lagged dependent variables are included as regressors. Although there are sixteen countries in West Sub-Saharan Africa, only fifteen were included, as data for Liberia is limited (with GDP data missing for 1990 to 2000).

3.2. Definitions of operating variables

The following definitions are all in line with World Bank definitions. GDP: The total gross value added to the economy from all resident producers, less any incentives not reflected in the value of the goods. This figure includes any applicable commodity taxes (GDP). Data are shown in present US dollars. FDI: Direct stock flows made by foreign investors in the reporting economy. These direct investments are a type of abroad investment when a resident of one economy has significant control or influence over the management of a business or owns 10% or more of the voting common shares of a company headquartered in another. The data is annually expressed in present US dollars as its unit of currency. Interest rate (INTRATE): The loan rate is the bank interest rate that typically satisfies the private sector's short- and medium-term financing requirements. This rate is typically determined while taking into account the borrower's credit position and financing goals. However, the restrictions and circumstances associated with these rates vary throughout nations, making it difficult to compare them. The data is displayed as percentage rates. Exchange rate (EXRATE): The term 'official exchange rate' refers to the exchange rate decided by national authorities or the rate established in the officially recognized exchange market. It is estimated as a yearly average based on monthly averages (local currency units to US dollars).

3.3. Tests

This study utilized several tests to present the empirical evidence of the findings. Tests employed include the panel unit root test to test for stationarity of the data collected, optimal lag length selection to determine the lag duration, panel cointegration test to assess whether or not a cointegrating vector between variables exists if a series of order one is integrated, and panel Granger causality to examine if one variable has an impact on another. The impulse response function is used to calculate how one standard deviation of one variable radically affects the present and future value of another variable in the VECM set of equations and forecast error variance decomposition is employed to established the percentage

of each variable's prediction error variation that exogenous shocks to the other variables may account for.

3.4. Empirical Method

This study used a descriptive quantitative research method and a regression statistic, preferably EViews 10.0, to offer the statistical bidirectional relationship between FDI and the economic growth of fifteen West Sub-Saharan African Countries. The GDP, FDI, exchange rate, and interest rate are the factors that are tested for this study. Since GDP and FDI are employed as endogenous variables and show a bidirectional relationship in both the short-run and the long-run, the conclusion will be taken from these findings. On the other hand, interest rates and exchange rates are control variables that point to both short- and long-run factors impacting GDP and FDI. The VECM was employed in this investigation to the model of interest, as in the study of (Dinh, Vo, & Vo, 2019). Through VECM, we can provide an interpretation of long-term and short-term equations simultaneously. The advantage of using VECM is that the representation has more efficient coefficient estimates. The model can describe the link between endogenous variables' dynamic behavior and help escape the problem of spurious relationship. This technique can only be used for I(1) variables when the initial differences of the underlying variables are known. The research uses the vector error correction technique to further examine causality because the underlying series might not be stable. It is required to pre-test the cointegration (long-run equilibrium) relationship between the variables before using the error correction technique to determine causation. The VECM specification in equations (3.3) and (3.4) below carry out an empirical assessment of the causality between FDI and economic growth after taking into consideration thorough research and using GDP as a measure of economic growth:

GDP = F(GDP, FDI, INTRATE, EXRATE)........(1)
GDP = F (FDI, GDP, INTRATE, EXRATE)........(2)

$$\Delta GDP_{it} = \alpha_1 + \sum_{j-1}^{p-1} \theta_{1j} \Delta GDP_{it-j} + \sum_{j-1}^{p-1} \theta_{2j} \Delta FDI_{it-j} + \sum_{j-1}^{p-1} \theta_{3j} \Delta INTRATE_{it-j} + \sum_{j-1}^{p-1} \theta_{4j} \Delta EXRATE_{it-j}$$
$$+ \lambda ECT_{it-1} + \mu_{it} ....(3)$$

$$\Delta FDI_{it} = \alpha_2 + \sum_{j-1}^{p-1} \delta_{1ij} \Delta FDI_{it-j} + \sum_{j-1}^{p-1} \delta_{2ij} \Delta LOGGDP_{it-j} + \sum_{j-1}^{p-1} \delta_{3ij} \Delta INTRATE_{it-j} + \sum_{j-1}^{p-1} \delta_{4ij} \Delta EXRATE_{it-j}$$
$$+ \lambda ECT_{it-1} + \mu_{it} ....(4)$$

Where "t" is time, "p-1 and q-1" are the optimal lag length, "α_1 and α_2" are the restricted constant, the number of lags is represented by "j", the countries

are represented by "i" and ($\theta_1 \theta_2 \theta_3 \theta_4 \ \& \ \delta_1 \delta_2 \delta_3 \delta_4$) are parameters to be estimated. While μ_t are typical disturbance terms that have a finite variance and zero mean. GDP is nominal GDP measured in billions of USD, FDI is FDI measured in million USD, INTRATE is interest rate measured in percentage rate, EXRATE is exchange rate measured in local currency units to the USD that were previously defined above. The simultaneously rejection of the null hypotheses leads to the inference of a bidirectional Granger causal link between foreign direct investment (FDI) and economic growth (GDP). The simultaneously acceptance of the null hypotheses, on the other hand, suggests that there is no causal connection between these two variables. Moreover, Δ is the operator difference and ECT_{t-1} is the error correction term obtain from the long-run cointegrating connection between the I(1) process $GDP_{i,t}$ and $GDP_{i,t}$. The residuals from the cointegrating regression will be used to estimate these terms.

4. RESULT AND DISCUSSION

4.1. General Description

Since the early 1990s, the economy of West Sub-Saharan Africa has grown quickly. Nigeria, Ghana, and Côte d'Ivoire contributed a quarter of Africa's GDP in 2020. Since 2000, West Sub-Saharan Africa's total GDP has increased from USD 105 billion to more than USD 659 billion. However, there are growing disparities in many West African countries between the wealthy and the poor, particularly when it comes to access to essential services such as health, water, and education (Cathy and Davies, 2021). West Africa had the least impressive economic performance in 2016 out of the five African regions, showing how the average growth performance of the continent is sensitive to changes in a few large countries (African Development Bank, 2016). Moreover, growth dropped in 2016, averaging around 0.5%. The 2016 downturn was broad, with Nigeria seeing negative GDP, although others, such as Côte d'Ivoire, saw a very high growth of about 9%. Due to the size of Nigeria's economy to the area, the average for West Africa fell significantly overall (African Development Bank, 2018). The economic activity of West African countries grew unevenly in 2020, with an overall underperformance across states compared to 2019. Most of the economies in the region grew, with Guinea's growth in 2020 (5.2%) just slightly less than its growth in 2019 (5.6%). Contrarily, Cape Verde saw the worst decline in economic growth (-14%) after growing by 5.7% in 2019.

West Africa received the largest share of FDI in the African region in the 1970s and early 1980s. However, the region has seen a 15% decline since 2006, from USD

11 billion to USD 9.6 billion in 2018, in the most improbable way possible due to a reduction in inflow to certain countries below the average level of investment. With a 31.3% of share of the global FDI, the West African sub-region profited the most from overall FDI, followed by the North African sub-region at 29.1%. Over 60% of total FDI for all African countries was invested in West and North Africa. This suggests that the two sub-regions contributed more than the combined share of the other three sub-regions. However, the West African sub-region is now seeing a disappointing fall in FDI intake (UNCTAD, 2018). This was primarily caused by a considerable decline in the flow to Nigeria for the second consecutive year, as a result of the two major oil producers on the continent, Nigeria (-36 % to USD 2.2 billion) and Angola (a net divestiture), experiencing minimal flows (UNCTAD, 2019). Nigeria is no longer the leading beneficiary of FDI in West Africa after its inward FDI fell by 43% to USD 2 billion. (UNCTAD, 2019) also notes that despite FDI inflows declining by 8% to USD 3 billion, Ghana has overtaken Nigeria as West Africa's top FDI recipient (Appendix 1, Total Average FDI and Average GDP of 15 West Sub-Saharan from 1990 to 2020).

4.2. Regression Results

The descriptive data exhibits that the fifteen West Sub-Saharan African countries' GDP grew by an average of roughly USD 2 billion over the study period, which may be regarded as a low rate of economic growth in comparison to global average. Conversely, across the research period, FDI has averaged USD 4 million. This suggests that the selected fifteen West Sub-Saharan African countries' pace of FDI growth is moderate for the growing economy. The interest rate on FDI averages 14%, which makes sense for fair credit in a nation, while the exchange rate is USD 792, which is what would be expected given free economic conduct. The highest GDP is USD 5.5 billion, while the lowest is USD 2 billion. FDI growth ranges from USD 8.8 million to USD -8.4 million. Furthermore, it is indicated that all four variables of GDP, FDI, interest rate, and exchange rate mirror positive skewness and are Leptokurtic. Considering the Jarque Bera value and P-value of all four variables as the null hypothesis is rejected, it can be concluded the variables are not normally distributed (Appendix 1, Table Descriptive Statistics of Raw Data).

4.2.1. Panel Unit Root Test for Stationarity

Looking at a probability value of 5% statistical level of significance, all variables (GDP, FDI, INTRATE, EXRATE) indicate non-stationary characteristics at level form, I(0), for Levin, Lin & Chu t*. However, at the level form I(0) for the ADF test, FDI and INTRATE are statistically significant at the 5% level, but GDP and EXRATE are

not, and PP test which is not the prioritized option as shown in Table 4.2, hence the null hypothesis of non-stationarity is rejected. However, the panel unit root test demonstrates indications of stationarity when the Levin, Lin & Chu t*, ADF, and PP tests are performed to the first difference, I(1) as shown in Table panel unit root (Appendix 1). Therefore, we conclude that all model variables are first-order integrated.

4.2.2. Optimal Lag Length Selection

There are five lag length selection models, which are listed in Table optimal lag length selection in Appendix 1: the Akaike information criterion (AIC), the Hanaan-Quinn Criterion (HQC), the Likelihood ratio test statistics (LR), the Schwarz Criterion (SC), and the Final prediction error (FPE). In the VECM for this investigation, the maximum lag 2 has been chosen and fixed in Table 4.3 below following the lag exclusion test. However, the lag will be reduced to 1 as the rule of VECM indicates (P-1) when running VECM regression to satisfy the lag condition of the VECM.

4.2.3. VAR Stability Test

The stability of the VAR system implies stationarity. It is also referred to as Stationarity Condition. Considering Figure 4.2 VAR Stability test and Table VAR stability test (Appendix 1), it indicates that all inverse roots of the characteristic AR polynomial have a modulus less than one (< 1) and lie inside the unit circle. Thus, it can be inferred that the estimated VAR is stable. We can concur that the model has no problem with unit root or stationarity (the variables are stationary).

4.2.4. Panel Cointegration Test

The cointegration trace and max-eigenvalue test indicate that there are two (2) cointegration equations as the null hypothesis is rejected at 5% level of significance. The trace statistic 59.20103 at none**, which is higher than the critical value of 0.0000 at a 5% level of significance, and the trace statistic 6.773555 at most 1** which is higher than the critical value of 0.0092 at a 5% level of significance, indicates that the Johansen cointegration test exhibits cointegration between the variables (GDP and FDI) endogenous variables influenced by (INTRATE and EXRATE) exogenous variables with the selected maximum lag order of (2) in the model. The variables have a long-run cointegrating connection at most 1 long-run normalized cointegration, in other words. Further confirmation of the long-run cointegrating coefficients comes from the eigenvalue of 0.640657 at none** and 0.135250 at most 1**, which is much higher than the 5% level of significance. This research then goes on to estimate the VECM for the relationship (nexus) between FDI and economic growth in the fifteen West Sub-Saharan African countries once

a long-run connection has been established in Table panel cointegration test (Appendix 1).

4.2.5. Panel Granger Causality Test

FDI does Granger cause GDP and GDP does Granger cause FDI, based on Table Granger causality test (Appendix 1), as the null hypothesis is rejected based on the statistical level of significance 5%. From FDI to GDP relationship indicates a P-Value less than 5% level of significance and from GDP to FDI relationship indicates a P-Value less than 5% level of significance. Therefore, it can be concluded that there is a bidirectional (two-way causation) relationship between FDI and economic growth in the fifteen West Sub-Saharan African countries.

4.2.6. Panel VECM Result

The coefficient sign in the long-run normalized co-integrating result implies a reversed outcome, indicating that a negative result will have a positive long-run effect and a positive result will have a negative impact, shown by Table Panel VECM (Appendix 1). Because FDI has a coefficient of (-121.1563), we can infer that a rise in FDI will lead to a long-run increase in GDP because the coefficient of FDI is in negative form and the reverse version of the result will be interpreted even though both endogenous variables are influenced by the effects of both exogenous variables (INTRATE and EXRATE) in the short-run. Additionally, this increase is significant because FDI's t-statistics value is far greater than 1 regardless of the sign, and based on statistical level 5% respectively. Moreover, we can concur that a 1 USD increase in FDI would result in a 121.2% rise in the GDP of the fifteen West-Sub-Saharan African nations, and the increase is significant according to the t-statistics of -14.9361 (14 > 1). In other words, there is a positive or beneficial long-run relationship between FDI and the economic growth of fifteen West Sub-Saharan African countries which is so important despite the effect of both interest rate and exchange rate in the short-term.

C(1), which represents the error correction term (ECT_{t-1}), is negative and significant at a 5% level of significance, as it satisfied the condition necessary for the errors to be corrected in the model indicated by Table Panel VECM (Appendix 1). It demonstrates the long-run causal relationship between FDI and GDP influenced by exogenous variables INTRATE and EXRATE. The capacity to return to equilibrium is estimated to be around 58% from FDI to GDP influenced by INTRATE and EXRATE as indicated by the first error correction term (ECT_{t-1}) or speed of adjustment exhibiting that all errors are corrected at a speed adjustment of 58%. Based on the results, C(7) which represent the second error term (ECT_{t-1}) is positive and significant at

5% level of significance which theoretically fulfils the purpose of convergence. It demonstrates the long-run causal relationship between FDI and GDP influenced by exogenous variables INTRATE and EXRATE. The capacity to return to equilibrium is estimated to be around 0.15% from GDP to FDI influenced by INTRATE and EXRATE. As it is theoretically indicated that to reach convergence or long-run equilibrium, it is necessary for one of the VECM equation error corrections (ECT_{t-1}) to be in positive form. It is also clarified that the first equation of the VECM error correction must be negative and statistically significant as indicated by the VECM and OLS results in Tables Panel VECM and OLS (Appendix 1).

Furthermore, to restore equilibrium or convergence, GDPit needs to be decreased and FDIit needs to be increased in the next period. It indicates that the prior deviation of GDP from long-run equilibrium is rectified at a speed adjustment of 58% per year, so in around thirty years it will be in line with long-run equilibrium. It is evident that the GDP represented by C(2) in the first lag period has a positive significant impact on its economic growth for the next year in the short-term or the past realization of GDP is associated with an increase of 0.24 USD on itself in the short-run on average ceteris paribus, and GDP in the first lag period represented by C(8) has a significant positive relationship with FDI. Additionally, a 1 USD increase of GDP is associated with an increase of 0.06 USD in FDI in the short-run ceteris paribus. On the other hand, FDI in the first lag period represented by C(3) has a significant negative relationship with GDP in the short-run, and a 1 USD increase in FDI in the first lag period is associated with a decrease of -3.50 USD in GDP ceteris paribus. FDI in the first lag period represented by C(9) has an insignificant negative impact on itself in the short-run, or the past realization of FDI in the first lag period is associated with a decrease of -0.08 USD on itself in the short-run on average ceteris paribus.

Furthermore, INTRATE represented by C(5) has an insignificant negative influence on GDP in the short-run, and a 1 USD increase in INRATE is associated with a decrease of -7097846 USD in GDP in the short-run ceteris paribus. For FDI, as represented by C(11), it has an insignificant positive influence in the short-run, and a 1 USD increase in INTRATE is associated with an increase of 151440.3 USD in FDI in the short-run ceteris paribus. EXRATE, as represented by C(6) has an insignificant negative influence on GDP in the short-run, and a 1 USD increase in EXRATE is associated with a decrease of -224120.3 USD in GDP in the short-run ceteris paribus. As for FDI, as represented by C(12), it has an insignificant negative influence on FDI in the short-run, and a 1 USD increase in EXRATE is associated

with a decrease of -224120.3 USD in the short-run ceteris paribus. The R-square from FDI to GDP influenced by the effect of INTRATE and EXRATE indicates that 31 USD of these variables explain the research work of FDI relationship with economic growth (GDP) of fifteen West Sub-Saharan African countries with one lag period, which includes how FDI affect economic growth under the effect of interest rate and exchange rate, while the remaining percentages may include other parameters that may influence economic growth of fifteen West Sub-Saharan African nations or more lag periods to be included (Tables panel VECM and OLS in Appendix 1).

On the other hand, the R-square from GDP to FDI influenced by the effect of INTRATE and EXRATE indicates that 18.4% of the variables explain the research work of the economic growth (GDP) of the fifteen West-Sub-Saharan African countries' relationship with FDI which include how the economic growth affect FDI influenced by the effect of interest rate and exchange rate, while the remaining percentages may include other parameters that may influence FDI's relationship and the economic growth of fifteen West Sub-Saharan African countries or more lag periods to be included (Tables panel VECM and OLS in Appendix 1). Therefore, this indicates that, the FDI to economic growth (GDP) relationship is more significant than from economic growth (GDP) to FDI despite the influence of both interest rate and exchange effects to explain the research using this model. We can concur that this model is the best fit for policy implications and possible solutions for the issue in this study.

Both Wald test tables in Appendix 1 exhibits that there exists a short-run causality running from FDI represented by C(3) to GDP represented by C(2), and the relationship is influenced by the effect of both INTRATE represented by C(5) and EXRATE represented by C(6) in the short-run as determined by the value of F-statistic (18.93855), the value of Chi-square (113.6313) and the probability value showing for each parameter, with F-statistic and Chi-square less than 5% statistic level of significance. Likewise, from GDP (8) to FDI's (9) relationship was influenced by the effect of both INTRATE (11) and EXRATE (12) in the short-run as determined by the value of F-statistic (9.060068) and Chi-square (54.36041) and the probability value showing for each parameter, with F-statistic and Chi-square less than 5% level of significance. Thus, the null hypothesis is rejected and implies that there is a short-run relationship between FDI and economic growth of the fifteen West Sub-Saharan African countries influenced by interest rate and exchange rate.

Given that the direction of causation between the two series is from FDI towards

GDP, it is determined from the VEC Granger Causality Test findings table (Appendix 1) that there is a two-way causality connection in the short-term. FDI Granger causes GDP in the short-term, as p-value is less than 5% level of significance that rejects the null hypothesis; likewise, GDP Granger causes FDI in the short-run, as p-value is less than 5% level of significance that rejects the null hypothesis. This illustrates that at the same time, more FDI and economic growth were occurring in fifteen West Sub-Saharan African nations in the short term. As of a fact, it means that FDI is a parameter that significantly affects economic growth based on their relationship in fifteen West Sub-Saharan African countries in the short run. Likewise, the economies of the countries significantly affect the influx of FDI and the rate of returns yielded by foreign investors in those respective countries in the short-term.

4.2.7. Impulse Response Function Analysis

Figure impulse response function in appendix 1, indicates that the response of GDP to FDI based on innovations from Cholesky One S.D. (d.f. adjusted), the impulse response function (IRF) analysis reveals that a one-time positive shock to FDI leads to a permanent increase in GDP. In other words, a one-time 1% increase in FDI leads to a permanent increase in GDP of 2.6E+10 USD. Therefore, it can be inferred that there is a positive relationship between FDI to GDP permanently or over long period (20 periods) and continues to exist as the slope trend upwards continuously. We can concur that the FDI relationship is positive at a 1 USD shock increase to economic growth of fifteen West Sub-Saharan African nations in the 1st period at 0.0E+00 USD till the 20th period as it continues to trend upwards.

On the other hand, the response of FDI to GDP based on innovations from Cholesky One S.D. (d.f. adjusted), the IRF reveals that a one-time positive shock to GDP leads to a permanent increase in FDI. A one-time 1% increase in GDP leads to a permanent increase in FDI of 2.28e+08 USD. Therefore, it can be inferred that there exists a positive relationship between GDP to FDI permanently or over a long period (2 periods) and continue to exist in a stable state, but with a bit sharp decrease throughout the other periods (from the 3rd to 17th periods), but gain more stability throughout the three last periods (from 18th to 20th) We can concur that the fifteen West Sub-Saharan African countries economic growth relationship is positive at 1% shock increase to FDI in the 2nd period at 2.28e+08 USD, a stable but a bit sharp decrease from the 3rd period to 17th period, then continue to exist in the more stable state from 18th period till 20th periods and so on.

In conclusion, the shock response of GDP to FDI effects via their relationship has

a longer period of positive relationship, (as the slope in PART A of the Figure trends upwards continuously from the 1st period to the 20th period) than the shock response of FDI to GDP which is 2 periods of positive relationship and a constant state, but a bit sharp decrease from the 3rd period to 17th period (fluctuation), and gain more stability throughout the last three periods (from the 18th period to 20th period). We can concur that FDI contributes greatly and significantly to fifteen West Sub-Saharan African countries' economic growth for a longer period, rather than the countries' economic growth contribution to FDI or foreign investors, as the slope trends upwards, indicating the response of the economic growth of these countries to FDI impact or interaction.

4.2.8. Forecast Error Variance Decomposition Analysis

Figure forecast error variance decomposition in appendix 1 indicates that there are 20 periods. The short-run period is categorized from year 1 to year 4, and the long-run period is categorized from year 5 to year 20. In the short-run, specifically in year 1, 100% of forecast error variance decomposition on GDP is explained by the variable itself in the model; therefore, other variables do not have a strong influence on GDP. Hence, we can concur that other variables have a strong exogenous impact on GDP. This means that FDI does not influence GDP in year 1. In year 2, FDI's (0.78%) influence on GDP is barely 10%. In this case, FDI has strong exogeneity (weak influence) in predicting GDP in year 2. The cases of years 3 and 4 varies, as the years exhibit rates of 4.3% and 9.12%, which is barely 10% in the short run as the figures continuously rise in the long-run (future) influence of their relationship. Furthermore, considering the long-run exogenous impact of FDI on GDP, it indicates that the figures constantly increase from year 5 (14.15%) to year 20 (48.56%). This indicates a significant increase in the percentage figures of FDI's influence on GDP over the long term.

On the other hand, in the short-run, specifically year 1, 98.4% of forecast error variance decomposition on FDI is explained by the variable itself in the model, meaning other variables do not have a strong influence on FDI. Hence, we can concur that other variables have a strong exogenous impact on FDI. This means that GDP (1.63%) does not influence FDI in year 1 in the short run. Considering year 2, the influence of GDP (16%) on FDI is more than 10%, meaning GDP has strong exogeneity (weak influence) in predicting FDI in year 2 in the short run. Years 3 to 4 vary, exhibiting rates of 22% and 24.9%, which indicates a moderately strong influence in the short-run, as the figures grow throughout the future.

Furthermore, considering the long-run exogenous impact of GDP on FDI,

the figures continuously increase from year 5 (26.7%) to year 20 (33.67%). This indicates a less significant increase in the percentage figures of GDP's exogenous impact on FDI over the long-run periods of year 5 to year 20. In comparison between the influence or exogenous impact of FDI on GDP, and from GDP on FDI, we can concur that FDI's exogenous impact on GDP has a significant increase during the respective periods of year 1 (short-run) to year 20 (long-run). This simply means the contribution of FDI to the economic growth of fifteen West Sub-Saharan African countries is greater than that of economic growth's contribution to lure more FDI to the region.

4.2.9. Panel FMOLS Test for Robustness Check

The panel FMOLS in appendix 1 is used for a robustness check to obtain strong evidence and confirmation of the key findings of this study (panel VECM and OLS models). Furthermore, the result is consistent with that of panel VECM and OLS models. Firstly, it exhibits a long-run cointegrating relationship between both variables as this serves as the main purpose of the panel FMOLS model. Secondly, it shows that FDI is positively significant to the economic growth of fifteen West Sub-Saharan African countries in the long-term as the coefficient is in positive form regardless of difference value and significant at 5% level, wherein the null hypothesis is rejected. For simple interpretation, any 1 USD increase in FDI leads to an increase of 21.42 USD in the GDP of the fifteen countries on average ceteris paribus in the long-run. Therefore, the outcome of the panel FMOLS regression strongly provides confirmation of the main findings of the panel VECM and OLS models.

4.2.10. Panel ARDL Test for Robustness Check

By the result obtained from the panel ARDL used for robustness check in appendix 1, it can be inferred that the result provides strong evidence and confirmation of the main findings of this study. There exists a bidirectional long-run and short-run relationship between FDI and the GDP of fifteen West Sub-Saharan African countries. Moreover, the result obtained from the panel ARDL is consistent with that of the panel VECM result, exhibiting a positive and significant long-run relationship between FDI and GDP, as the coefficient is in positive form and significant at 5% level, which clarifies rejection of null hypothesis. Additionally, the error correction term(ECT_{t-1}) attests that there exists a long-run convergence between both variables, as the coefficient is in negative form and is statistically significant at a 5% level, also consistent with the panel VECM and OLS outputs. Nevertheless, the short-run estimate exhibits that at the first lag period and first

difference of FDI impact on the countries' GDP is negatively insignificant, wherein the coefficient is in negative form and insignificant at 5% level of significance, as the null hypothesis cannot be rejected. However, this varies slightly from the main results (panel VECM and OLS estimates), as both models' regression results indicate a negatively significant impact on their relationships in the short-run. Therefore, the outcome of the panel ARDL regression provides concrete evidence and confirmation of the main findings.

4.3. Discussion

The model's output provides an accurate depiction of the relationship between FDI and the economic growth of fifteen West Sub-Saharan African nations from 1990 to 2020, taking into account the effects of interest rates and exchange rates. Furthermore, despite the early influence of interest rate and exchange rate, FDI has a positive and significant relationship with the economic growth of the fifteen countries in the long-run, which explicates FDI's crucial contribution in the respective economies. This can be attributed to the fact that FDI plays an increasingly important role in developing countries as the main source of foreign finance for these countries (UNCTAD, 2017), by transferring knowledge, encouraging the growth of human capital, creating jobs, raising competitiveness, and improving export capacities (Makiela and Ouattara, 2018).

Furthermore, economic growth in these fifteen West Sub-Saharan African nations is beneficial and crucial in luring FDI in both the short and long-term. Prioritization should be given to the processes and circumstances required to encourage this reciprocal link between the two criteria. Even with factors like poor infrastructure, small markets, widespread corruption, uncertain legal systems, political unpredictability, low absorptive capacity, and high energy costs, the Sub-Saharan African region as a whole produced the highest rate of returns in 2018 (11.1%) when compared to Asia and Latin America (Odusola 2018; Jaiblai and Shenai 2019). Consequently, this forces the region to put all practicable measures in place to attract more inbound FDI, including easing restrictions on foreign investment, promoting policies, and creating an environment that is supportive of foreign investment.

One-tenth of all FDI in Africa was invested in Nigeria. To promote inward investment, the Nigerian Investment Promotion Commission was founded in 1995. The commission, made up of 27 governmental and parastatal bodies, facilitates new business startups by reducing red tape. In Nigeria, foreign investors typically

receive the same treatment as domestic investors, including the availability of tax benefits. FDI increased to a maximum of 78 projects in 2013 before gradually dropping until 2018. The African Continental Free Trade Area Secretariat had its official launch in Ghana in August 2020. By announcing plans for three rail projects totaling US$12.9 billion, the administration has also established infrastructure development targets by Agenda 2063 of the African Union and the Sustainable Development targets of the UN.

Furthermore, promoting private investment and accelerating economic growth are two goals of Côte d'Ivoire's 2021 to 2025 National Plan of Development. Since 2017, significant changes have been made to guarantee political stability and promote a favorable economic climate (Cathy and Davies, 2021). Additionally, a report from UNCTAD (2022) attests to the vital contribution that FDI stimulates growth in the economies of these fifteen West Sub-Saharan African countries, wherein it is stated that FDI in West Africa surged by 48%, reaching US$14 billion in 2022. Nigeria saw a doubling of its flows to USD 4.8 billion, mostly as a result of rising gas output and revived interest in oil. International project finance contracts in the country climbed to USD 7 billion due to a number of significant residential and commercial real estate developments. For instance, the building of an industrial complex with a refinery, an international airport, an industrial park, and a free trade zone was part of the USD 2.9 billion Escravos Seaport project. A USD 436 million cement factory built by Ciment d'Afrique in Morocco and a USD 850 million gold mining facility built by Newmont Corp are two examples of extractive industry projects that boosted FDI to Ghana by 39% to USD 2.6 billion. FDI to Senegal increased significantly by 21% to USD 2.2 billion, and the nation saw an increase in greenfield project announcements of 27%. In Benin, the government is working to enhance the economic climate and allure for foreign investment. To streamline investment inquiries, Benin replaced the three prior entities by establishing the Agency for the Promotion of Investments and Exports. Additionally, it introduced an online window that makes business registration procedures simpler and entirely digital, and a new law that will make public-private partnerships easier to form has been passed and is predicted to draw more FDI. The government also unveiled a five-year, USD 15 billion Government Action Plan (2016-2021), which is divided into 45 major initiatives, 95 sector-based initiatives (with a focus on infrastructure, agriculture and agribusiness, tourism, health, and education), and 19 institutional reforms (Lloyds Bank, 2023).

Burkina Faso promotes FDI by providing financial and legal advantages, such as

allowing foreign companies to possess 100% of the stock in a local business. The country's economy supports commerce, and its infrastructure is seen as being in acceptable shape. Following the success of the Bagré Reservoir, the development of three new growth centers is anticipated to spark new endeavors and draw investments. The government is interested in investigating possible oil extraction locations. Following the Houndé and Netiana mines, the nation plans to develop the Tambao deposit, which has an estimated 55 million tons of manganese thanks to the largest manganese reserve in the world with a USD 1 billion market value. Moreover, tax reductions and other incentives are also used to entice foreign investment (Lloyds Bank, 2023).

Based on the World Bank's 2020 Doing Business report, Cape Verde is ranked 137th out of 190 countries, down six places from the previous year. Expansion in public works, tourism, and fishing has produced new opportunities. Despite the lack of investor interest, the government has continued to carry out its privatization program and resolved to improve electricity infrastructure while lowering taxes and administrative requirements. Additionally, the regulatory framework and incentives are luring tourist investors and significant new projects, although there is space for improvement. Therefore, national and foreign investors are given equal protection under the Investment Law and the Law of Industrial Development. Cape Verde was taken off the European Union's 'blacklist' of tax havens in February 2020 (Lloyds Bank, 2023).

The Gambia provides tax breaks, clear and uncomplicated procedures, and great potential in the travel and re-export industries. The country's government has been seeking to increase foreign investment in the nation since Adama Barrow was elected as the president in 2017. Most investments are centered in the tourist and agro-food industries. Moreover, the government has designated several industries as priority sectors that are eligible for a Special Investment Certificate, which offers several benefits like tariff and tax exemptions. There is no discrimination against foreign investors under The Gambia's laws or customs. Therefore, the state encourages firm formation through the National Entrepreneurship Policy to diversify the economy. The nation's key benefits are favorable tax laws, straightforward processes, and a promising future for tourism (Lloyds Bank, 2023). Moreover, to establish itself as a center in West Africa for global investors, Ghana holds the Ghana Investment Summit every year. Through fee exemptions, targeted loans, and public-private partnerships, the COVID-19 Alleviation and Revitalization of Enterprises Support (CARES) initiative, a USD 16

billion program over 2020 to 2024, aims to attract investment to the agribusiness, fertilizer, automotive assembly, aluminum, and steel sectors.

In Ghana, the government has been working to streamline its complicated and long-term procedures while simultaneously providing tax advantages. Ghana is one of the most democratic nations in Africa, and it has a sizable and reasonably priced labor force, good agricultural base, wealth of natural resources, and reliable institutions. Therefore, it has one of the most liberalized equity ownership policies in the region. Lastly, dematerializing the legal, tax, and company registration processes is one of the major ongoing changes, and the process of issuing operating licenses, building permits, and IDs is being automated and digitalized. A plan to improve the performance of the electricity industry was initiated in addition to these measures (Lloyds Bank, 2023).

In Guinea in 2020, the amount of FDI in the country grew to USD 5.1 million. Most foreign investment goes into the Guinea's mining industry because of the nation's substantial reserves of bauxite, gold, diamonds, and iron ore. A group of investors in 2020 that included Singaporean, Chinese, and French companies, as well as the Guinean government, secured a 25-year concession to develop the Simandou iron ore resources in exchange for a USD 16 billion investment. Additionally, the government wants to expand spending in some industries, including infrastructure, tourism, energy (600 MW of potential hydroelectricity), agriculture (nearly 13 million hectares of arable land), and energy. A single desk has been established to register new enterprises, the time needed to obtain a building permit has been cut down, and import processes have been streamlined to enhance the business climate. In addition to these changes, the nation's abundant natural resources are a significant asset to draw in investors (Lloyds Bank, 2023).

In Guinea Bissau, most foreign investors are drawn to offshore oil exploration. and the tourism industry, particularly in the Bijagos Islands. Low interest rates and monetary mass expansion have encouraged investment. Additionally, the nation's natural wealth and the government's initiatives to diversify the economy are further advantages. The government's first objective is to boost foreign investment in the two industries that constitute the backbone of the economy: agriculture and energy. Over the past ten years, China has increased its investment in Guinea-Bissau, and, with the help of the China International Fisheries Corporation, a canning factory and fish distribution network were developed. Chinese corporations are now investing in bauxite and real estate, and the legislation handles local as well as foreign investment equally (Lloyds Bank, 2023).

Foreign investors continue to appreciate the Ivorian economy, one of the most robust in the Economic Community of West African States. The country garnered USD 1.38 billion in FDI inflows in 2021 (UNCTAD 2022), a significant increase from the USD 713 million obtained in 2020 in the backdrop of the worldwide health and economic crises. Investments are mostly targeted at the financial sector and the extractive sectors, and the goal of the National Plan of Development (2021–2025) is to make private investment the primary driver of economic growth in the nation. A program of dematerialization of services and administrative activities has been implemented to improve business. The political atmosphere has stabilized and the nation has implemented significant changes, such as the adoption of a new constitution and the establishment of a Senate, which have improved the business environment (Lloyds Bank, 2023).

In Mali, the government has recently implemented FDI promotion policies to foster competition and private sector involvement in almost all sectors, with a focus on the following ones: agribusiness, fishing and fish processing, livestock and forestry, mining and metallurgical industries, water and energy, tourism and hospitality industries, communications, housing development, transportation, human and animal health, vocational and technical education and foreign businesses have the option to individually bargain for special incentives (Lloyds Bank, 2023).

With firms like Kinross Gold and First Quantum Minerals investing in gold and copper mining projects, the mining industry of Mauritania has experienced tremendous investment in recent years. France, which has long maintained close political and economic connections with Mauritania, accounts for the bulk of FDI in the nation. China (which has been displaying gradually growing interest in Mauritania), the United Arab Emirates, and Canada are other significant investors in the country. Several green hydrogen projects have been announced for 2022, but the main one is Australian CWP Global's Aman, a 30-gigawatt-GW wind and solar hybrid project estimated to cost USD 40 billion. To entice new investors, the nation is attempting to highlight its advantageous geographic position, as it has a lot of mineral and fisheries resources as well as gas and renewable energy possibilities. There are no legal restrictions on foreign investment in any area of the economy, and both domestic and foreign businesses are permitted to carry out all types of lucrative operations, except those involving the sale of pork or alcoholic beverages (Lloyds Bank, 2023).

By 2023, it is anticipated that Niger would be able to export oil thanks to

China National Petroleum Corporation's building of a 2,000-kilometer pipeline. Furthermore, by extending the credit bureau's operations and beginning to publish information on utility firms, Niger has significantly increased access to credit information. To increase investment, the government has begun improving the registration and transfer of title deeds, strengthening the system for resolving disputes relating to the execution of contracts, and revising the application process for building permits. Adopting a new investment law, lowering the amount of startup capital needed, and enhancing water availability are all initiatives to promote investment and strengthened its anti-corruption program (Lloyds Bank, 2023).

Based on data from the Bank of Nigeria, the total amount of capital importation into the nation in the second quarter of 2022 was USD 1.5 billion, up from USD 875.62 million in the same period of 2021, a rise of 75.34%. Furthermore, 9.58% of the total capital imported, or USD 147.16 million, was from FDI; the largest investor was the UK, accounting for 50.8% of the total, followed by South Africa (8%) and Singapore (9%). By creating a competitive manufacturing sector, which should make it easier to integrate into global value chains and increase productivity, Nigeria aims to diversify its economy away from the oil industry. Nigeria's goal to efficiently coordinate across these three crucial sectors to strengthen its trading and investment climate is shown in the merger of trade, industry, and investment under the authority of the Federal Ministry of Industry, Trade, and Investment. The economy is largely privatized, the tax structure is favorable, there are abundant natural resources, and labor is relatively inexpensive. These are some of the key benefits of the nation. Therefore, most industries allow foreigners to acquire 100% of the company, except companies dealing with weapons and ammunition, drugs, and military equipment. As a one-stop shop for investors, the Nigerian Investment Promotion Commission has the authority to negotiate exclusive incentives for large and strategic investments (Lloyds Bank, 2023).

The Senegalese government is actively pursuing a plan to encourage FDI inflows. According to UNCTAD's 2022 report, FDI inflows into Senegal increased by 21% to USD 2.23 billion in 2021 from USD 1.85 billion in 2020. The number of greenfield project announcements increased across the country by 27%. The overall value of Senegal's FDI was USD 10.5 billion by the end of 2021, due to increases in investments in both conventional and renewable energy. Additionally, Senegal started developing offshore oil and gas fields in 2020. The primary undertaking is the SNE Oil Field, which is being developed 100 kilometers south of Dakar by a

consortium made up of Woodside Petroleum (Australia), Cairn Energy (UK), FAR (Australia), and Petrosen (Senegal). The Emerging Senegal Plan, which aims to strengthen the country's infrastructure, power, agriculture, drinking water, and health, has been associated with FDI inflows since 2014. Senegal aims to form new hydrocarbon-related businesses including petrochemicals, pharmaceuticals, fertilizers, and a significant number of gas-to-power projects associated with the mining and automobile sectors. Moreover, contracts for the exploitation of natural resources, the management of Dakar's port, and the disposal of waste have all been signed by foreign companies. Other significant projects include the regional express train between Dakar and the new Blaise Diagne airport (French companies Engie and Thales Group), phase 1 of the Grand-Tortue Ahmeyim gas and Sangomar oil fields (Coface), and the USD 1.1 billion deep-water port of Ndayane (UAE group DP World).The government is working to modernize the labor market, make it easier to access land, enhance the system of commercial justice, lessen the administrative burden of regulations, and strengthen the basis for competition with the aid of the Business Environment and Competitiveness Reform Program (PREAC III) (IMF). To facilitate the expansion and acceleration of the execution of key projects, a new framework for public-private partnerships has also been devised. No businesses managed or controlled by foreign investors are subject to legal discrimination, and there are no limitations on foreign investors controlling 100 percent of businesses in the majority of industries. Reasonable manufacturing prices, a competent labor force, a strategic position, solid local and global political connections, and a competitive economy are just a few of Senegal's advantages (Lloyds Bank, 2023).

Through public-private partnerships, Sierra Leone is attempting to raise investment for significant infrastructure projects, particularly in the areas of power, water, roads, ports, and telecommunications. Due to its substantial mining wealth, lack of arbitrary discrimination against foreign businesses, and restrictions on the repatriation of revenues and the sale of assets, Sierra Leone is a suitable location for FDI, assured by a new investment code. A hospital, a hydroelectric dam, thousands of hectares of rubber production (worth USD 1.3 billion, funded by China Hainan Rubber Group), 135,000 hectares of rice cultivation, stadiums, roads, bridges, an electrical project, a fishing harbor, and various mines are currently being funded by China, which has increased its influence in Sierra Leone (Kingho Group is involved in a USD 6 billion mining project complex). A unit of the French Bolloré Group will invest USD 87 million in various pieces of auxiliary infrastructure in Freetown and

USD 120 million in a new port. The Marampa iron mine will be put into operation by the US company SL Mining, and a large-scale poultry farm for the production of commercial eggs will be built in collaboration with the South African Integrated Solutions Africa Group by the Israeli company Agrotop (a USD 60 million project). Due to the resolution of the Kingho and Gerald Group issues, it was anticipated that the country's reputation will improve in 2021, Lloyds Bank (2023).

Around USD 242 million worth of foreign investments was made in Togo, primarily by Indian, Singaporean, and Chinese investors in the construction, agri-food, mechanics, and services sectors. Phosphates, cotton, infrastructure, coffee, and cocoa are the industries that often draw the greatest investment from abroad. A free trade zone exists in Togo, which has attracted over 60 businesses and more than 12,000 workers. Investments may increase as a result of the June 2021 opening of the Adetikiopé industrial platform, which specializes in processing and exporting natural resources. Moreover, Togo has put into place a plan to digitalize and automate the processes for paying taxes and starting businesses, the establishment of a single investment window, a reduction in the minimum capital requirement for forming a business, and a decrease in the cost of getting a building permit. Therefore, Togo's government has emphasized the need for the nation to improve its business environment to draw in more FDI. Foreign investors are given the same privileges as domestic ones, up to a point, and the Investment Code was enacted in 2019. The latter mandates equitable treatment for both Togolese and foreign businesses and investors, as well as unfettered management, unrestricted financial flow, and respect for private property. The export-free zones provide the bulk of benefits, such as a tax exemption for the first 10 years (and a rate of 15% from the eleventh year) to businesses based there (Lloyds Bank, 2023).

Nevertheless, the maximum benefit of FDI contributes to the economic growth of these fifteen West Sub-Saharan African countries goes to the extractive industries (mostly oil and gas). This can be attributed to the case of the 'Dutch Disease' wherein the development of the economies of these respective countries is associated with one sector (natural resources) while harming other sectors that are being ignored that are also macroeconomic fundamental parameters that determine the growth of their economies. For instance, the case of Nigeria, which has the largest percentage of both GDP and FDI in the region. The Nigerian government and general public prefer to invest in the petroleum industry because it offers a rapid return on investment over the agricultural and solid mineral sectors, which provide only modest returns. Globally, the markets for oil and

products derived from it were more attractive than those for products not derived from it (Onuoha and Elegbede, 2018). However, one effect may be an increase in an economy's real exchange rate brought on by a rise in exports following a resource boom, often known as Dutch disease. Nigeria has abundant natural resources, yet there has been little real economic progress (Onuoha and Elegbede, 2018). As a result of raw material discoveries, the exogenous growth in the available gross national income may be the cause of this price increase. Despite being generally viewed as a blessing, such short-term gains can have a detrimental effect on the economy over time.

However, in the case of Ghana, with the region's second largest economy and FDI, based on the established standards for determining the prevalence of Dutch Disease, the study reveals that Ghana's real effective exchange rate typically declined. Therefore, the reduction was also observed in comparison to 2012, when it significantly declined versus the US dollar. As a result, there is no appreciation in the Ghanaian cedi, which would indicate that the Dutch disease is present, and regarding the effect of resource migration, the oil industry's high capital requirements have made it less accessible to indigenous business owners (Nchor *et al.*, 2015). For Sierra Leone, as one of the countries with less economic growth and FDI in the region, but rich in natural resources such as diamonds, the country did not experience Dutch Disease from 2002 to 2011, but there is a high risk that it will in the future, depending on the nation's capacity to control trade, diversify exports, and expand the services sector (Ma, 2017).

Nevertheless, it also proves the point that, although FDI is necessary to some extent, earlier periods or temporary entries and establishments harm their economic growth. FDI has had a severe and detrimental effect on domestic investments and their markets in these fifteen West Sub-Saharan African nations because they are less competitive to compete against FDI, which are primarily export-based industries with more power to dominate the markets and tend to become monopolize firms instead and tend to cause an increase in labor costs to rise, in line with Sothan 2017; Hamoudi and Aimer 2017;who all argued that FDI could jeopardize the development of host countries because it would compete with local small businesses, many of which would shut down, harm domestic entrepreneurship, raise the cost of labor, and put pressure on local companies that are not export-based, leading to monopolized industries.

The findings of this study respond to the first and subsequent research questions ("Does the relationship between FDI and economic growth of Sub-Saharan African

countries matters?" and "What is the relationship between FDI and economic growth of fifteen West Sub-Saharan African countries?") The objective of this study is accomplished. Additionally, this shows that the relationship between FDI and GDP is initially (or temporarily) negative even though it makes a significant contribution to the economic growth of the respective countries. On the other hand, the relationship is beneficial and essential in the future as its contribution can help boost the growth of the economies of these fifteen West Sub-Saharan African countries, despite the influence of both interest rates and exchange rates at the early stages. Similarly, there is a bidirectional relationship between FDI and the economic growth of the studied countries, and this interaction results from both directions of the two parameters at the expense of the effects of the interest rate and exchange rate. The research also responds to the third research question ("What is the effect of both interest rate and both exchange rates on the relationship between FDI and the economic growth of fifteen West Sub-Saharan African countries?") Based on the result obtained from the model, it clarifies that the effect of both interest rates and exchange rates varies. As for economic growth, the effect of interest rate is negatively insignificant but positively insignificant to both FDI and the economic growth of the fifteen countries within the estimated periods.

This may be explained by the fact that information from the (World Bank, 2022) shows a sequence of numbers indicating that from 1990 to 2020, interest rates in these fifteen West Sub-Saharan African nations decreased steadily as a percentage of their total interest rates. Firstly, according to Brand and Bielecki (2018), one of the major factors influencing saving and investment is the interest rate. In general, a rise in interest rates encourages people to save more money. The cost of capital also rises with an increase in interest rates, which discourages foreign. Furthermore, it can be argued that interest rate risk has increased as a result of banks' exposure to sovereign risks and their use of short-term funding from the Central Bank of West African States, which exposes banks to an increase in short-term policy rates. Banks are vulnerable to decreased intermediation profits if interest rates rise, such as in response to increasing inflation, because securities portfolios have relatively long maturities compared to bank resources (including a larger reliance on short-term borrowing from the Central Bank of West African States (IMF, 2022). This study can also be connected to that of (Nwagu, 2022), which showed that real interest rates in the member countries of the West African Monetary Zone had no impact on either investment or growth, as these

countries, particularly Ghana and Gambia, needed to cut their real interest rates to attract investment. This is because an increase in nominal interest rates in this scenario would deter investors due to the high cost of capital. It is anticipated that the adoption of ECO currency in West Africa will increase bilateral trade among its member states.

Odusola (2018) highlighted the relationship between interest rates and economic growth, stating that high financial intermediation costs (interest rate) hinder FDI inflows. On the other hand, exchange rate stability is crucial for both rich and emerging nations to achieve their macroeconomic policy objectives, and its significance cannot be overstated (Zoramawa, Ezekiel, and Kiru, 2020). According to. In addition, the actual exchange rate has significantly decreased over the past three decades.

The bulk of these West Sub-Saharan African countries' actual exchange rates also varied a much during that period. The results of Moye (2020) showed the value of keeping track of exchange rate movements as a crucial element in formulating effective monetary policy. Additionally, this result illustrated how the primary factors driving economic growth in West African states are identified. However, some findings point to the possibility that the exchange rate may negatively affect economic growth in many countries, particularly those with low rates of capital accumulation and technological advancement and high import dependence (Moye, 2020).

This is because the exchange rate volatility in many West African countries makes them less attractive to FDI. Additionally, the impact of exchange rate volatility affects FDI because the domestic currencies of most developing countries tend to react negatively. Additionally, the per capita incomes of these countries are too low to effectively entice investment into sectors that will benefit the host countries. A key feature of FDI in the studied fifteen West Sub-Saharan African nations is the neocolonial nature of such flows. Most of these countries are safeguarded by global capitalist powers that have holdings there and are driven to exert control over the trade and resources of their former colonial masters.

Despite the nations being officially autonomous and not being subject to the political autonomy of the colonial powers, the ruling classes are in deliberate alliances with the leading foreign capitalists for the exploitation of the nations' resources and human capital for mutual profit. This dishonest relationship, which usually takes the form of millions of hard currencies hidden away in foreign institutions, contributes nothing to the economies in question. The ruling classes

are eager to advance the interests of their colonial partners under the guise of furthering national interests for self-serving and disloyal reasons.

Regardless, the fifteen West Sub-Saharan African nations studied here have excellent prospects for economic growth. From this study, it is evident that nations with high economic growth like Nigeria, Ghana, Cote d'Ivoire, Senegal, and Mali attract more FDI than nations with stagnant economies. The results of this study's tests of impulse response and forecast error variance decomposition analysis demonstrate a strong relationship and interaction in the early and future periods. We can thus agree that provided the proper processes are in place, FDI can strengthen and increase future growth rather than just serve as a transitory foundation for establishment. Therefore, the results of this study are in agreement with those of Dinh, Vo, & Vo 2019 and Nwagu, 2022, showing that while FDI capital flows can have a negative impact on economic growth in the short term, they can also be beneficial in the long run. This study's conclusion, however, contrasts with research conducted by Isaac and Simplice (2022), Asongu and Odhiambo (2020), Jugurnath, Chuckun, and Fauzel (2016), Mohd (2021), Makiela and Ouattara (2018), and Joshua and Babatunde (2021).

5. Conclusion and Policy Implications

In this study, the relationship between FDI and economic growth in West Sub-Saharan African nations is examined. Additionally, it examines the effect of interest rates and exchange rates on the relationship between FDI and economic growth in the same nations. This study uses secondary panel data from the World Bank (2022) and includes fifteen West Sub-Saharan African nations over the period 1990-2020.

Previous studies on the relationship between FDI and economic growth in Sub-Saharan African nations have produced contradictory results. This is because the majority of these studies either concentrate on the region as a whole or just one country, and they only analyze the unidirectional relationship over the short- and long-term using ordinary least square and general method of moments method techniques with little consideration of the effects of interest rates and exchange rates. The panel unit root test for stationarity, the optimal lag length selection test, the panel cointegration test, the panel granger causality test, the impulse response analysis, and the forecast error variance decomposition were all used in this work.

Nevertheless, the main approach employed to examine the relationship between FDI and economic growth of the fifteen West Sub-Saharan African

nations while accounting for exchange rate and interest rate effects was panel VECM. To avoid spurious regression findings that can be deceptive, panel OLS, FMOLS, and ARDL were also used for a robustness check to confirm the conclusion obtained. The empirical finding may thus be summed up as follows. First, despite the influence of both interest rates and exchange rates, there is a short-term negative and significant relationship between FDI and economic growth in the fifteen West Sub-Saharan African countries. However, this relationship is positive and significant over the long term. Likewise, there is a bidirectional relationship between economic growth and FDI attraction that is positive and significant in both the short and long terms.

Second, the effects of interest rates and exchange rates vary. The fifteen West Sub-Saharan African nations' economic growth is negatively but insignificantly affected by interest rates, whereas it is positively but insignificantly impacted by FDI. Furthermore, there is negative but insignificant impact of exchange rates on both economic growth and FDI.

Overall, we can agree that economic development is essential to attracting FDI and that long-term economic growth is highly dependent on FDI, particularly in developing and rising nations. Additionally, to boost domestic investment, it is essential to support initiatives that promote investment in emerging lower middle income countries.

In order to attract FDI, government policy of host countries should aim to enhance the quality of labor resources and labor skills. Highly-skilled employees are needed to utilize the innovations and promote a positive spread of technology, since FDI nearly always involves the introduction of new technologies. The study also suggests that monetary and fiscal policies both need to be taken into account. Plans to attract FDI should be devised with a long-term view to maximizing the positive effects of FDI in the economies of these fifteen West Sub-Saharan African countries. The economies of these countries will not benefit in the long run from policies that prioritize obtaining FDI in the short term at all costs. Therefore, to truly benefit from FDI, developing countries with lower middle incomes should make an effort to attract it. Additionally, the governments of these fifteen West Sub-Saharan African nations should plan out ways to offer tax incentives to promote FDI into each of their respective nations to support economic growth.

However, it is in the best interests of these nations to forbid FDI that is resource-based from solely extracting natural resources and exporting them for processing into finished goods. Instead, market- and efficiency-driven FDI that can aid in the

production and transformation of raw materials into finished goods in the host country should be encouraged, as this would assist that country switch from being an exporter of raw materials to one of finished goods. To compete with FDI, the government of these fifteen West Sub-Saharan African nations must safeguard the right of domestic investment, provide domestic investors with numerous incentives, and support them greatly through the provision of subsidies. Secondly, it is suggested that governments of these fifteen countries implement FDI rules that are comparable to those described in Indonesian Regulation No. 49 of 2021, which address FDI openness and cooperation programs with small and medium enterprises. It may also be advantageous for policymakers in West Sub-Saharan African countries to adopt policies that will encourage gas energy investment, following the increases in gas prices as a result of Russian invasion of Ukraine, causing Europe and the US to turn their energy attention to Africa. Therefore, FDI host countries in the region, especially Nigeria, must benefit to strengthen their economies under the control of clear-cut policy measures to prevent exploitation. Thirdly, it is recommended that the Central Bank of West African States introduce and establish the use of a single currency (ECO) across all of the nations in West Sub-Saharan Africa to eliminate international transaction costs and mitigate the issue of exchange rate volatility and subsequent currency depreciation. The Central Bank is advised to adopt a policy that will implement measures to reduce or moderate interest rates of these fifteen West Sub-Saharan African countries to encourage FDI and adopt a flexible exchange rate system.

6. Recommendations

Despite the important results of this study, it is first advised that future researchers use more recent data, since the data used in this study are restricted to the years 1990 to 2020. Second, to gain a more specific and verified result on the issues at hand, it is advised that future researchers cover all sixteen West Sub-Saharan African countries. It would also be more beneficial to conduct a cross-regional analysis between the various regions in Sub-Saharan Africa. Finally, it is advised that to prevent conflicting results from spurious regression output, future researchers should use appropriate models comparable to the one used in this study and updated statistical software.

REFERENCES

Abbas, Q., Akbar, S., Shan, A., Nasir, A., Ullah, H., & Naseem, M. (2011). Impact of Foreign Direct Investment (FDI) inflow on Gross Domestic Product (GDP) of India — an Empirical study. *Global Journal of Management and Business Research, 11*(8), 34–40.

Addison, T., Singhal, S., & Tarp, F. (2013). *WIDER Working Paper No . 2013 / 144 Aid to Africa The changing context.*

Adegboye, F. B., Osabohien, R., Olokoyo, F. O., & Matthew, O. (2020). Institutional quality, foreign direct investment, and economic development in sub-Saharan Africa. *Humanities and Social Sciences Communications*, 1–9. *https://doi. org/10.1057/s41599-020-0529-x*

Adofu. (2010). Accelerating Economic Growth in Nigeria, the Role of Foreign Direct Investment: A Re-assessment. *Current Research Journal of Economic Theory, 5*(4), 71–81. https://doi.org/10.19026/crjet.5.5527

African Development Bank, 2018. (2018). *West Africa Economic Outlook West Africa Economic Outlook.*

Anguelov, N., & Martin, H. (2018). Foreign Aid vs . Foreign Direct Investment : Which Leads to Equitable Benefits? *76th Annual MPSA Conference, International Political Economy Section, The Politics of Foreign Aid, April 5.*

Anyanwu, J. C. (2012). Why does foreign direct investment go where it goes?: New evidence from African countries. *Annals of Economics and Finance, 13*(2), 425–462.

Asghar, N., Nasreen, S., & Rehman, hafeez ur. (2012). Review of Economics & Finance Relationship between FDI and Economic Growth in Selected Asian Countries : A Panel Data Analysis. *Review of Economics and Finance, March 2012*, 84–96.

Asiedu, E. (2006). *Foreign Direct Investment in Africa : The Role of Natural Resources , Market Size , Government Policy , Institutions and Political Instability.*

Asongu, S. A., & Odhiambo, N. M. (2020). Foreign direct investment, information technology and economic growth dynamics in Sub-Saharan Africa. *Telecommunications Policy, 44*(1). https://doi.org/10.1016/j. telpol.2019.101838

Blanchard, B. O. (2019). *Public Debt and Low Interest Rates †. 109*(4), 1197–1229.

Boğa, S. (2019). Determinants of Foreign Direct Investment: A Panel Data Analysis for Sub-Saharan African Countries. *EMAJ: Emerging Markets Journal, 9*(1), 80–87. https://doi.org/10.5195/emaj.2019.175

Brand, C., & Bielecki, M. (2018). *Occasional Paper Series. 21.*

Dinh, T. T., Vo, D. H., & Vo, A. T. (2019). *Foreign Direct Investment and Economic Growth in the Short Run and Long Run : Empirical Evidence from Developing Countries.*

Dunning, J. H. (1993). *Multinational Enterprises and the Global Economy, Second Edition. Foreign direct investment (FDI) in the Ivory Coast - International Trade Portal.* (n.d.). RetrievedMay 1, 2023, from https://www.lloydsbanktrade.com/en/market-potential/ivory-coast/investment?vider_sticky=oui

Haidery, J., Shokuri, Z., & Mohsen, A. (2021). *Assessing the Determinants of Symbolic Consumption in Afghanistan. February.*

Hamoudi, M. E., & Aimer, N. (2017). The Impact of Foreign Direct Investment on Economic Growth in Libya. *International Journal of English Literature and Social Sciences, 2*(6), 144–154. https://doi.org/10.22161/ijels.2.6.22

Han, Y. (2020). *The Impact of Exchange Rate Fluctuation on Economic Growth. 146*(Isbcd 2019), 29–33.

Iamsiraroj, S., & Ulubaşoğlu, M. A. (2015). Foreign direct investment and economic growth: A real relationship or wishful thinking? *Economic Modelling, 51*, 200–213. https://doi.org/10.1016/j.econmod.2015.08.009

Ibhagui, O. (2020). *How does foreign direct investment affect growth in sub-Saharan Africa ? New evidence from threshold analysis. 47*(1), 149–181. https://doi.org/10.1108/JES-06-2018-0198

Illy, O., & Ouedraogo, S. (2022). West African Economic and Monetary Union. *The Political Economy of Bank Regulation in Developing Countries: Risk and Reputation, 22*, 174–195. https://doi.org/10.1093/oso/9780198841999.003.0007

International Monetary Fund. (2014). West African Economic and Monetary Union (WAEMU): Staff Report on Common Policies for Member Countries. *IMF Staff Country Reports, 13*(92), 1. https://doi.org/10.5089/9781484368688.002

Isaac, K., & Simplice, A. (2022). *Repackaging FDI for Inclusive Growth : Nullifying Effects and Policy Relevant Thresholds of Governance.*

Jaiblai, P., & Shenai, V. (2019). The determinants of FDI in sub-Saharan economies: A study of data from 1990– 2017. *International Journal of Financial Studies, 7*(3). https://doi.org/10.3390/ijfs7030043

Jain, M., & Arya, J. (2015). Role Of Foreign Capital In Economic Development Of India. *Abhinav-International Monthly Refereed Journal Of Research In Management & Technology, 4*, 33– 41.

Jason Mitchell. (2022, September 30). *Mining leads Africa hopes of a strong 2023 for FDI - Investment Monitor.* https://www.investmentmonitor.ai/features/mining-and-gas-lead-fdi-africa-2023/

Jie, L., & Shamshedin, A. (2019). The Impact of FDI on Industrialization in Ethiopia. *International Journal of Academic Research in Business and Social Sciences, 9*(7), 726–742. https://doi.org/10.6007/ijarbss/v9-i7/6175

Joshua, U., & Babatunde, D. (2021). *Sustaining Economic Growth in Sub-Saharan Africa : Do FDI Inflows and External Debt Count?*

Jugurnath, B., Chuckun, N., & Fauzel, S. (2016). Foreign Direct Investment & Economic Growth in Sub-Saharan Africa: An Empirical Study. *Theoretical Economics Letters, 06*(04), 798–807. https://doi.org/10.4236/tel.2016.64084

Khobai, H., Hamman, N., Mkhombo, T., Mhaka, S., Mavikela, N., & Phiri, A. (2018). The FDI-Growth Nexus in South Africa: A Re-Examination Using Quantile Regression Approach. *Studia Universitatis Babes-Bolyai Oeconomica, 63*(3), 33–55. https://doi.org/10.2478/subboec-2018-0013

Lloyds Bank. (2023, April). *Foreign direct investment (FDI) in Benin - International Trade Portal.* https://www.lloydsbanktrade.com/en/market-potential/benin/investment?vider_sticky=oui

Llyods Bank. (2023a, April). *Foreign direct investment (FDI) in Burkina Faso - International Trade Portal.* https://www.lloydsbanktrade.com/en/market-potential/burkina faso/investment?vider_sticky=oui

Llyods Bank. (2023b, April). *Foreign direct investment (FDI) in Ghana - International Trade Portal.* https://www.lloydsbanktrade.com/en/market-potential/ghana/investment?vider_sticky=oui

Llyods Bank. (2023c, April). *Foreign direct investment (FDI) in Mauritania - International Trade Portal.* https://www.lloydsbanktrade.com/en/market-potential/mauritania/investment?vider_sticky=oui

Llyods Bank. (2023d, April). *Foreign direct investment (FDI) in Nigeria - International Trade Portal.* https://www.lloydsbanktrade.com/en/market-potential/nigeria/investment?vider_sticky=oui

Llyods Bank. (2023e, April). *Foreign direct investment (FDI) in Senegal - International Trade Portal.* https://www.lloydsbanktrade.com/en/market-potential/senegal/investment?vider_sticky=oui

Llyods Bank. (2023f, April). *Foreign direct investment (FDI) in Togo - International Trade Portal.* https://www.lloydsbanktrade.com/en/market-potential/togo/investment?vider_sticky=oui

Llyods Bank. (2023g, April). *Investing in Cape Verde - International Trade Portal.* https://www.lloydsbanktrade.com/en/market-potential/cape-verde/investing?vider_sticky=oui

Llyods Bank. (2023h, April). *Investing in Gambia - International Trade Portal.* https://www.lloydsbanktrade.com/en/market-potential/gambia/investing?vider_sticky=oui

Llyods Bank. (2023i, April). *Investing in Guinea-Bissau - International Trade Portal.* https://www.lloydsbanktrade.com/en/market-potential/guinea-bissau/investing?vider_sticky=oui

Llyods Bank. (2023j, April). *Investing in Guinea - International Trade Portal.* https://www.lloydsbanktrade.com/en/market-potential/guinea/investing?vider_sticky=oui

Llyods Bank. (2023k, April). *Investing in Mali - International Trade Portal.* https://www.lloydsbanktrade.com/en/market-potential/mali/investing?vider_sticky=oui

Llyods Bank. (2023l, April). I*nvesting in Niger - International Trade Portal.* https://www.lloydsbanktrade.com/en/market-potential/niger/investing?vider_sticky=oui

Llyods Bank. (2023m, April). *Investing in Sierra Leone - International Trade Portal.* https://www.lloydsbanktrade.com/en/market-potential/sierra-leone/investing?vider_sticky=oui

M, S. O., & Agnes, K. N. (2014). *Real Output Effects of Foreign Direct Investment in Nigeria. 2*(1), 1–7. https://doi.org/10.12691/jbe-2-1-1

Ma, B. D. (2017). Diamonds and Dutch Disease: A Case Study of Sierra Leone. *Indian Journal of Economics and Business, 10*(2–3), 203–219. http://proxy.library.carleton.ca/login?url=http://search.proquest.com/docview/901298110?accountid=9894%5Cnhttp://wc2pu2sa3d.search.serialssolutions.com/?ctx_ver=Z39.88-2004&ctx_enc=info:ofi/enc:UTF-8&rfr_id=info:sid/ProQ:econlit&rft_val_fmt=info:ofi/fmt:k

Makiela, K., & Ouattara, B. (2018). Foreign direct investment and economic growth : Exploring the transmission channels. *Economic Modelling, July 2017*, 1–10. https://doi.org/10.1016/j.econmod.2018.02.007

Malchow, Markusen, J. R., & Schjerning, B. (2013). *Foreign Firms, Domestic Wages*. Scandinavian Journal of Economics, 115*(2), 292–325. https://doi.org/10.1111/sjoe.12001

Mohd, S. (2021). *Impact of Foreign Direct Investment on Economic Growth in Ethiopia : Empirical evidence. 10*(may), 56–77.

Moye, P. P. (2020). The Impact of Exchange Rate Volatility on Economic Growth in Ecowas Member Countries (2000-2018). *EPRA International Journal of Research and Development (IJRD), 5*(7), 168–180. https://eprajournals.com/jpanel/upload/1150pm_IJRD JULY 2020 FULL JOURNAL.pdf#page=174

Mullan Cathy, & Davies Naomi. (21 C.E., September). *Where to invest in West Africa - Investment Monitor*. https://www.investmentmonitor.ai/features/an-investors-guide-to-west-africa/

Nchor, D., Kolman, P., Střelec, L., & Darkwah, S. A. (2015). The new oil sector and the Dutch disease: The case of Ghana. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis, 63*(6), 2035–2041. https://doi.org/10.11118/actaun201563062035

Nwagu, Imoagwu, N. (2022). *Real Interest Rate, Investment and Economic Growth: Panel Evidence from West African Monetary Zone. 3*(4), 21–36. https://doi.org/10.47631/jareas.v3i4.556

Odusola, A. (2018). *Addressing the foreign direct investment paradox in Africa. United Nations Development Programme, June*, 2–4. https://doi.org/10.13140/RG.2.2.31633.48486

OECD. (2008). *OECD Benchmark Definition of Foreign Direct Investment. In OECD Benchmark Definition of Foreign Direct Investment*. https://doi.org/10.1787/9789264064805-en

Onuoha, M. E., & Elegbede, I. O. (2018). The Oil Boom Era: Socio-Political and Economic Consequences. *The Political Ecology of Oil and Gas Activities in the Nigerian Aquatic Ecosystem*, 83–99. https://doi.org/10.1016/B978-0-12-809399-3.00006-9

Pineli, A., Narula, R., & Belderbos, R. (2019). FDI, Multinationals, and Structural Change in Developing Countries. In *New Perspectives on Structural Change: Causes and Consequences of Structural Change in the Global Economy* (Issue July). https://doi.org/10.1093/oso/9780198850113.003.0021

Prosperity, P. (2014). *Annual report 2014.*

Reiter, S. L., & Steensma, H. K. (2010). Human Development and Foreign Direct Investment in eveloping Countries: The Influence of FDI Policy and Corruption. *World Development, 38*(12), 1678–1691. https://doi.org/10.1016/j.worlddev.2010.04.005

Sothan, S. (2017). Causality between foreign direct investment and economic growth for Cambodia. *Cogent Economics and Finance, 5*(1). https://doi.org/10.1080/23322039.2016.1277860

Tiwari, Aviral and Mutascu, M. I. (2011). Economic growth and and FDI in ASIA: A panel data approach and its Impact on Environment : A Panel Data. *Munich Personal RePEc Archive, 30238*. https://mpra.ub.uni-muenchen.de/28172/

Tomohara, A., & Takii, S. (2011). Does globalization benefit developing countries? Effects of FDI on local wages. *Journal of Policy Modeling, 33*(3), 511–521. https://doi.org/10.1016/j.jpolmod.2010.12.010

UNCTAD. (2017). *Investment and the digital economy*. https://doi.org/10.18356/0e077c50-en

UNCTAD. (2018). UNCTAD : World Investment Report. In *Africa Research Bulletin: Economic, Financial and Technical Series* (Vol. 59, Issue 8). https://doi.org/10.1111/j.1467-6346.2022.10758.x

UNCTAD. (2019). *Special Economic Zones. In Coevolutionary Pragmatism.* https://doi.org/10.1017/9781108233118.008

UNCTAD. (2020). World Investment Report 2020 - International Production Beyond the Pandemic -Key Messages and Overview. Https://Unctad.Org/.

Wajid, A. S. (2017). Contribution of FDI in Economic Growth. *International Journal of Economics, Commerce and Management, 5*(2), 284–311.

Winkler, F. &. (2014). *Foreign FDI Africa linkages GVC domestic.*

Yusuf, H. A., Shittu, W. O., Akanbi, S. B., Umar, H. M., & Abdulrahman, I. A. (2020). The role of foreign direct investment, financial development, democracy and political (in)stability on economic growth in West Africa. *International Trade, Politics and Development, 4*(1), 27–46. https://doi.org/10.1108/itpd-01-2020-0002

Zoramawa, L. B., Ezekiel, M. P., & Kiru, A. T. (2020). *Exchange rate and economic growth nexus : An impact analysis of the Nigerian economy. 2*(4). https://doi.org/10.30585/jrems.v2i4.446

APPENDICES

APPENDIX 1
Panel regression results and figures
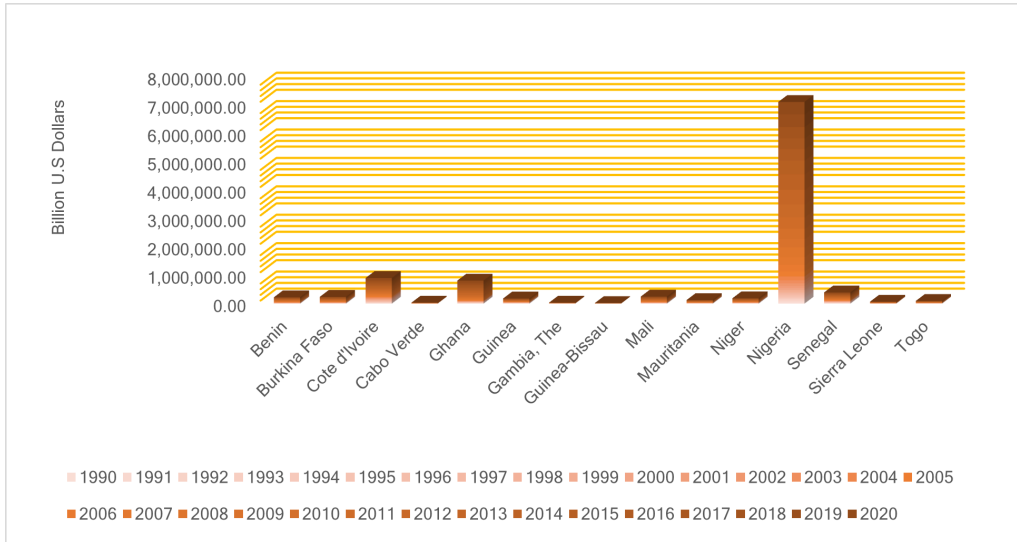**Data source: WDI (World Bank 2022)**

Figure 2.1. Total GDP in fifteen (15) West Sub-Sharan African Countries 1990-2020
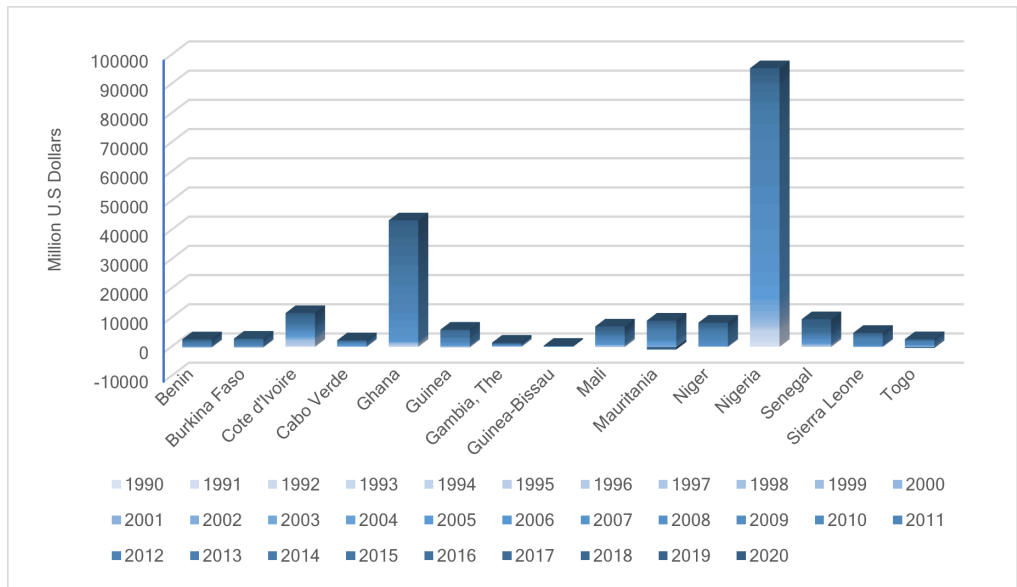Data source: World Bank (2022), author's computation (MS Excel output)

Figure 2.2. Total Foreign Direct Investment of Fifteen (15) West Sub-Saharan African Countries 1990-2020
Data source: World Bank (2022), author's computation (MS Excel output)
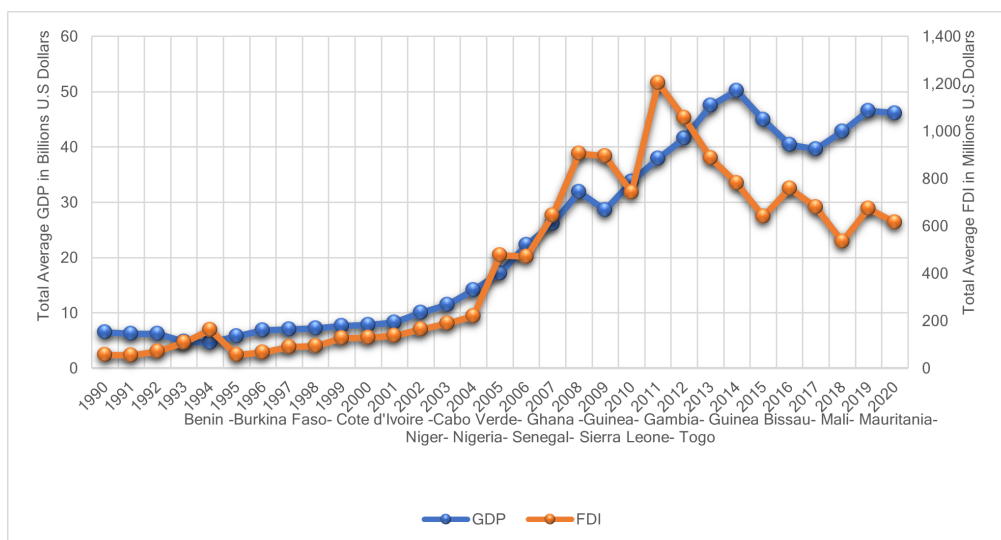
Figure 4.1.1 Total Average FDI and Average GDP of 15 West Sub-Saharan from 1990-2020
Data source: World Bank (2022), author's computation (MS Excel output)

Table 4.1. Descriptive Statistics of Raw Data

	GDP	FDI	INTEREST_RATE	EXCHANGE_RATE
Mean	2.29E+10	4.41E+08	14.71205	792.0980
Median	4.22E+09	78094821	13.25851	493.8996
Maximum	5.47E+11	8.84E+09	62.83333	9829.927
Minimum	2.06E+08	-8.84E+08	4.736667	0.032616
Std. Dev.	7.24E+10	1.12E+09	10.14685	1572.735
Skewness	5.197790	4.562190	1.154089	3.865165
Kurtosis	30.41693	27.18076	5.364875	18.32727
Jarque-Bera	16657.78	12941.80	116.4834	5697.208
Probability	0.000000	0.000000	0.000000	0.000000
Observations	465	465	256	464

Data source: world bank (2022), author's computation (EViews 10.0 Output)
Normal skewness = 0, while mesokurtic: kurtosis of 3, P-value statistical significance = 5%

Table 4.2 Panel Unit Root Test for Stationarity

	Levin, Lin & Chu t*		ADF		PP	
Variables	Level	First difference	Level	First difference	Level	First difference
GDP	1.0000	0.0000***	1.0000	0.0000***	1.0000	0.0000***
FDI	0.7140	0.0000***	0.0037**	0.0000***	0.0002**	0.0000***
INTRATE	0.9992	0.0000***	0.0000***	0.0000***	0.0000***	0.0000***
EXRATE	1.0000	0.0000***	0.1096	0.0000***	0.3276	0.0000***

Note: ** and *** denote the rejection of the null hypothesis at 0.05 (5%), respectively. I(1), denotes first-order integration.
Data source: word bank (2022), author's computation, (EViews 10.0 output

Table 4.3. Optimal Lag Length Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-11905.41	NA	5.81e+39	97.23599	97.32174	97.27052
1	-11253.16	1277.869	2.92e+37	91.94419	92.08710	92.00174
2	-11219.37	65.65452*	2.29e+37*	91.70098*	91.90106*	91.78155*

* Indicates lag order selected by the criterion
Source: author's computation, (EViews 10.0)

Table 4.4. VAR Stability Test

Roots of Characteristic Polynomial	
Endogenous variables: GDP FDI	
Exogenous variables: C INTRATE	
EXRATE	
Lag specification: 1 2	
Root	Modulus
0.974308 - 0.097008i	0.979126
0.974308 + 0.097008i	0.979126
-0.018087 - 0.208573i	0.209356
-0.018087 + 0.208573i	0.209356

No root lies outside the unit circle.
VAR satisfies the stability condition.
Source: author's computation, (EViews 10.0 output)

Figure 4.2. VAR Stability Test

Inverse Roots of AR Characteristic Polynomial
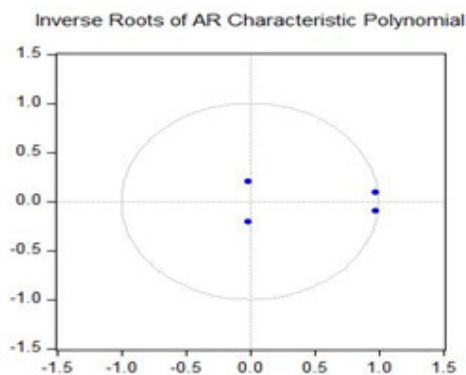
Table 4.4 Panel Cointegration Test

Unrestricted Cointegration Rank Test (Trace)			
Hypothesized		Trace	0.05
No. of CE(s)	Eigenvalue	Statistic	Critical Value
None *	0.196235	59.20103	15.49471
At most 1 *	0.027829	6.773555	3.841466
Trace test indicates 2 cointegrating eqn(s) at the 0.05 level			

* denotes rejection of the hypothesis at the 0.05 level			
**MacKinnon-Haug-Michelis (1999) p-values			
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)			
Hypothesized		Max-Eigen	0.05
No. of CE(s)	Eigenvalue	Statistic	Critical Value
None *	0.196235	52.42747	14.26460
At most 1 *	0.027829	6.773555	3.841466
Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level			
* denotes rejection of the hypothesis at the 0.05 level			
**MacKinnon-Haug-Michelis (1999) p-values			

Data source: World Bank (2022), author's computation, (EViews 10.0 output)

Table 4.5 Panel Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
FDI does not Granger Cause GDP	435	28.6577	2.E-12*
GDP does not Granger Cause FDI		34.8095	1.E-14*
INTRATE does not Granger Cause GDP	226	0.21875	0.8037
GDP does not Granger Cause INTRATE		0.12361	0.8838
EXRATE does not Granger Cause GDP	432	0.13316	0.8754
GDP does not Granger Cause EXRATE		0.03250	0.9680
INTRATE does not Granger Cause FDI	226	0.02741	0.9730
FDI does not Granger Cause INTRATE		0.16284	0.8498
EXRATE does not Granger Cause FDI	432	0.58631	0.5568
FDI does not Granger Cause EXRATE		0.19217	0.8252
EXRATE does not Granger Cause INTRATE	223	0.20449	0.8152
INTRATE does not Granger Cause EXRATE		3.45766	0.0332*

*donates rejection of null hypothesis at a 5% level of significance
Source: author's computation, (EViews 10.0 output)

Table 4.6 Long-Run Normalized Cointegrating Equation from Panel VECM Model

Cointegrating Eq:	CointEq1
GDP(-1)	1.000000
FDI(-1)	-121.1563
	(8.11167)
	[-14.9361]**
C	3.26E+10

Standard errors in ( ) and t-statistics in [ ].
**, denotes the rejection of the null hypothesis at a 5% level of significance

Table 4.7 Error Correction and Short-Run Estimates from Panel
VECM Model

Error Correction:	D(GDP)	D(FDI)
CointEq1	-0.058049	0.001482
	(0.00840)	(0.00033)
	[-6.90850]**	[4.48116]**
D(GDP(-1))	0.236515	0.015439
	(0.05963)	(0.00235)
	[3.96645]**	[6.57665]**
D(FDI(-1))	-3.498645	-0.075771
	(1.62285)	(0.06389)
	[-2.15587]**	[-1.18593]
C	1.79E+09	-12399958
	(1.3E+09)	(5.1E+07)
	[1.37596]	[-0.24181]
INTRATE	-7097846.	151440.3
	(7.4E+07)	(2914636)
	[-0.09588]	[0.05196]
EXRATE	-224120.3	-2533.814
	(520906.)	(20508.2)
	[-0.43025]	[-0.12355]
R-squared	0.307359	0.184238

Data source: World Bank (2022), author's computation from (EViews 10.0)
Standard errors in ( ) and t-statistics in [ ], P-value in bold highlight, and lag(P-1).
**, denotes the rejection of the null hypothesis at a 5% level of significance

Table 4.8 Estimate using OLS to obtain p-value and the shot-run coefficient
for Robustness check FDI to GDP

D(GDP) = C(1)*(GDP(-1) - 121.15625254*FDI(-1) + 32618337193.9)+C(2)*D(GDP(-1)) + C(3)*D(FDI(-1)) + C(4) +
C(5)*INTEREST_RATE + C(6)*EXCHANGE_RATE

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.058049	0.008403	-6.908500	0.0000
C(2)	0.236515	0.059629	3.966448	0.0001
C(3)	-3.498645	1.622848	-2.155867	0.0321
C(4)	1.79E+09	1.30E+09	1.375964	0.1701
C(5)	-7097846.	74031533	-0.095876	0.9237
C(6)	-224120.3	520905.8	-0.430251	0.6674
R-squared	0.307359		Mean dependent var	1.94E+09
Adjusted R-squared	0.292868		S.D. dependent var	1.31E+10
S.E. of regression	1.10E+10		Akaike info criterion	49.11107
Sum squared resid	2.91E+22		Schwarz criterion	49.19681
Log-likelihood	-6010.106		Hannan-Quinn criter.	49.14560
F-statistic	21.21119		Durbin-Watson stat	2.003171
Prob(F-statistic)	0.000000			

Note: P-Value statistically significant at 5% level (null hypothesis rejection)
Source: Author's computation, (EViews 10.0 output)

Table 4.9 Estimate using OLS to obtain p-value and the shot-run coefficient
for Robustness check GDP to FDI

D(FDI) = C(7)*(GDP(-1) - 121.15625254*FDI(-1) + 32618337193.9) + C(8)*D(GDP(-1)) + C(9)*D(FDI(-1)) + C(10) +
C(11)*INTEREST_RATE + C(12)*EXCHANGE_RATE

	Coefficient	Std. Error	t-Statistic	Prob.
C(7)	0.001482	0.000331	4.481157	0.0000
C(8)	0.015439	0.002348	6.576652	0.0000
C(9)	-0.075771	0.063892	-1.185932	0.2368
C(10)	-12399958	51280326	-0.241807	0.8091
C(11)	151440.3	2914636.	0.051959	0.9586
C(12)	-2533.814	20508.16	-0.123552	0.9018
R-squared	0.184238		Mean dependent var	17172277
Adjusted R-squared	0.167172		S.D. dependent var	4.76E+08
S.E. of regression	4.35E+08		Akaike info criterion	42.64158
Sum squared resid	4.51E+19		Schwarz criterion	42.72732
Log-likelihood	-5217.593		Hannan-Quinn criter.	42.67610
F-statistic	10.79555		Durbin-Watson stat	1.964048
Prob(F-statistic)	0.000000			

Note: P-Value statistically significant at 5% level (null hypothesis rejection)
Source: Author's computation, (EViews 10.0 output)

Table 4.10 VECM Short-Run Representation Coefficient Wald Test

Wald Test:

Test Statistic	Value	df	Probability
F-statistic	18.93855	(6, 239)	0.0000
Chi-square	113.6313	6	0.0000

Null Hypothesis:
C(1)=C(2)=C(3)=C(4)=C(5)=C(6)=0

Null Hypothesis Summary:

Normalized Restriction (= 0)	Value		Std. Err.
C(1)	-0.058049		0.008403
C(2)	0.236515		0.059629
C(3)	-3.498645		1.622848
C(4)	1.79E+09		1.30E+09
C(5)	-7097846.		74031533
C(6)	-224120.3		520905.8
Restrictions are linear in coefficients.			

** donates statistically significant level of 0.05 (5%)
Source: author's computation, (EViews 10.0 output)

Table 4.11 VECM Short-Run Representation Coefficient Wald Test

Wald Test:			
Test Statistic	Value	df	Probability
F-statistic	9.060068	(6, 239)	0.0000
Chi-square	54.36041	6	0.0000

Null Hypothesis: C(7)=C(8)=C(9)=C(10)=C(11)=C(12)=0

Null Hypothesis Summary:

Normalized Restriction (= 0)	Value		Std. Err.
C(7)	0.001482		0.000331
C(8)	0.015439		0.002348
C(9)	-0.075771		0.063892
C(10)	-12399958		51280326
C(11)	151440.3		
C(12)	-2533.814		20508.16

Restrictions are linear in coefficients.

** donates statistically significant level of 0.05 (5%)
Source: author's computation, (EViews 10.0 output)

Table 4.12 VECM Short-Run Representation Coefficient Wald Test

Dependent variable: D(GDP)			
Excluded	Chi-sq	df	Prob.
D(FDI)	4.647763	1	0.0311
All	4.647763	1	0.0311
Dependent variable: D(FDI)			
D(GDP)	43.25235	1	0.0000
All	43.25235	1	0.0000

** donates statistically significant level of 0.05 (5%)
Source: author's computation, (EViews 10.0 output)

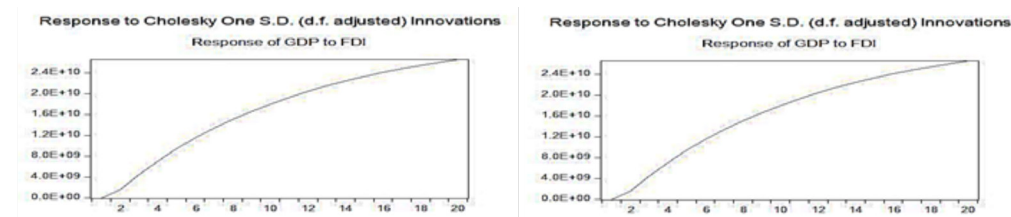Figure 4.2. Impulse Response Function Analysis
Source: Author's computation, (EViews 10.0 output)

Table 4.13 Panel FMOLS Test for Robustness Check

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FDI	21.41687	1.528805	14.00889	0.0000**
R-squared	0.633301	Mean dependent var		2.35E+10
Adjusted R-squared	0.620627	S.D. dependent var		7.35E+10
S.E. of regression	4.52E+10	Sum squared resid		8.89E+23
Long-run variance	2.51E+21			

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP	0.035488	0.001802	19.69516	0.0000
R-squared	-1.849699	Mean dependent var		4.54E+08
Adjusted R-squared	-1.849699	S.D. dependent var		1.13E+09
S.E. of regression	1.91E+09	Sum squared resid		1.64E+21
Long-run variance	5.76E+17			

Data source: Word Bank (2022), author's computation, (EViews 10.0 output)
** donates rejection of null hypothesis at a 5% level of significance

Table 4.14 Panel ARDL Test for Robustness Check

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
	Long Run Equation			
FDI	4.776995	0.752645	6.346940	0.0000
	Short Run Equation			
COINTEQ01	-0.210647	0.029792	-7.070666	0.0000
D(FDI)	-0.012528	0.229177	-0.054667	0.9564
C	-3.81E+08	3.58E+08	-1.066296	0.2869
@TREND	3.78E+08	2.53E+08	1.494527	0.1358

*Note: p-values and any subsequent tests do not account for model
Selection, rejection of null hypothesis at 5% level

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
	Long Run Equation			
GDP	0.017444	0.005430	3.212804	0.0014
	Short Run Equation			
COINTEQ01	-0.543719	0.122309	-4.445463	0.0000
D(GDP)	0.008451	0.017622	0.479571	0.6318
C	17988938	41013268	0.438613	0.6612
@TREND	1082076.	4018657.	0.269263	0.7879

*Note: p-values and any subsequent tests do not account for model selection.

Data source: Word Bank (2022), author's computation, (EViews 10.0 output)
donates rejection of null hypothesis at a 5% level of significance