NEAR EAST UNIVERSITY

INSTITUTE OF GRADUATE STUDIES

ECONOMICS AND ADMINISTRATIVE SCIENCES

IMPACT OF FOREIGN DIRECT INVESTMENT ON SIERRA LEONE'S ECONOMIC GROWTH BETWEEN 1980 AND 2020.

MSc. THESIS

AHMED DAHIR AHMEDEGEH

Nicosia

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Approval

We attest to having read the thesis submitted by **"AHMED DAHIR AHMEDEGEH Titled, IMPACT OF FOREIGN DIRECT INVESTMENT ON SIERRA LEONE'S ECONOMIC GROWTH BETWEEN 1980 AND 2020."** In addition, we are of the view that it fulfills all of the requirements, both in terms of its breadth and its level of quality, to be a thesis for the Master of Social Sciences degree.

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I thus certify that all information, documents, analysis, and findings included in this thesis were gathered and presented in line with the Near East University Institute of Graduate Studies' academic standards and ethical principles. I have attributed and referenced all non-original sources and data utilized in this study, as required by these standards and regulations.

AHMED DAHIR AHMEDEGEH

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AHMED DAHIR AHMEDEGEH

Abstracts

AHMED DAHIR AHMEDEGEH Titled IMPACT OF FOREIGN DIRECT INVESTMENT ON SIERRA LEONE'S ECONOMIC GROWTH BETWEEN 1980 AND 2020

AHMED DAHIR AHMEDEGEH

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This thesis examines the impact of foreign direct investment on Sierra Leone's economic growth between 1980 and 2020. No matter what stage of development an economy is now at, investment makes up a large share of overall spending. Therefore, investment is crucial for economic development in any nation since it increases employment and productivity. Recently, the monetary and fiscal authorities in emerging countries have concluded that FDI is crucial to fostering the growth of their respective economies. Foreign direct investment (FDI) and foreign portfolio investment are distinguished from one another by the notion of direct control as the latter's defining characteristic. As a result, it is crucial that developing nations work to achieve the objective of attracting foreign direct investment (FDI). It is widely accepted that increased worker productivity and access to tacit knowledge may facilitate the adoption of cutting-edge technology as a result of foreign direct investment (FDI). Both the ARDL model and the Granger causality test are used to investigate the relationship between the variables. The findings show that broad money, currency rates, and foreign direct investment are all factors in Sierra Leone's economic development. Exchange rates and general money have a major influence both instantly and over time, in contrast to foreign direct investment, which has a small short-term impact and a substantial long-term one. The results of the study suggest that the financial management of domestic and foreign corporations should pay close attention to price increases, the pace of monetary policy, the current account balance, the money and quasi-money supply as a percentage of GDP, the growth rate of GDP per capita, and the exchange rate. The economy as a whole is impacted by each of these factors. Any one of these factors might have a big effect on the economy. Therefore, it is crucial for such governments to create FDI-attractive policies. Institutions also have a positive relationship with economic growth. As a consequence, these countries would profit by improving the standard of their institutions in order to achieve faster growth. Sierra Leone should be conscious, nevertheless, that as institutional quality rises, the benefits of FDI's incremental development decline. According to our research, FDI positively impacts Sierra Leone's economic growth. As a consequence, governments should assess their particular position before implementing measures to accomplish the growth benefits of FDI.

Keywords: Foreign direct investment, exchange rate, broad money economic growth

Özet

AHMED DAHIR AHMEDEGEH Başlık SİERRA LEONE'NİN EKONOMİK BÜYÜMESİ ÜZERİNE DOĞRUDAN YABANCI YATIRIMIN 1980-2020

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OCAK, 2023 Sayfa,83

Bu tez, doğrudan yabancı yatırımların 1980-2020 yılları arasında Sierra Leone'nin ekonomik büyümesi üzerindeki etkisini incelemektedir. Bir ekonomi şu anda hangi kalkınma aşamasında olursa olsun, yatırım toplam harcamaların büyük bir kısmını oluşturmaktadır. Bu nedenle yatırım, istihdamı ve verimliliği artırdığı için her ülkede ekonomik kalkınma için çok önemlidir. Son zamanlarda, gelişmekte olan ülkelerdeki para ve maliye otoriteleri, DYY'nin kendi ekonomilerinin büyümesini teşvik etmek için çok önemli olduğu sonucuna varmışlardır. Doğrudan yabancı yatırım (DYY) ve yabancı portföy yatırımı, ikincisinin tanımlayıcı özelliği olan doğrudan kontrol kavramı ile birbirinden ayrılır. Sonuç olarak, gelişmekte olan ülkelerin doğrudan yabancı yatırımı (DYY) çekme hedefine ulaşmak için çalışmaları çok önemlidir. Doğrudan yabancı yatırımın (DYY) bir sonucu olarak artan işçi verimliliğinin ve zımni bilgiye erişimin en son teknolojinin benimsenmesini kolaylaştırabileceği yaygın olarak kabul edilmektedir. Değişkenler arasındaki ilişkiyi araştırmak için hem ARDL modeli hem de Granger nedensellik testi kullanılmıştır. Bulgular, geniş para, döviz kurları ve doğrudan yabancı yatırımın Sierra Leone'nin ekonomik kalkınmasında etken olduğunu göstermektedir. Döviz kurları ve genel para hem anlık hem de zaman içinde büyük bir etkiye sahipken, doğrudan yabancı yatırım kısa vadede küçük, uzun vadede ise önemli bir etkiye sahiptir. Çalışmanın sonuçları, yerli ve yabancı şirketlerin mali yönetiminin fiyat artışlarına, para politikasının hızına, cari hesap dengesine, GSYH'nin yüzdesi olarak para ve yarı para arzına, kişi başına GSYH'nin büyüme oranına ve döviz kuruna çok dikkat etmesi gerektiğini göstermektedir. Ekonomi bir bütün olarak bu faktörlerin her birinden etkilenir. Bu faktörlerden herhangi biri ekonomi üzerinde büyük bir etkiye sahip olabilir. Bu nedenle, bu tür hükümetlerin DYY için cazip politikalar oluşturması çok önemlidir. Kurumların da ekonomik büyüme ile pozitif bir ilişkisi vardır. Sonuç olarak, bu ülkeler daha hızlı bir büyüme elde etmek için kurumlarının standartlarını iyileştirerek kar elde edebilirler. Bununla birlikte Sierra Leone, kurumsal kalite arttıkça DYY'nin artan gelişiminin faydalarının azalacağının bilincinde olmalıdır. Araştırmamıza göre, DYY Sierra Leone'nin ekonomik büyümesini olumlu yönde etkilemektedir. Sonuç olarak, hükümetler DYY'nin büyüme faydalarını gerçekleştirmek için önlemler almadan önce kendi durumlarını değerlendirmelidir.

Anahtar Kelimeler: Doğrudan yabancı yatırım, döviz kuru, geniş para ekonomik büyüme

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Abbreviations

GDP: Gross Domestic Product

BM: Broad Money

REER: Real Effective Exchange Rate

FDI: Foreign Direct Investment

USD   United States Dollar

IMF: International Monetary Fund

UNCTAD: United Nations Conference Trade and Development

FPI: Foreign Portfolio Investment

WTO: World Trade Organization

LICs: Low-Income Countries

MICs: Middle-Income Countries

SSA: Sub-Saharan Africa

ODA: Official Development Assistance

GNI: Gross National Income

PPP: Purchasing Power Parity

UNDP: United Nations Development Programme

HDI: Human Development Index

OLS: Ordinary Least Squares

VAR: Vector Autoregression

ECM: Error Correction Model

ADF: Augmented Dickey-Fuller test

PP: Phillips-Perron test

ARDL: Auto Regressive Distributed Lag

ECT: Error Correction Term

ECM: Error Correction Model

VECM: Vector Error Correction Model

CHAPTER ONE

Introduction

Regardless of the stage of development that an economy is now in, investment represents a sizeable share of overall spending in any economy. Therefore, investment is pivotal for the economic development of any nation since it increases employment and productivity. Recently, the monetary and fiscal authorities in developing countries have come to the conclusion that FDI is vital to promote the economic growth of their respective economies. Politicians are aware that FDI can increase the host nation's technological advancement, give employment opportunities, and overall improve the economic condition (Abbas et al., 2011). According to the research that has been done up to this point, many developing countries, notably those in Africa, Asia, and Latin America, confront considerable challenges when attempting to make long-term investments for the purpose of achieving sustainable economic growth and development (Miraskari et al., 2014). The fact that most countries have difficulty attracting foreign direct investment (FDI), which may aid them in overcoming barriers to economic growth and development, makes the problem much more difficult to solve (Sichei & Kinyondo, 2012).

Any investment that is made by a foreign organization directly into a domestic company is referred to as "foreign direct investment." or FDI for short. To put it another way, foreign direct investment is differentiated from foreign portfolio investment by the notion of direct control as being the defining characteristic of the former. Because of this, it is absolutely essential for nations still on the path to development to work toward the objective of attracting foreign direct investment (FDI). The idea that increased levels of worker productivity and access to tacit knowledge may be achieved through the introduction of cutting-edge technology as a result of foreign direct investment (FDI) is one that is commonly accepted. In addition to these benefits, FDI also leads to an improvement in the balance of payments for the host nation and the creation of chances for new employment. In an effort to gain a better understanding of the factors that draw foreign direct investment (FDI) from outside the country, a number of different hypotheses have been proposed.

A multitude of factors, such as exchange rates, local trade restrictions, transaction costs, financial stability, political risks, labor costs, market proximity, and the factor endowments of host nations,

all play a role in the decisions that are made about FDI. The behavior of the level and volatility of the currency rate is one of the most important factors of FDI. FDI stands for foreign direct investment. The term "relative wage channel" refers to the reduction in production costs that happens as a result of a decline in the value of the currency of the country that is hosting the production. This reduction can be attributed to a decline in the worth of the banknote of the nation that is hosting the production. When the worth of the local banknote drops, the relative cost of capital also drops; this makes it more attractive for foreign investors to put their money into the country (FDI). Direct investment from other countries can come in the form of "mergers and acquisitions," "building new facilities," "reinvesting profits earned from overseas operations and intra company loans," and "a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy that is not that of the investor."

In spite of these appallingly high rates of poverty, Sierra Leone has profited significantly from foreign money, which has grown even more since the end of the country's 11-year civil conflict. As a consequence of this, the nation has continued to be extremely reliant on aid, with disbursed aid levels exceeding even the average for the subregion that is the most reliant on aid, which is SSA. The amount of foreign assistance that was given to Sierra Leone from 1970 to 2007 is compared in the straightforward bar graph that can be seen in Appendix Figure A1 to the amount of assistance that was given to SSA and Africa, respectively, the two regions that received the most assistance. According to the graph, the total amount of foreign aid that was given to Sierra Leone between the years 1970 and 2007 amounted to an average of 14.2% of the country's GDP. This figure is significantly higher than the respective averages for both the continent and SSA, which are 4.8% and 3.7%, respectively. This indicates that despite the fact that Africa is the continent that gets the most overall aid from other countries, Sierra Leone, which is a part of this continent, gets a much higher amount of aid overall.

As a result, it is abundantly obvious that growth and poverty continue to exist in spite of significant donor intervention in the economy of the nation. In spite of this contradictory situation, research has not focused on evaluating the effectiveness of help in such a nation in order to determine whether aid has been effective or whether the ongoing poverty in such a nation that depends on aid is not a result of the aid's inefficiency. The purpose of this research is to determine whether aid has been effective or whether the ongoing poverty in such a nation that

depends on aid is not a result of the aid's inefficiency. As a consequence of this, this work contributes to the limited empirical research on aid-growth that has been conducted at the national level (which is not affected by the effects of country heterogeneity that are common in cross-national regressions). The report provides evidence on the effectiveness of aid for a nation that had not been the subject of any previous research. Additionally, the report presents a case study of a nation that has a high dependence on assistance, a poor track record of economic growth, and a history of prolonged and severe political instability. In addition to making a contribution to the understudied country empiricals on aid effectiveness, this study also adds a second contribution to the existing body of research by investigating the potential for aid to have different effects at different points in time and focusing specifically on how it affected the post-conflict period in the country. This study examines the effects of post-conflict aid on a country-level for Sierra Leone, a nation that has been through a terrible civil war that lasted for 11 years. The study by Collier and Hoeffler (2002) on the effects of post-conflict aid primarily considers effects that occur across countries.

Direct investment can also be defined as "a lasting management interest in an enterprise operating in an economy that is not that of the investor." Since the early 1980s, the level of FDI has skyrocketed, which has led to an increase in global market competition and made developing countries a more alluring investment destination. This is because these countries may give investors in FDI access to a varied selection of "produced" assets, which is one reason why they are attractive. In 2006, the total amount of FDI reached $916 billion, as stated in the World Investment Report that was compiled by the United Nations. More than half of all of these remittances were sent to enterprises situated in developing nations in 2013, according to the World Bank. According to the findings of the study that is referenced in footnote 16, the amount of FDI flows coming from developing nations has experienced a significant increase over the course of the last two decades (Kumar, 1995)

FDI is becoming increasingly important for developing countries, many of which are driven by the belief that greater FDI will benefit their economies. FDI has a big impact on the societies, cultures, wealth, and politics of the nations that get it. The impact of FDI on the expansion of an economy has long been a cause of concern for a large number of economists. In a closed economy, investments can only be undertaken using domestic resources because there is no

access to capital from other countries. Investments in an open economy are backed not just by domestic savings but also by international capital flows such as foreign direct investment. China is a great example because the communist regime maintained a rigid and archaic political framework while still pursuing massive economic reforms. Following America in the 1990s, China became one of the countries that received the greatest assistance. Despite the fact that China is one of the top beneficiary of FDI in Asia, the volume of such investments is growing every year.

It is expected that foreign direct investment will have an effect on the rate of sustainable development in a country, and this effect is expected to be both positive and significant and even though this is not always the case (Xu, & Zhong 2011). Sierra Leone is a developing nation that is dependent on international aid and foreign direct investment in order to fund its economic operations. Despite having enormous amounts of resources such as iron ore, rutile, diamonds, and fertile terrain for agricultural purposes, Sierra Leone is still a developing nation. According to Duramany-Lakkoh (2020), an influx of FDI helps to strengthen financial institutions and increases the flow of capital within a nation. This is accomplished by opening up opportunities for employment as well as exports of products and services coming from the nation that is hosting the FDI. The significance of FDI in the expansion of both multinational corporations & domestic or local industries, with the goals of boosting exports and creating new jobs, cannot be overstated in economically backward and developing countries like Sierra Leone, which has a large mineral deposit. FDI is a significant source of money & resource inflow, particularly for nations that require improved manufacturing processes and the transfer of technology in order to assist local enterprises in growing and becoming more productive. In spite of the huge mineral deposit it possesses and the fertile land it has available for agriculture, Sierra Leone has been dependent on outside assistance to finance its economic activities and the gaps in its national budget in recent years. (Jalloh, and Lakkoh 2021) were the authors of this study.

Since the country's civil war was finally put to an end in 2002, Sierra Leone has had a relative return to peace along with some moderate economic expansion. In order to preserve its calm, it has repeatedly held elections and power transfers that were conducted without incident.

The government that is led by the SLPP has implemented a number of reforms to economic governance in an effort to boost the nation's macroeconomic production & the growth of human

capital. Two of these reforms are the treasury single account and the free education program. These reforms are just two examples. Even though Sierra Leone has set a goal of becoming a middle-income nation's by the year 2035, the country still displays post-conflict features such as high rates of unemployment among young people, fraud, & weak governance. This is a goal that has been tough for the nation to accomplish. In spite of the significant advances and changes that have been made, there are still problems with the infrastructure, as well as pervasive poverty in both rural & urban areas. Agriculture continues to be the main driver of gross domestic product growth apart from iron ore as a result of increased investments and sector expansion in the subsectors of crops, livestock, and fisheries. There will always be a need for macroeconomic management solutions as long as inflationary pressure and currency rate depreciation are present.

In addition, there are still structural problems, such as the budget imbalance and insufficient revenue collection, which need to be addressed.

Jhingan defines an exchange rate as "the rate at which one dollar is swapped for another" (2003). He then moved on to consider the relative worth of other currencies throughout the world. Think about how much one dollar is worth now in comparison to the naira, Nigeria's second currency. It is the amount of Naira required to acquire one US dollar. The phrase "exchange rate" refers to the value in terms of another currency for which one nation's currency can be purchased or sold on the global currency exchange market. An exchange rate is a common way for determining how much of one country's currency can be purchased in exchange for one unit of currency from another one. The exchange rate regime and interest rates remain hot concerns in international finance as well as in emerging countries. This is because a growing number of economies acknowledge that trade liberalization is a necessary condition for economic success (Obansa, Okoroafor, Aluko and Millicent, 2013). According to Investopedia, exchange rates are critical to the majority of free market economies around the world (2009). As a result, the rates of exchange have important impact on the quantity of trade that occurs within a country. The ability of a country to remain competitive is strongly reliant on its exchange rates. As a result, the exchange rate is one of the economic indicators that is closely monitored, thoroughly examined, and politically influenced. When a country's currency is overvalued, the cost of its exports rises on international markets while the cost of its imports falls within the country. A depreciated

currency has the opposite impact. As a result, increased exchange rates may result in an unbalanced trade balance for the country.

For a long time, exchange rate volatility has been a difficult problem to address, both theoretically and practically. One of the outstanding issues is the inspection of the variables that impact the equilibrium exchange rate. The breakdown of the Bretton Woods agreement in the 1970s allowed the prices of various nations' currencies to fluctuate. As a result, economists and those in positions of power continue to focus their efforts on empirical studies of exchange rates. It has become a crucial task for policymakers all over the world to understand the elements that can be changed to reduce the volatility of their own currencies' values. Since the 1970s, a large amount of time and effort has been devoted performing intensive empirical study on how to predict changes in real currency prices, which is an important policy issue. Significant advances in econometrics and increasing availability to high-quality data have spurred a flood of empirical studies on the rate of exchange. As a result, the number of empirical investigations has increased (Ajao and Igbekoyi, 2013).

As Andrews (1997) argues and proves, sustainable development is "just symbolic discourse," and it does not provide a solid framework for the creation of policy in the host country. Rather, sustainable development is "only symbolic discourse." FDI, political stability, & economic liberalization are just a few of the numerous factors that have the potential to influence the stock market of a country. (Mr. Gay 2008).

Many attempts have been made by academics to comprehend the behavior of exchange rates; yet, thus far, they have only met with sporadic amounts of success in their endeavors. The concept of currency fluctuations will continue to be arbitrary as long as it is difficult to anticipate the point at which the exchange rate will eventually become stable. When it comes to the topic of what variables contribute to a level of exchange rate equilibrium, there is no easy answer that can be provided. Determine how much things change and how variable they are. This is the most difficult empirical problem to address in the discipline of macroeconomics. The authorities in charge of monetary policy are not always able to keep swings in the actual exchange rate under strict control. Only particular occurrences, such as the movement of foreign money, increased productivity brought on by technological advancements, and alterations in trade situations, amongst other variables, are capable of inducing fluctuations in the real exchange rate. These

adjustments have the potential to have a substantial effect on the economy (Ajao and Igbekoyi, 2013). The findings of the research indicate that the real rate exchange decline may have a negative impact on the balance of trade in international business in ways that were not expected to have such an effect. If the foreign disequilibrium balance is going to be adequately addressed, it will be important to execute techniques such as the depreciation of the currency rate and demand management.

It is impossible for the economy of Sierra Leone to run without the critical importation of raw resources, technological advancements, and a variety of other essential items from other countries. The nation's foreign exchange is strained as a result of the importation of these raw commodities, which in turn leads the request for foreign banknote to be larger than the demand for the nation's currency. The fluctuating worth of the currency exchange rate is a direct result of this demand mismatch. The recent volatility in the exchange rate for Sierra Leone currency has had an important influence on the economy of the country, contributing to unstable macroeconomics and below-average economic growth when compared to that of other nations.

When comparing the economy of Sierra Leone to that of industrialized nations that have stable market conditions, it is important to take into account the relevance of this variable because of the growth of trade. This is because the markets of developed nations are characterized by a high degree of unpredictability, and because it is basic to have a fixed exchange rate in order to reduce the costs and risks associated with dealing in foreign exchange. Both of these factors contribute to the situation we find ourselves in. Due to the fact that a high degree of exchange rate volatility will have important influence on the economy, it will result in economic instability in the markets and it will also have an effect on other types of economic challenges. If levels of investment fall and unfair competition gives foreign companies an advantage in terms of product pricing, then the economic instability caused by the volatility in exchange rates would result in a significant decrease in the amount of business that is conducted across international borders. This would be the result of a significant decrease in the amount of business that is conducted across international borders. According to models of economic growth, stable exchange rates may lead to lower inflation rates, more business being done and investment, and ultimately higher levels of productivity and economic growth.

Capital inflows, which are one of the key variables that determine the rate of exchange, have a considerable influence on the overall equilibrium of the currency pair. This is because the real exchange rate is determined in large part by capital inflows. According to the Dutch Disease hypothesis (Corden & Neary, 1982), significant capital inflows lead to expand in the real value of the exchange rate. This occurs because substantial capital inflows have an effect on both the trade & non-trade zone of the economy. This is exactly why the hypothesis was conceived in the first place. On the other hand, the degree of redox potential of the capital inflow has a large influence on the amount of the appreciation that results from the influx of capital. This is because redox potential is a measure of the ability of an object or system to undergo oxidation or reduction. This is due to the fact that the redox potential has a negative relationship with the magnitude of an appreciation. Some inflows are more likely to be tied to outflows than others, and the ones that are more likely to be related in this way are also the ones that are more likely to be reversed. This would imply that their effects on the real exchange rate experienced by the nation and the tax revenue experienced by the nation are separate from one another.

Opinions among economists about the effect of money supply on economic expansion are mixed (Rasheed,2011). While there are those who believe that shifts in the total amount of money in circulation are the single most influential factor in determining the rate of economic expansion, others contend that nations that devote a greater proportion of their resources to studying the dynamics of aggregate money supply are less likely to experience significant variations in their levels of economic activity. Others have doubts regarding the purpose of money and the calculation of the gross national product (Robinson, 1952). The success of traditional monetary policy will be demonstrated by the implications of the stability of the connection betwixt money & sustainable development. In the study of monetary economics, the connection that exists between the development of the money supply and the development of the economy has been the focus of more research and discussion in recent years than any other topic.

Because sustainable development is one of the cardinal element in the achievement of nations' (developed and developing) macroeconomic objectives, monetary economists have been concerned for a long time about the relationship between the sum of money in circulation & the amount of goods & services produced. Through the years, Nigeria has maintained economic stability by adjusting the amount of currency in circulation. As a direct result of the decrease in

oil prices in 1981 and the resulting deficit in the B.O.P., a wide variety of strategies for economic stabilization, ranging from fiscal to monetary policy, were put into effect. It was anticipated that large borrowers, such as farmers, would benefit from interest rates that were fixed (Ojo 1989). Ikhide and Alawode (1993), in the course of their analysis of the effects of the Structural Adjustment Program, came to the conclusion that the reduction in money stock brought about by an increase in interest rates would have an effect on GDP. As a consequence of this, the idea that money supply shifts with the purpose of adapting to shifts in consumer spending is applicable to the economy of Nigeria (Laidler 1993).

In the Sierra Leonean literature, the impact of money supply on sustainable development (GDP per capita) has earned a comparatively small amount of study. The vast majority of the research that has been done on this subject has been carried out in other countries. However, it is equally crucial for policymakers in Sierra Leone to understand the impacts of money supply on sustainable development in order to effectively harness and increase economic growth. This is because understanding the effects of money supply on sustainable development allows for better economic management. In recent years, there has been a greater focus placed on the link betwixt money supply & output as a result of the significant role that this relationship plays in sustainable development in both developing economies and industrialized economies (Hussan & Haque, 2017). On the one hand, some monetarist's feel that "money does matter," while other Keynesians contend that "money does not matter," and that this argument is therefore irrelevant to the impact that it has on sustainable development. On the other hand, new Keynesians are of the opinion that fluctuations in the money supply appear to have an effect on real variables in the short run due to price rigidity & imperfect details transmission in the market. Real variables include things like GDP and employment levels. According to Domigo (2001), economic expansion might not be possible without an adequate quantity of money supply, credit, and general financial situations. Since the country's transition to a democratic government, the Sierra Leonean economy has undergone tremendous change. It saw an average annual rate of sustainable development of 3.3% in real terms between the years of 1994 and 2012, which was a major development over the average annual development rate of 1.4% experienced between the years of 1980 and 1993. On the other hand, the pace of growth was slightly lower than the average of 3.6% seen in the world economy. When measured in constant dollars, South Africa's GDP in 2012 was 77% greater than it was in 1994, while the GDP of the globe as a whole

increased by 90% during that same time period. At the end of the time period, the actual GDP of the country was 31% higher on a per capita basis. 2013 (Industry Development Corporation) (Industry Development Corporation). Agriculture, forestry, and fisheries are the industries that are now making the greatest contribution to Sierra Leone development rate. This is especially true for horticultural and field crops. The growth rate of Sierra Leone gross domestic product (GDP) ranged from a high of 7.60% in the fourth quarter of 1994 to a low of -6.10% in the first quarter of 20094. From 1993 to 2017, the GDP growth rate averaged 2.84%.

One of the most important goals of this research is to determine whether or not the European Union (EU) has been involved in any way with the current modifications to FDI that have taken place within the Nigerian economy. This research analyzes the connection betwixt FDI & long-term advancement in an effort to improve and rethink the role that FDI plays in Sierra Leone long-term growth. The essay also discusses limitations placed on foreign direct investment (FDI), and it makes the argument that Sierra Leone needs to streamline its rules and regulations in order to bring them in line with the best practices that are used internationally if it wants to maintain its competitive advantage in luring FDI. It is the purpose of this research to make use of these presumptions in order to reach conclusions on the part that FDI plays in either assisting or impeding the expansion of the economy of Sierra Leone. FDI is a strategy that developing countries use to improve their national wealth by acquiring capital, products, and services from more developed countries. This is accomplished through the practice of FDI. In addition, the outcomes of this research will provide light on how FDI contributes to the economy of Sierra Leone. To Ask If Sierra Leone Can Develop without Foreign Direct Investment What steps will the government of Sierra Leone take to increase the country's share of direct foreign investment? Why does Sierra Leone require direct investment from other countries, and what are the benefits and drawbacks of accepting this type of investment? This research focus to analyze the dynamic impact of FDI, broad money supply & Real Exchange Rate on sustainable development in Sierra Leone from 1980 to 2020 using an autoregressive distribution lag (ARDL) approach to cointegration. Given the essential role that the entire variable plays in the pursuit of economic growth.

Statement of the Problem

FDI, which has indeed been acknowledged for a long time as an essential component of economic growth and development, has been instrumental in the transformation of a great number of economies by fostering the development of new technologies, the creation of new job opportunities, and the increase in productive capacity. It is anticipated that these regions will be opened up to more trade and that a conducive environment necessary to attract foreign investment will be created as a result of the incorporation of the new constitution and the introduction of devolved government. Both of these developments are a part of the introduction of devolved government. The need for FDI is further exacerbated by the underdevelopment of most parts of the country and the fact that most of these areas have a significant potential for horticultural production that has not yet been explored or tapped into. Both of these factors contribute to the fact that most of these areas have not been developed to their full potential. Changes in foreign direct investment (FDI) are affected by a variety of factors, including but not limited to infrastructure, location, political stability, limitations imposed by governments on entering a market, and exchange rates, to name just a few. It is possible to do a separate analysis for each of these factors in order to determine the influence that they have on the economy. The influence that exchange rates have on FDI in the horticultural industry will be analyzed in this paper. In addition, the primary aim of this research is to move away from the research of the factors that influence FDI in the country & instead evaluate the causal link betwixt the exchange rate, broad money and GDP, along with the strength and direction of that relationship. This will allow the researcher to diverge from the research of the factors that influence FDI in the nation.

Purpose of the research

The percentage of FDI that is going into the export industries of emerging countries is an important measure of the economic procedure of those nations. When a nation opens itself up to foreign direct investment, it may make it easier for management, technological, and people-skills to be transferred to another nation (FDI). According to the World Bank, one of the many benefits of FDI is that it increases productivity and leads to a workforce that has a higher average level of education. This was an added benefit to the fact that the two countries already desired to share

their knowledge and resources with one another. In addition to this, the nation that receives aid has the opportunity to exhibit its products and services to the global market. The purpose of this research is to investigate the effect of FDI on sustainable development in Sierra Leone.

Research Questions

1. What effect do exchange rate changes have on GDP?
2. Is there a causal link between FDI and GDP?
3. What is the influence of broad money on sustainable development in Nigeria?

Research Hypothesis

H1: There is a relationship between foreign direct investment and GDP.

HO: There is no relationship between foreign direct investment and GDP.

H2 There is a relationship money supply and GDP.

HO: There is no relationship money supply and GDP

H3 There is a relationship real exchange rate and GDP.

HO: There is no relationship real exchange rate and GDP

Significance of Research

This study will help policymakers make educated decisions about how to support foreign direct investment and the related sustainable development by providing them with the information they need. The conclusions of this study are likely to be beneficial not just to FDI, but also to the economies of emerging countries. This material may be helpful for academics and researchers who are interested in studying FDI & its effects on Sierra Leone economy. The purpose of this study is to determine whether or not FDI contributes to the quickening of economic expansion. A

regression analysis was performed on FDI & the speeding up of ecologically responsible development. It is possible that the governments and policymakers in Sierra Leone may utilize these statistics to analyze the policies that are currently in place about the connection between FDI and the long-term sustainable development and prosperity of the country.

Objective of the Study

This study's goal is to ascertain how FDI has influence on the growth of the Sierra Leone economy. It will paint a precise picture and demonstrate how much FDI and commerce have entered the Sierra Leonean economy. It will look at how trade has changed and aided Sierra Leone economic growth.

This study's goal is to better understand how FDI, Broad Money, and Real Exchange Rate their effects on the Nigerian economy are related.

Contribution to the Study

It is of the utmost importance to have a sympathetic connection with FDI & sustainable development in Nigeria, which will be expanded upon in this thesis. This thesis will also expand upon the findings of past research.

In the current study, foreign direct investment (FDI) and sustainable development are contrasted and compared with the goal of determining which of these two ideas is more significant. The meat of the thesis has been rewritten to leave out certain components of previous research that was carried out in Germany. This was done in order to better align it with the anticipated requirements of further research that would be carried out in this country. Contributions from both theoretical and empirical disciplines of research helped make this work better. The most recent edition probe the question of whether FDI and sustainable development are incompatible with one another or whether they complement one another. Exclusions have been made from earlier research that was carried out in Germany in order to achieve the goal of better aligning

the substance of the thesis with the expectations of predicted future study in this nation. Both the theoretical and empirical aspects of this research have benefited from the work that has been done to improve them.

Limitation

No previous research has been conducted on this topic with a sole focus on Sierra Leone. Despite the huge sample size, this study is hindered by the fact that it predominantly comprises periods with low predictive power or periods that may not be useful due to their length. Because new findings rely heavily on information from existing studies and prior work in the subject. There has not been nearly enough of this kind of study conducted in Sierra Leone or anywhere else in sub-Saharan Africa. This lack of research has led to an insufficient understanding of how FDI influences economic growth in Sierra Leone. Since not enough research has been done on the topic, we do not know how much foreign direct investment (FDI) contributes to economic development. This is a major limitation of the study because it means the results cannot be generalized to the entire Sierra Leonean population. This study is structured and revised as follows. The first chapter serves as an introduction & provides a condensed summary of key background material gathered for the study's investigation. This chapter also includes a summary of the problem, a statement of the study's aims, the formulation of the research question and hypothesis, a discussion of their significance, and a consideration of their potential constraints. Visual depiction of the Sierra Leonean economy from 1990 until 2020.

The second chapter provides a literature analysis of the topic at hand, focusing on the effects of FDI on sustainable expansion in both the country of focus, Sierra Leone, and other countries throughout the world. We will review the history of FDI, the definition of FDI, the link betwixt FDI & sustainable development, the theoretical and empirical literature, and the differences between our study's conclusions and those of previous studies in this chapter.

Definition OF Key Term

Exchange Rate

The term "exchange rate" refers to the value that the market sets on the currency of one nation in relation to the currency of another nation. This value is determined by the market. A nation's

exchange rate is said to be "fixed" when it is pegged to gold or another standard that is universally accepted. This suggests that one unit of each currency is comparable to a predetermined amount of gold or some other standard. When the value of an exchange rate is not established by the government but rather by the forces of the market or forecasts, this type of situation is referred to as "floating" (conversion units). The rise in the quantity of goods imported leads to an expand in the currency exchange rate, It causes prices to rise as a result that regional shoppers must pay to acquire the aforementioned goods.

To put that another way, it is utilized during the process of converting one currency into another while concurrently addressing issues that are connected to the foreign exchange market. The cost of converting one currency into another is referred to as the exchange rate, as stated by Giancarlo (1995). Giancarlo offered this explanation for the situation.

Gross Domestic Product is the monetary worth of all goods and services produced by a country's labor force in a given calendar year. There is no geographical division between the contributions of a country's various businesses to the expansion of its GDP (GNP).

Foreign Direct Investment

Which defines FDI as "a form of cross-border investment undertaken by a resident of one country (the direct investor) to create a permanent stake in a business (the direct investment firm) that is resident in an economy that is other than the direct investor's own?"" Foreign Direct Investment is defined here as: "a kind of international investment made by a citizen of one economy in another (when the investor acquires at least 10% of the voting power of the FDI firm via a direct, durable stake) (OECD, 2009:17).

Neo-classical Theory

The theory was familiar during the period between the 1980s and 1990s. It was devoted to the beneficial functions of open economies, free markets, and the privatization of pointless state programs. It has also been suggested that too intrusive government regulation and meddling in the economy is to blame for the failure of certain economies to grow. The three techniques

propagated by the neoclassical counter-revolution economists are the free market, the new political economy, and the market-friendly method. Each technique aimed to disprove the global reliance paradigm. Robert Solow, who emphasized the significance of capital accumulation via saving, investing, and other means, created the neoclassical growth theory.

Broad Money

In the field of economics, the term "wide money" refers to a measurement of the total amount of money, often known as the money supply. This figure takes into account both highly liquid "narrow money" and less liquid forms of currency. Broad money is defined differently by the European Central Bank, the Organization for Economic Cooperation and Development (OECD), and the Bank of England.

However, the precise meanings of different monetary metrics change from country to country. Whenever it is not adequate to assume a more general definition, the terms will typically be defined in a more precise manner before the discussion. Bank of England officials have come to the "inescapable conclusion" that "there can be no unique definition of 'broad money,' and any choice of dividing line between those financial assets included in, and those excluded from, broad money is to some degree arbitrary, and it is likely that over time, the definition of broad money will evolve", developments in the financial system will invalidate such a line of demarcation. In most contexts, the phrase "wide money" refers to more of a word than a specific definition that can be applied universally.

CHAPTER TWO

INTRODUCTION

A review of the topic's existing literature may help you learn about previous research on the issue. Before deciding on a study topic, it is vital to do a comprehensive review of previous research. To gather material for the study, standard books, journals, published & unpublished research works, and other generally available market sources may be employed. This chapter goes into great detail on FDI and GDP growth. Several academic studies on FDI and related

literature have been done. There is an abundance of information available concerning FDI. A large number of academics and professionals have volunteered their time and expertise to undertake FDI research. This chapter highlights the research findings, which were based on a substantial body of literature on FDI and associated topics. Theoretical and empirical studies on FDI will be investigated in this chapter. In light of the current inquiry, the following are some of the most relevant studies that must be evaluated:

Theories of Foreign Direct Investment

It is possible to trace the first conception of FDI back to economics, where it may be seen as the development of classical notions of international trade. Historically, the idea of comparative advantage developed by David Ricardo was considered the first effort to provide an explanation for foreign direct investment.

International capital flows for the purpose of international commerce were conceptualized in great detail thanks to the work of Ohlin (1933). Reason for this is because national economies have diverse levels of available resources. It builds on David Ricardo's theory of comparative advantage by allowing one to foresee regional differences in commerce and output based on the relative abundance of certain factors. The original version of Ricardo's thesis emerged throughout the 18th century. The model predicts that countries would sell products overseas that take use of whatever factors of production they have in plenty and at cheap prices, while simultaneously importing products that employ whatever factors of production other countries are short on. However, Ricardo's theory cannot be used to explain FDI since it requires more than two countries, more than two products, and total mobility of components at the local level. FDI would be completely out of the question under such a framework.

When the concept of worldwide production was originally introduced as a microeconomic theory, it was in 1960 by Stephen Herbert Hymer. It was in the year 1960 when Stephen Herbert Hymer first introduced the microeconomic theory of international production. 1960, first released in

1976. His contributions are considered groundbreaking in the study of foreign direct investment. Hymer identifies two groups of elements that encourage corporate globalization. The quantity and ownership of individual assets owned by the corporation are examples of variables in the first group. In the second group, we find contributors that have anything to do with market flaws. Hymer shown that a corporation would only engage in FDI provided it can get sufficient benefits by using FSAs across borders to justify the additional costs incurred by setting up shop in a foreign country. Multinational businesses (MNCs) are able to economically compete on a global scale because of a variety of factors, some of which are unique to the MNC itself. This argument is based on the ideas put out by Hymer.

According to the OECD (2002), an array of processes and channels exist via which FDI may affect the sustainable growth of the host country. FDI may have both beneficial and detrimental effects on the economy of the country receiving the investment (Mencinger, 2003). Five primary mechanisms contribute to the positive effects of FDI on sustainable development: the transfer of new technologies and know-how, the development of human resources, integration into the global economy, increased competition in the host country, and the development and restructuring of firms (OECD, 2002). However, several of the processes that have been discovered, namely the first four, are also capable of acting in a manner that is detrimental to the expansion of the economy. Foreign direct investment might also make it more difficult to put economic policies into effect. Table 1 provides an overview of various mechanisms, focusing on the effect that is anticipated to result from them (positive or negative).

A second method FDI may contribute to the development of the host country's economy is via the production of human resources, in the form of a work force. This route has the potential to streamline the occurrence of positive outcomes, but it also has the potential to facilitate the occurrence of undesirable ones. Ozturk (2007) claims that FDI helps a country prosper because it improves the quality of its workforce via training, hence increasing the country's potential to produce goods and services. Zhang (2001) suggests that FDI might spur economic growth by attracting skilled workers and introducing new methods of production and administration. It is expected that FDI would boost workforce knowledge by providing training via the introduction of new manufacturing and management procedures, as stated by De Mello (1999). The research explicitly predicted this result. Human capital in the host country may benefit from the lessons

learned by workers at multinational corporations setting up shop there. It's possible to do this by keeping an eye on how newly implemented procedures work (Alfaro et al., 2004). As was previously said, foreign direct investment (FDI) is a means through which the host country adopts cutting-edge technology; thus, it is crucial that the local workforce has the skills necessary to make use of these innovations. However, capacity gaps often emerge, prompting MNCs to provide the necessary training and so enhance host country capacities (Borensztein et al. 1998). The Organization for Economic Co-operation and Development (2002) found that international corporations are a greater supplier of training than local ones. This may be explained by the use of innovative technologies, techniques, and procedures that the native workforce is unable to master and that may restrict their application (Borensztein et al., 1998). The education that is imparted by multinational corporations has ramifications for the economics of the whole nation. According to Hanson (2001), after receiving training from international companies, employees will subsequently be hired by local companies, which will then impart their knowledge to those global companies. According to Lim (2001), many employees put their newly acquired knowledge to use by founding their own businesses, at which point they pass on their expertise to the employees of their new companies. According to the OECD (2002), multinational corporations are also responsible for enhancing the training of the nations in which they operate because they make it clear to the government of the host country how important it is to have a skilled and qualified work force.

It is generally accepted that FDI helps the host country's economy become more integrated into the global economy by bringing in capital from outside (OECD, 2002). Mencinger (2003) corroborates this idea by showing how a country's increased FDI might speed up its process of becoming part of the international market. Mencinger shows that the fast integration into global commerce is directly related to the rise in FDI. Economic growth is stimulated by a country's growing degree of openness to FDI, which in turn leads to integration with worldwide markets (Barry, 2000). Copying and acquiring the information owned by multinational organizations is a key factor in the integration of regional businesses into the global market, as stated by Blomstrom and Kokko (1998). Multinational firms obviously have a higher degree of experience about internationalization since they have already gone through the process. Multinational firms' strengths in marketing, network building, and the development of international lobbying

organizations are among their greatest competitive advantages. Communicating with the structures of MNCs, as Zhang (2001) argues, is crucial. This is due to the fact that local firms may theoretically get insight into the operation of these networks and perhaps become a part of them. A variety of channels exist for disseminating news to local companies. Some domestic businesses, as noted by Blomstrom and Kokko (1998), end up providing goods and services to their global counterparts. As a result, local businesses are able to export, but often not under their own brand but under the foreign company's. Also, keeping in touch with the MNC can help you take advantage of the international distribution channels established by their established brand (Zhang, 2001). This will be their first experience with international markets and will allow them to begin selling their branded, custom-made goods to new customers . Foreign direct investment (FDI) may help local firms become more globally competitive by incorporating them into the business strategy of multi-national conglomerates. As a result, it's possible that domestic firms may begin to imitate their foreign counterparts by entering new markets and ultimately becoming worldwide. Alternately, it might motivate domestic businesses to switch from supplying foreign-based branches of multinationals to doing so (OECD, 2002). Multinational firms have a propensity, as reported by Ford et al. (2008), to include their suppliers in the global networks to which they belong. The creation of connections with other international organizations allows local enterprises to take part in global trade. The OECD found in its 2002 study that trade groups, of which MNCs are often major members, play a crucial role in the distribution of information about the worldwide market. This is due to the fact that trade groups facilitate the sharing of valuable insights and information. It also claims that local governments may build infrastructures (particularly transportation infrastructures) that help both international commerce and local enterprises' attempts to become global in response to demands from multinational corporations. The infrastructure will be especially helpful to the transportation sector. Gunaydin and Tatoglu (2005) state that this is the case because FDI's effects improve the redistribution of the host country's raw materials. The truth of this line is evidence of this claim. Foreign direct investment (FDI) is another factor that determines how well a country integrates into the global economy. Imports of components and exports of completed items may both rise when only investments in assembly lines are undertaken (Zhang, 2001). Increasing exports as a consequence of FDI, say Makki and Somwaru (2004), enables domestic firms to maximize capacity utilization and take

advantage of economies of scale, leading to higher productivity. As a result of rising product demand, this is what happens.

Empirical literature

FDI and economic growth relationship

Studies conducted by Moura and Forte (2013) The rate of sustainable development in the host country is affected by foreign direct investment (FDI) in a number of ways, including the dissemination of new technologies & know-how, the development of human resources, integration into global markets, an increase in the level of competition, and the growth & reorganization of businesses. Many different studies have shown that FDI leads to economic expansion in the nation that it is invested in. However, there is evidence that FDI may also be a source of adverse repercussions for the nation that receives it. Literature that already exists also emphasizes the ambiguity of the findings and notes that this ambiguity may be describe by the presence of a gap in the study addressing the manner in which foreign direct investment (FDI) effects the economic development of the host nation. It may be helpful to do a study of the studies that have already been done on the topic of the connection betwixt FDI & economic development in the host nation, given the lack of agreement about the impacts of FDI on the sustainable development of the host nation. Therefore, the fundamental purpose of this study is to examine the causes of the favorable and unfavorable impacts of FDI on the host country's economic growth. By reviewing the existing theoretical and empirical literature on the issue, as well as making advantage of the breadth of information and the variety of analysis that is now accessible, we want to shed light on the main reasons why various research yield differing findings. To either maximize the good benefits of FDI on economic development in the host country or reduce the negative effects of FDI on economic growth in the host nation, the results may be useful to the authorities in the host nations in the process of creating FDI policies.

Kastrati (2013) provides an explanation of the theoretical & empirical literature on FDI. In addition, the author outlines the key trends in FDI theory & illustrates how these ideas were established, as well as the causes that led to the demand for new ways to extend the economic

theory of FDI. In addition to this, it includes a summary of the theoretical factors that determine FDI as well as the influence that FDI has on the expansion of the economy and international commerce.

In addition, the theoretical research done on FDI has resulted in better knowledge of the economic mechanisms & the behavior of economic actors, both at the micro & macro levels. This has made it possible for new fields of research to be opened up in the field of economic theory. In addition, we identify, with the help of the eclectic paradigm, the variables that inspire international businesses to invest overseas as opposed to exporting their products or outsourcing manufacturing to domestic enterprises. In conclusion, we are unable to state that there is a single theory that is universally recognized; nonetheless, each new theory adds some new fundamentals while also expressing disagreement with older theories.

After the adoption of political and economic reforms (Doi Moi) in 1986, Thao Huong's study (2022) examines the impact of FDI on the pace of economic growth in Vietnam from 1990 to 2020. This research use the VAR model, the unit root test, Granger causality, impulse response, and variance decompositions to determine the impact of FDI on economic growth. Research shows that FDI boosts economies in the short term but stunts them in the long run. Although foreign direct investment (FDI) capital has risen over the years and has tremendous potential, FDI's effectiveness remains restrained. In light of these considerations, this study's overarching goal is to provide a thorough evaluation of the variables that affect FDI and the potential implications of this factor on the Vietnamese economy.

Titus Okwu et al. (2020) used pertinent econometric methodology in a panel data environment to analyze the effects of FDI inflows on economic growth in 30 of the world's leading economies between the years 1998 and 2017. This research covered the period between 1998 and 2017. Other factors that were taken into account in the research were trade openness (TOPNESS), domestic credit to the private sector (DCPS), gross fixed capital formation (GFCF), the inflation–consumer prices index (INFPC), and young unemployment (UEMPYT). In general, the findings revealed contradictory findings on the growth impacts of the factors. Specifically, foreign direct investment had a beneficial and appreciable impact on the rate of economic expansion across the nations throughout the relevant time period. This article came to the conclusion that FDI inflows boosted sustainable development, and it emphasized the need to

foster more FDI-attracting policies as well as adequate GFCF to complement FDIs for sustainable development expansion potential. Consequently, this article came to the conclusion that FDI inflows enhanced economic growth.

Usman ALI et al. (2018) investigated the processes underlying the link betwixt sustainable development & foreign investment using time series yearly data from China. In our empirical research, we made use of a method called asymmetric ARDL, which demonstrates the possible asymmetric influence of outbound FDI on sustainable development in both the long run & the short run. The empirical findings imply that disregarding the inherent asymmetries may be able to hide the genuine information about the equilibrium connection among the variables, which would therefore lead to misleading outcomes. Specifically, the research showed that economic development in China reacts favorably, but in a manner that is distinct from how it reacts to an increase or drop in the country's outside investment. The empirical data that was gained via the asymmetric model seemed to be superior to that which was obtained through the symmetric model, which therefore leads to more effective policies in order to achieve sustainable economic growth. Our research makes a contribution to the current body of literature by shedding fresh light on the idea that outbound FDI is a driver of sustainable development. According to the results, companies that invest overseas may provide advantages to their home countries by gaining access to critical input elements and cutting-edge foreign technology.

Using data in the form of time series over the span of 1980–2015, Bouchoucha et al. (2019) investigate the influence that FDI has on the rate of economic development in Tunisia. In this study, we investigated the short-term & long-term relationships betwixt FDI & sustainable development by using a methodology known as the autoregressive distribution with lag (ARDL) method. The empirical facts show that FDI contributes to economic growth both immediately and in the future. We have shown that domestic investment and human capital have significantly boosted the short-term growth of the Tunisian economy, rather than having any discernible influence on the economy at all. The same holds true for all of the other variables in the development of the economy. However, the extent to which commerce is open has a chilling effect on economic growth in the short and long terms.

A VAR model was used by Hoang Quoc et al. (2018) in order to investigate the connection that exists between international investment and the expansion of the Vietnamese economy. The findings support the contention of international economic theory that a connection exists betwixt FDI, GDP, & openness to trade. FDI is an essential source of cash for the economic expansion of a country like Vietnam, which is a relatively small developing nation. The results of our model and research have shown that there is a positive link betwixt FDI & GDP. This is evidenced by the presence of positive coefficients in the VAR model. In addition, the model makes use of two additional variables: the degree to which a country is open to commerce and the severity of the international crisis. Both of these factors have a substantial influence on the amount of money brought in by foreign investors and the rate of economic expansion.

Ezekiel K. and colleagues (2022) explore the effect that FDI has on the expansion of the Sierra Leonean economy. The whole time frame that is being looked at, which begins in 1980 and ends in 2016, encompasses a total of 37 years. For the most part, researchers come to the conclusion that FDI has a beneficial effect on the economic development of a nation's economy; nevertheless, in this study, we found that FDI does not have any association with economic growth in Sierra Leone. The data were analyzed using empirical techniques, and the findings are based on a regression analysis that was performed using the data that was available. According to the research findings, FDI (stock) into Sierra Leone has no effect on the country's sustainable development.

Broad money and economic growth relationship

Tarawalie and Kargbo (2020) look at how much the government's spending and borrowing decisions affect Sierra Leone's GDP growth. Utilizing annual time series data from 1980–2017, the study applies an autoregressive distributed lag bound testing estimate approach popularized by Hashem and Yongcheol. (1998). Findings from the unit root test suggest that all variables are integrated in order one (I(1)), and results from the cointegration bound test provide support for the idea that the variables do, in fact, cointegrate. The study concludes that monetary policy is much more effective than fiscal policy in promoting economic growth in Sierra Leone. More precisely, the findings suggest that the monetary base, the real rate of exchange & inflation are the primary determinants that drive economic development over the long run. This study finds

that although there is a positive correlation between money supply and economic growth, there is a negative correlation betwixt the real currency rate & inflation on expansion throughout the time period analyzed. Short-term dynamics also reveal that Sierra Leone's real GDP growth is most affected by monetary policy, tax revenue, government expenditure, and the war dummy. Moreover, the result shows that the real GDP imbalance was corrected by 24% in only one year. The study's results suggest that a balanced budget and better coordination between the government's monetary and fiscal policies are necessary to alleviate fiscal dominance in the Sierra Leonean economy.

Duramany-Lakkoh (2020) analyzes the impact of fiscal policies on the development of Sierra Leone's financial sector between 1980 and 2015. The study's goal is to track the dynamics between various fiscal policy factors and the expansion of the financial sector through time. The study used a quantitative technique, and the model was developed with private sector credit standing in for the variable reflecting expansion in the banking sector. This was then regressed against GDP, inflation, interest rates, money supply, and other economic variables. An error correction model was used to evaluate the long- and short-term effects of the explanatory variables on the dependent variables employed in the empirical functions. It has been shown by the Augmented Dickey Fuller and Philip Pheron tests that the variables in the equations are I(1) variables, as suggested by the unit root tests. This indicates that the initial difference serves as the pivot point for the other variables. Based on the findings of the Johansson co-integration tests, private sector credit and the explanatory variables are linked over the long term. The whole battery of tests was performed as planned; this includes the lag-length criteria test, serial correlation test, normality test, and stability test. Before using vector auto regression, this was performed to ensure the data was of sufficient quality. This article reviews a research that examined the connection between private sector lending and fiscal and non-fiscal variables in Sierra Leone and finds that its conclusions contradict the bulk of the theoretical & empirical literature on financial sector development. Despite our expectations, the long-term financial and economic research showed a positive and statistically significant association betwixt private sector credit & money supply, real interest rates, total tax revenue, & inflation. All of these findings point to a good and meaningful outcome. This study concludes that private companies

are willing to take on debt regardless of the interest rate in the market or the share of revenue that is subject to taxation. To put it simply, the desperation with which private institutions seek access to short- and medium-term funding is reflected in the private sector's appetite for risk. This may be the cause of the high rate of non-performing loans in Sierra Leone's economy (NPL).

Twinoburyo and Odhiambo (2018) conduct a literature review on the topic of the link betwixt monetary policy & sustainable development. The review includes both theoretical & empirical works on the topic. The connection betwixt economic expansion & monetary policy has been the subject of several studies, but the findings have not been able to shed any light on the nature of the link between the two. In this work, we take a complete look at the development of the relationship's theoretical understanding as well as the most current empirical discoveries relating to that understanding. Overall, this study demonstrates that the bulk of studies support the relevance of monetary policy in fostering economic development. This is particularly the case in economically developed nations with central banks that are mostly autonomous from one another. In emerging countries, which often have structural flaws as well as financial systems that are not fully established and only poorly connected to global markets, the association tends to be weaker. Despite the existing ambiguity in their connection, the authors of this research come to the conclusion that monetary policy is important for expansion, both in the short-run & the long-run. The research study suggests extensive measures for the financial growth of emerging nations, as well as structural changes, in order to overcome weaknesses on the supply side.

Exchange rate & Economic growth relationship

Karahan (2020) In accordance with the standard theory, there exists a nexus between shifts in the worth of a dollar and increased economic activity. That a rise in the value of a country's currency relative to others enhances its net exports, which in turn stimulates the economy by increasing demand. Structural economists, on the other hand, argue that there is an inverse relationship among a rising inflation rate and its rate of economic growth. A increase in exchange rates has a detrimental effect on economic growth since the input structure of production is reliant on imported capital & intermediate goods, especially in emerging economies. Since 2002, Turkey's exchange rate for its currency has been permitted to fluctuate freely. Since then, a "inflation targeting" (IT) regime has dictated the country's monetary policy. This puts Turkey in a rare

situation to assess how changes in exchange rates affect GDP growth. Our study thus used the Johansen cointegration test, the Granger causality test, and the Innovation Accounting Techniques to examine the link between the exchange rate and economic expansion. Our analysis used quarterly data collection starting in 2002 Q1 and ending in 2019 Q1. Empirical evidence supports structuralist economists' claims that there is a negative causal relationship between exchange rates and economic growth. In terms of policy implications, it may be argued that Turkey's present method of inflation targeting should not prevent the nation from achieving price and exchange rate stability at the same time.

Khan (2021) uses time series data from 1990 to 2020 to analyze inflation, the nominal currency rate, FDI, and a shock to the economy as they pertain to productivity expansion in Bangladesh. The existence of unit roots and the stationarity of variables may be tested for with the use of the Augmented Dickey-Fuller and Phillips-Perron Unit Root Test. The ordinary least squares method is used to determine the structure of the connection betwixt the dependent variable & the independent variables. According to the findings, both the currency exchange rate and the level of direct investment from outside have had a considerable impact on the expansion of the nation's economy. Positive influences on economic growth in Bangladesh include inflation, foreign direct investment (FDI), and currency rate fluctuations; negative influences include unanticipated events such as COVID-19, natural catastrophes, and other similar occurrences. The research may be of use to policymakers in determining, formulating, and putting into action effective policies that will contribute to the economic expansion of the nation.

CHAPTER THREE

Introduction

In this section of the research, an in-depth discussion is held on the many strategies, methods, and processes that were used in order to get the data that was essential for the study. This section also reviews and discusses the different statistical processes that were used to assess the data that

was acquired during the investigation. These procedures were applied to evaluate the data that was gathered throughout the investigation.

Data

For the sake of our thesis, we rely on secondary sources, Secondary data describes information collected by a source other than the main data user. Common examples of secondary data for the social sciences include censuses, information gathered by gov't agencies, organizational records, & data initially acquired for distinct study goals. The data used in a study are called "primary" if they were gathered by the researcher themselves.

The time required on primary data collection may be reduced by the use of secondary data analysis, which can also provide larger and more reliable datasets than a single researcher could amass on their own. Potentially less time-consuming than traditional data collection methods, this kind of analysis might help expedite the research process. Analysts of social & sustiable development often place a high value on secondary data since it is difficult to conduct a fresh survey that can accurately represent prior change and/or improvements. When doing marketing research, secondary data analysis may not be as beneficial owing to the data's potential for error or having outlived its usefulness. Information is collected from the World Bank data site to learn how foreign direct investment affects economic growth in Sierra Leone. The World Bank's Development Data Group is responsible for managing statistics and data projects and storing data on a variety of macro, financial, and sector levels. The team works closely with the Bank's regions and worldwide processes to gather, compile, and distribute data in a way that adheres to industry standards, giving customers confidence in the data's accuracy and reliability.

Variables

GDP growth- Annual GDP growth rate at current market & currency exchange rates. Totals are expressed in 2015 U.S. dollar terms and are calculated using constant pricing. GDP is calculated by adding up the value of goods and services produced within an economy's borders, plus any applicable sales taxes and minus any subsidies that are not included into the prices of those

goods and services. It's estimated without factoring in things like the depreciation of produced assets or the exhaustion of natural resources. GDP measures the aggregate monetary worth of all final goods and services produced within a nation. The value contributed by an economy is calculated by subtracting the cost of raw materials and labor from the final product's selling price. That's done before the production's fixed capital is included in. Value added is should be calculated using either basic prices (minus net taxes on items) or producer prices, according to the United Nations System of National Accounts (including net taxes on products paid by producers but excluding sales or value-added taxes). Both prices exclude transportation fees since manufacturers charge for them independently. GDP is calculated based on the final consumer price level. An industry's worth is often quantified by looking at how much it costs to produce its fundamental goods. Growth rates of GDP and its components may be calculated when value added is estimated at the prices paid by the producer using the least squares approach and data on constant prices in the local currency. A set of constant prices in U.S. dollars is used to determine annual growth rates for different regions and income brackets. Local currency series are converted into constant U.S. dollars using an agreed-upon exchange rate from a reference year. A useful indicator of economic growth is the percentage increase in production or the percentage increase in per capita real income. GDP, real gross domestic income, and real gross national income are all useful indicators of economic expansion based on data from the 2008 United Nations System of National Accounts (2008 SNA). At constant prices, GDP measures the sum of all value created by households, governments, and corporations. The GDP accounts for all output inside a country, regardless of where the funds for that production originate from.

Value added growth is used to measure the contribution of different sectors to overall economic growth. This year, everyone will be talking about value. Uploaded by einsteiner with Yet in many industries, value added is estimated by looking forward from a certain base year using output or input volume indices that only cover a single year. Value added at constant prices is often attributed to labor inputs like salary or headcount, especially in the service sector and the public sector. Without well defined output measures, it is difficult to track the expansion of services. Improvements in production efficiency and product quality brought about by technical advancements should be included into value-added calculations, but they might skew the results otherwise. Likewise, the worth of output & wealth created are often distorted due to a failure to

account for qualitative improvements that aren't tracked. So it's possible that growth & productivity gains are understated while inflation is exaggerated. Particularly in underdeveloped countries, where the vast majority of economic activity occurs underground, measuring the impact of informal economic activities presents a unique challenge. Home production for personal use, sales in unofficial markets, bartering, and illegal or deliberately unreported economic activity must all be included in to provide a complete picture of the economy. To what extent and in what ways these estimates vary depends on the skill and approach of the statisticians generating them. A country's projected growth rate might be affected by data inconsistencies introduced by rebasing national accounts. Rebasing national accounts means updating the relative importance given to each variable to reflect changes in production or consumption practices. The new base year should be one in which the economy is operating normally, without any major shocks or distortions. Many developing countries have neglected to update their national accounts for years. There is a risk of being misled by using a very old base year since implicit price & volume weights lose their utility and relevance with time. GDP & worth added by industrial origin are both re-indexed to the same base year by the World Bank so that similar series of constant price data may be used in aggregation. Due to the fact that rescaling changes the implicit weights used to generate regional & income group aggregates, the growth rates from one edition with a different base year cannot be directly compared to those from another edition. Rescaled GDP may not add up to the sum of the rescaled components after rescaling. "Electronic commerce" refers to the buying and selling of electronic products through the internet. This means that the GDP growth rate doesn't always correspond to the weighted average of the component expansion rates.

FDI inflow- GDP growth rate at current market & currency exchange rates. Totals are expressed in 2015 U.S. dollar terms and are calculated using constant pricing. GDP is calculated by adding up the value of goods and services produced within an economy's borders, plus any applicable sales taxes and minus any subsidies that are not included into the prices of those goods and services. It's estimated without factoring in things like the depreciation of produced assets or the exhaustion of natural resources. GDP measures the aggregate monetary worth of all final goods and services produced within a nation. The value contributed by an economy is calculated by subtracting the cost of raw materials and labor from the final product's selling price. That's done

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production for personal use, sales in unofficial markets, bartering, and illegal or deliberately unreported economic activity must all be included in to provide a complete picture of the economy. To what extent and in what ways these estimates vary depends on the skill and approach of the statisticians generating them. A country's projected growth rate might be affected by data inconsistencies introduced by rebasing national accounts. Rebasing national accounts means updating the relative importance given to each variable to reflect changes in production or consumption practices. The new base year should be one in which the economy is operating normally, without any major shocks or distortions. Many developing countries have neglected to update their national accounts for years. There is a risk of being misled by using a very old base year since implicit price & volume weights lose their utility and relevance with time. GDP & worth added by industrial origin are both re-indexed to the same base year by the World Bank so that similar series of constant price data may be used in aggregation. Due to the fact that rescaling changes the implicit weights used to generate regional & income group aggregates, the growth rates from one edition with a different base year cannot be directly compared to those from another edition. Rescaled GDP may not add up to the sum of the rescaled components after rescaling. "Electronic commerce" refers to the buying and selling of electronic products through the internet. This means that the GDP growth rate doesn't always correspond to the weighted average of the component expansion rates.

Broad money- Currency not held by financial institutions, non-Federal Reserve System demand deposits, non-Federal Reserve System time, savings, and foreign currency deposits of resident sectors, bank and traveler's checks, and other securities like certificates of deposit and commercial paper are all included in the definition of broad money (IFS line 35L.ZK). The financial system of a nation is based around money and the financial accounts that keep track of it. Several standard definitions of "money supply" exist. Including both public cash and bank demand deposits, M1 is the lowest money supply. M2 is made out of M1 plus time and savings deposits that can't be withdrawn without notice. The money supply M3 includes M2 plus deposits in foreign banks, deposits in non-bank financial institutions, and certificates of deposit issued by domestic banks. There is no way to avoid the fact that money is a bank's obligation. It is distinct from other forms of debt since it serves as a medium of commerce, a unit of account, & a store of value. Monetary accounts are compiled by using the financial institution balance

sheets (including the central bank, commercial banks, and nonbank financial intermediaries). Even though these balance sheets are normally correct, they may be mistakes in categorization, value, timeliness, and the method they are created. For instance, the treatment of nonperforming assets and the method used to report interest income both have significant implications. Errors in valuing foreign currency transactions are prevalent, particularly in nations with variable exchange rates or in countries whose currencies have gone down in worth over the reporting period. The worth of financial derivatives & the net liabilities of the banking sector may be similarly elusive. Delays in reports from bank branches, particularly in regions where branch accounts are not held on computers, may also harm the quality of commercial bank reporting. Because of this, it's possible that commercial banks' balance sheet figures are based on guesses rather than hard data. The situation is expected to worsen for non-bank financial institutions.

REAL EFFECTIVE EXCHANGE RATE- An effective exchange rate is calculated by dividing the nominal effective exchange rate (a measure of a currency's value against a weighted average of numerous foreign currencies) by a price deflator or cost index. A nominal effective exchange rate indicator, the real effective exchange rate factors in the relative changes in national price or cost indices in the home country, selected countries, and the euro zone. Indexes of nominal effective exchange rates are calculated by dividing the average exchange rate for a certain time period by a weighted geometric average of exchange rates for a group of countries and the Euro Area. Weights for most middle- and upper-middle-income countries originate from the trade of manufactured goods with industrialized nations. Data is generated using the Nominal Effective Exchange Rate Index and a Cost Indicator based on Relative Normalized Unit Labor Costs in Manufacturing. The index of the nominal effective exchange rate for some non-U.S. countries is derived from their volume of trade in intermediate and basic materials with our trading partners and competitors. An increase in the real effective exchange rate index indicates a stronger local currency compared to the nominal index before adjusting for comparable changes in consumer prices for these countries. The actual exchange rate, real wages, and real interest rates all have an effect on the allocation of resources in a market-based economy by households, producers, and governments. These agents' tastes are also heavily reflected in relative pricing. Therefore, relative prices provide vital information about the relationships among economic actors both inside and beyond economies.

#	Variables	Abbreviation	Measurement	source
1	Economic growth	GDP	GDPgrowth(annual %)	World Bank
2	Broad money	BM	(% of GDP)	World Bank
3	Real effective exchange rate	REER	index (2010 = 100)	World Bank
4	Foreign direct investment	FDI	Net inflow (% of GDP)	World Bank

Model specification

The term "model specification" refers to the process of deciding which variables will be used in a given model (MacCallum, 1995). There is a trade-off in model definition between including all relevant variables and keeping statistical power. Since the Johansen cointegration test requires all variables to be I, it cannot be employed directly if the variables of interest have a different order of integration or are not all non-stationary (1). For non-stationary and mixed-order time series of integration, an ARDL model, which is based on ordinary least squares (OLS), may be useful. 16,17 Using a general-to-specific modeling framework, this model incorporates sufficient delay times to accurately depict the data-generating process.

Error correction models (ECMs) may be derived from ARDL using a linear transformation. Similarly, the ECM incorporates long-run equilibrium with short-run dynamics without compromising the long-term perspective. Errors, such as misleading associations brought on by non-stationary time series data, are also eliminated.

Consider the following basic model to demonstrate the ARDL modeling approach:

$$GDP = f(FDI, BM, REER)\text{---}1$$

$$GDP_t = \beta_0 + \beta_1 FDI_t + \beta_2 BM_t + \beta_3 REER_t + \varepsilon_t\text{--------------------------}2$$

Where

GDP stand for gross domestic product

FDI = foreign direct investment

BM = broad money

REER = real effective exchange rate

β....3 = is constant of the perimeters

t = the time interval from 1980-2020

Descriptive statistic

A descriptive statistic (in the mass noun meaning) is the practice of using and analyzing such statistics, whereas a descriptive statistic (in the count noun sense) is a summary statistic that quantitatively describes or summarizes characteristics of a data collection. Descriptive statistics, as opposed to inferential statistics (or inductive statistics), aim to summarize data rather than learn about the population that the data sample is intended to represent. This means that, in contrast to inferential statistics, descriptive statistics are often nonparametric and not reliant on probability theory. Mr. Y. Dodge (2003) Descriptive statistics are often presented even when inferential statistics are used to make important conclusions from a data analysis. Data on demographic or clinical parameters, such as mean age, percentage of subjects by sex, percentage of subjects with relevant co-morbidities, and so on, are generally included in a table at the end of publications reporting on human subjects.

The metrics of central tendency & variability or dispersion are often employed to define a data set. Central tendency is measured by the mean, median, and mode, whereas variability is measured by the standard deviation (or variance), the minimum and maximum worth of the variables, kurtosis, and skewness.

Unit root test

Mean trending or non stationarity is a feature of many economic and financial time series. Asset values, exchange rates, & the levels of macroeconomic aggregates like real GDP are just a few prominent examples. Choosing the most appropriate model for a given trend in the data is a crucial issue in econometrics. For analysis to take place in ARDL modeling, for instance, the data must first be transformed into stationary form. If there are discernible trends in the data, then it is crucial to eliminate such trends. Common methods for eliminating trends include first difference & time-trend regression. Time-trend regression is suited for trend-stationary I(0) time series, whereas first difference is acceptable for I(1) time series. Unit root tests may be used to determine whether the data showing a trend should be first distinguished or regressed on predictable functions of time. Additionally, it is often argued in economics and finance theory that no long-run equilibrium relationships exist between stationary time series variables. If the variables involved are I, then cointegration techniques may be used to model the long-term associations between them (1).

An ADF, or augmented Dickey-Fuller test, is a statistical procedure for testing the null hypothesis that a time series sample has a unit root. Most of the time, the alternative hypothesis is either stationarity or trend-stationarity; however its precise form may change depending on the exact version of the test being employed. This refined version of the Dickey-Fuller test may be used to a wider range of models for time series, including those with more moving parts.

When the augmented Dickey-Fuller (ADF) statistic is used, it returns a negative number. When it's negative, it's possible to reject the unit root hypothesis with greater certainty. The Phillips-Perron (PP) unit root test was created by statisticians Peter C.B. Phillips and Pierre Perron in 1988. Although the PP unit root test and the ADF test are very comparable to one another, the fundamental distinction between the two is in the manner in which each test handles serial correlation. In contrast to the PP test, which disregards the possibility of any serial correlation, the ADF makes use of a parametric autoregression in order to get a close approximation of the structure of the errors. Despite the distinctions between the two tests, the results of both of them almost always point to the same conclusion.

ARDL BOUND TEST

Executing an augmented autoregressive distributed lag (ARDL) bounds test for cointegration requires running an additional F-test on the lagged levels of the independent variable(s) in the ARDL equation. When this method of testing was originally developed, the bootstrapping approach was used to conduct the tests. In order to simplify the test and make it available to a wider variety of academics, this article covers both the small sample and the asymptotic critical values. The assumption that the dependent variable is I(1) is unnecessary in this improved ARDL limits test. The three tests also offer a definitive verdict on the cointegration relationship's health, which is a plus. Using real-world data on FDI and GDP growth, we demonstrate the expanded ARDL limits test.

In 1999, Pesaran, Shin, and Pesaran et al. conceived the ARDL cointegration technique. (2001). It has three benefits over both conventional and earlier cointegration methods. The ARDL may be used regardless of whether the underlying variables are integrated in order one, order zero, or are fractionally integrated, so long as the order of integration is consistent across all variables. The first advantage is this. The ARDL test has an additional benefit in that it performs very well on limited data sets. Last but not least, using ARDL enables us to get objective estimations of the long-run model (Harris and Sollis, 2003).

ARDL model

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ARDL Model equation

$$\Delta InGDP_t = \alpha_0 + \beta_1 InGDP_{t-1} + \beta_2 InFDI_{t-1} + \beta_3 InBM_{t-1} + \beta_4 InREER_{t-1}$$
$$+ \sum_{i=0}^{q} \Delta\alpha_1 \, InGDP_{t-k} + \sum_{i=0}^{p} \Delta\alpha_2 \, InFDI_{t-k} + \sum_{i=0}^{p} \Delta\alpha_3 \, InBM_{t-k}$$
$$+ \sum_{i=0}^{p} \Delta\alpha_4 InREER_{t-k} + \varepsilon_t \ \ ------ \ 3$$

ECT Model equation

$$\Delta \, GDP_t = \ \alpha_0 + \sum_{i=0}^{q} \Delta\beta_1 \, InGDP_{t-k} + \sum_{i=0}^{p} \Delta\beta_2 \, InFDI_{t-k} + \sum_{i=0}^{p} \Delta\beta_3 \, InBM_{t-k}$$
$$+ \sum_{i=0}^{p} \Delta\beta_4 InREER_{t-k} + \lambda ECM_{t-1} + \varepsilon_t \ ----- \ 4$$

Residual diagnostic tests

This thesis made use of the residual test, as will be explained further down: The chronological progression of events leads to the discovery of the Breusch-Godfrey connection. The LM test is a

test that determines whether or not regression model errors have an underlying autocorrelation. During a regression analysis, the model that is being considered is used to create residuals, which are then used to build a test statistic. According to the assumption that is often referred to as the "null hypothesis," there is not a serial connection up to rank p.

In order to accurately describe time-varying financial data series, such as economic development, autoregressive conditional heteroskedasticity (ARDL) models are used. Volatility clustering may occur when ARDL models use the incorrect assumption that the variance of the current error term is proportional to the magnitude of the error terms that came before it.

The purpose of a normality test is to determine whether or not a set of data can be well described by a normal distribution or whether there is a possibility that a random variable associated with another variable has a distribution that is comparable to a normal distribution. It is also possible to apply normality tests in order to determine whether or not a random variable is connected to another variable.

Granger causality

The Granger causality test is a statistical examination that was first used to check a hypothesis in 1969. Its goal is to find out whether or not one time series can help predict another. Its goal is to find out whether or not one time series can help predict another. Granger, C. W. J. (1969) As a matter of course, regressions show "mere" correlations. However, Clive Granger argued that causality in economics could be tested by seeing how well someone could predict the future values of one time series using the past values of another time series. Granger came up with this method after noticing that regressions usually show "mere" correlations. Economists say that the Granger test only finds "predictive causality" because the question of "true causality" is very philosophical and because of the post hoc ergo propter hoc fallacy, which is the idea that the fact that one thing came before another can be used as proof of causation. This fallacy says that the fact that one thing happened before another can be used to show that one thing caused the other. Diebold, Francis X. (2007). Edward E. (1985) says that a better word for Granger's theory of cause and effect is "precedence," or, as Granger himself said in 1977, "temporally connected." It's not right to just use the word "causality." Granger, C. W. J.; Newbold, Paul (1977). The Granger causality test doesn't look at whether or not X caused Y. Instead, it looks at whether or not X can accurately predict Y. James D. (1994).

$$\Delta InGDP_t = \lambda_0 + \sum_{i=1}^{m} \lambda 1i\, \Delta In\, GDPP_{t-i} + \sum_{i=1}^{n} \lambda 2i \Delta FDI_{t-i} + \sum_{t=1}^{p} \lambda 3i \Delta BM_{t-i}$$

$$+ \sum_{i=1}^{q} \lambda 4i \Delta InREER_{t-i} + \mu_t \dots\dots\dots\dots 5$$

$$\Delta InFDI_t = \lambda_0 + \sum_{i=1}^{m} \lambda 1i\, \Delta In\, FDI_{t-i} + \sum_{i=1}^{n} \lambda 2i \Delta GDP_{t-i} + \sum_{t=1}^{p} \lambda 3i \Delta BM_{t-i}$$

$$+ \sum_{i=1}^{q} \lambda 4i \Delta InREER_{t-i} + \varepsilon_t \dots\dots\dots\dots 6$$

Stability test

In nonlinear models, parameter instability is not all that frequent a phenomenon. (2018, Saliminezhad et al.) As a consequence of this, in order to determine whether or not the findings are accurate, it is necessary to conduct an investigation into the consistency of the estimated model that was applied. In order to do this, we make use of a test known as the CUSUM of squares, which was developed by Brown and the other researchers in his group in 1975.

During the whole process of estimating, the stability of the model must be reviewed and rechecked at all times; how much importance you put on the post-estimation test is a decision that is wholly under your control (Hansen, 2000).

In multiple linear regression studies, cusum tests are used as a means of determining the degree to which the findings are consistent. Sums of recursive residuals and sums of squares of recursive residuals are used for inference purposes, respectively. Nestled subsamples of data are used to construct recursive residuals, which are also known as standardized one-step-ahead prediction errors. Recursive residuals are built up over time. Values that go outside of the projected range for the sequence are evidence that the structure of the model has evolved through time, which is in contradiction to the null hypothesis, which states that the parameters have stayed the same.

CHAPTER FOUR

In this chapter, an overview of the study's results is offered, and it is followed by a discussion of the ways in which the exchange rate has influenced the economy of Nigeria as well as a discussion of how academics have analyzed the effect of these changes. This section devotes a lot of attention to descriptive statistics and different approaches to data analysis, both of which were discussed in great depth in the earlier part of this investigation. After that, we will look at and discuss the stationary test of a data set, and then after that, we will look at and discuss co-integration, which will be another segment. After that, we will look at and explain the co-integration test of a data set. In this part, we will take a look at and discuss the stationary test for a data set. In the last section, not only will diagnostic tests and tests to determine whether or not data or results have remained stable be discussed in detail, but also regression analysis. Upon completion of this last unit of instruction, students will have successfully completed the course. In spite of this setback, the presentation was finished in accordance with the research aims, and the tests were finished using E-Views software; they were all successful.

Descriptive statistic

A descriptive statistic (in the mass noun meaning) is the practice of using and analyzing such statistics, whereas a descriptive statistic (in the count noun sense) is a summary statistic that quantitatively describes or summarizes characteristics of a data collection. Descriptive statistics, as opposed to inferential statistics (or inductive statistics), aim to summarize data rather than learn about the population that the data sample is intended to represent. This means that, in contrast to inferential statistics, descriptive statistics are often nonparametric and not reliant on probability theory.

Table 4.1 Descriptive statistic

	GDP	BM	REER	FDI
Mean	2.478683	32.06374	167.2780	3.062452
Median	3.46402	26.53900	123.2416	2.119176
Maximum	26.41732	88.40061	562.5820	32.30120
Minimum	-20.59877	2.62280	91.35332	-28.62426
Std. Dev.	8.329432	21.52872	114.4563	8.004615
Skewness	-0.155265	1.073509	2.164901	-0.122292
Kurtosis	5.342862	3.202623	6.653904	11.33398
Jarque-Bera	9.541778	7.945016	54.83443	118.7548
Probability	0.008473	0.018826	0.000000	0.000000
Sum	101.6260	1314.614	6858.397	125.5605
Sum Sq. Dev.	2775.177	18539.44	524010.0	2562.954
Observation	41	41	41	41

Table 4.1 displays descriptive statistics, including the mean, median, and maximum values, among others. The mean for GDP growth is the lowest in this category, with a value of 2,478.0. With a score of 167.27, the actual exchange rate has the highest value in this category. The highest unit for GDP growth is 26,417, while the maximum unit for foreign direct investment is 32,301. Typically, skewness is defined as a measure of a dataset's symmetry, or lack thereof. A data set with perfect symmetry will have a skewness of zero. The normal distribution has skewness equal to zero. The data are relatively symmetrical if the skewness is between -0.5 and 0.5. The data are significantly skewed if the skewness is between -1 and -0.5 or 0.5 and 1. The data are extremely skewed if the skewness is less than -1 or greater than 1. Kurtosis is assessed relative to standard distributions. Any distribution with a kurtosis of about 3 is mesokurtic, as the kurtosis of normal distributions equals 3. Kurtosis is sometimes characterized in terms of excess kurtosis, which is kurtosis 3. Since normal distributions have a kurtosis of 3, excess kurtosis makes it simpler to compare the kurtosis of a distribution to that of a normal distribution. The excess kurtosis of normal distributions is zero; hence, any distribution having an excess kurtosis close to zero is mesokurtic.

Unit root test

Mean trending or nonstationarity is a feature of many economic and financial time series. Asset values, exchange rates, and the levels of macroeconomic aggregates like real GDP are just a few prominent examples. Choosing the most appropriate model for a given trend in the data is a crucial issue in econometrics. For analysis to take place in ARDL modeling, for instance, the data must first be transformed into stationary form. If there are discernible trends in the data, then it is crucial to eliminate such trends. Common methods for eliminating trends include first difference and time-trend regression. Time-trend regression is suited for trend-stationary I(0) time series, whereas first difference is acceptable for I(1) time series. Unit root tests may be used to determine whether the data showing a trend should be first distinguished or regressed on predictable functions of time. Additionally, it is often argued in economics and finance theory that no long-run equilibrium relationships exist between stationary time series variables. If the variables involved are I, then cointegration techniques may be used to model the long-term associations between them (1).

Table 4.2 ADF unit root and PP unit root test

Augmented Dickey Fuller (ADF) Unit Root Test				PP unit root test		
Variables	Level	1st difference	order	level	1st difference	order
GDP	0.7588	0.0001	I(1)	0.0000	-0-	I(0)
FDI	0.0037	-0-	I(0)	0.0000	-0-	I(0)
REER	0.5511	0.0057	I(1)	0.9882	0.0000	I(1)
BM	0.0369	-0-	I(0)	0.0515		

Source: This study

The results of the ADF unit root test are shown in Table 4.2; this result indicates that the variables are stationary at both the level and the first difference. Two variables are stable at the level: foreign direct investment, and broad money, with p values of 0.0037, and 0.0369, respectively, but only the real effective exchange rate and economic growth are stationary at the first difference, the result for the PP unit root shows that GDP, FDI and BM are stationary at

level while exchange rate is stationary at first difference. Make the researcher use the ARDL model for regression analysis based on the results of the ADF unit root test.

ARDL bound test

In order to execute an enhanced autoregressive distributed lag (ARDL) bounds test for cointegration, an extra F-test on the lagged levels of the independent variable(s) in the ARDL equation must be conducted. This testing technique was initially applied using the bootstrapping procedure when it was first established. This article includes both the small sample and the asymptotic critical values in order to simplify the test and make it more accessible to a larger range of researchers. One advantage of this enhanced ARDL limits test is that the assumption that the dependent variable is I(1) is not necessary. Another benefit is that the three tests provide a clear judgment on the status of the cointegration relationship. The enlarged ARDL limitations test is shown using empirical data on FDI & sustainable development.

Table 4.3 ARDL bound test

Variables	Lag.	F-Statistic	Decision
GDP, FDI, REER, BM,	(4, 1, 4, 4,)	6.939555***	Co-Integration Exist
Bound Critical Value			
		I (0)	I (1)
Sign.	10%	2.37	3.2
	5%	2.79	3.67
	2.5%	3.15	4.08
	1%	3.65	4.66

The ARDL bond test strategy was used to examine whether there is a long-run link between GDP growth and the other factors in this study. This study aimed to discover whether these characteristics had a long-term association. Table 4.3 shows the method's results. Here are the decision-making factors: Ho indicates no long-run link if F-statistics are lower than I (0). H1 = If the F-statistics are greater than the I (1) threshold, the Ho hypothesis is rejected. There is no long-run connection. Since we have a large sample size, we employed the Alkaike information criterion for automatic selection. We may conclude that there is a long-term link between the variables since the F-statistic is 6.939555, which is greater than both the lower and upper limits.

ARDL short and long run tests

Table 4.4 ARDL short and long run test

	ARDL Short run			
Variables	*Coef.*	*Std.error*	*t-statistic*	*P value*
D(FDI(-1))	0.644	0.215	2.987	0.0073**
D(FDI(-2))	1.261	0.212	5.940	0.0000
D(FDI(-3))	0.985	0.225	4.375	0.0003
REER	-0.083	0.038	-2.181	0.04412**
BM	0.111	0.080	1.374	0.1844**
ECM	-0.542	0.146	-3.693	0.0014

	ARDL Long run			
Variables	*Coef.*	*Std.error*	*t-statistic*	*P value*
FDI	1.261	0.315	3.994	0.0007**
REER	0.092	0.045	2.035	0.0553***
BM	0.263	0.120	-2.193	0.0402**
C	8.287	4.334	1.911	0.0703***

*Note:***at 1percent level of significance **at 5percent level of significance *at 10percent level of significance Source: this study*

Table 4.4 displays the positive and substantial effect that FDI has on economic development in Sierra Leone over both the long and short term, as determined by ARDL's long and short run tests. Mehic et al. (2013), who studied the effect of FDI on development in Southeast European transition nations, found results that are congruent with ours. Empirical research is presented for the years 1998-2007 across seven Southeastern European countries. As an estimation method, the authors have settled on Prais-Winsten regression with panel-corrected standard errors. Foreign direct investment (FDI) was shown to have a positive and statistically significant effect

on economic growth, which was the study's primary result. When information on domestic investments are incorporated, the impact of FDI becomes statistically significant and robust.

Furthermore, both the exchange rate and wide money have statistically significant beneficial effects on the development of the Sierra Leonean economy. While exchange have a negative effect on the economic growth of Sierra Leone. This finding agrees with (or is consistent with) Ahmad et al. (2013). Using time series data for the period of 1975–2011, this study explores the influence that factors such as inflation, the nominal exchange rate, foreign direct investment, and capital stock have had on Pakistan's economic development. The Augmented Dickey Fuller (ADF) test is used to determine whether or not the variables are stationary. Every variable was determined to be stable at its current level. They checked the relationship between the dependent variable (GDP) and the other variables by using a technique known as the ordinary least squares approach (exchange rate, FDI, and capital stock). According to the findings of the OLS, both inflation and the exchange rate have a considerable and negative impact on economic development in Pakistan. An increase in inflation of one percent will result in a 0.29 percent loss in GDP. Because the coefficient for the exchange rate is -0.5504, it indicates that a one percent rise in the exchange rate would result in a 0.55 percent reduction in GDP. The total capital stock (GFCF) has a negligible impact on the expansion of the economy. The expansion of Pakistan's economy is favorably impacted in a meaningful way by beneficial aspects of foreign direct investment. According to the findings, a rise of 0.37% in GDP may be attributed to a one percent increase in foreign direct investment (FDI). Our model does not exhibit hetroskedasticity or autocorrelation, and its functional form is excellent, which is consistent with the hypothesis that the model is stable. By providing this information, the CUSUM and CUSUMSQ are demonstrating that the model is structurally stable within 5% of the critical boundaries. In order to maintain a healthy balance of trade, the government needs to take major action to raise the general quality of commodities that are exported.

Residual diagnostic

Table 4.5 Residual Diagnostic

Name of test	Tests	statistic	p value	results
Breusch-GodfreryLM test	Serial correlation	0.2128	0.7752	no serial correlation
Jarque-Bera	Normality	15.2468	0.0004	No normal distribution
Breuch-Pagan-Godfrery	Heteroscedasticity	0.3151	0.8459	homoscedasticity

Source: this study

As demonstrated in Table 4.5 above, the hypothesis predicts a normal distribution and the lack of serial correlation and conditional heteroskedasticity. This discovery's findings are consistent with what the theory expected. They are not even close to a normal distribution. Despite the fact that the alternative hypotheses suggest otherwise, the null hypothesis shows that the model does not feature serial correlation. The likelihood of this happening is 0.775, which is substantially greater than the 0.05% threshold and a factor of two higher. In this case, the null hypothesis is judged to be true, and the chance that the model may exhibit serial correlation is rejected. As a consequence of the null hypothesis, the model does not exhibit heteroskedasticity at the 5% significance level. This is the situation since the significance threshold is set at 5. After being put through its paces, this model does not remain stuck at the 5% mark. If the probability value of 0.8459 is larger than the 0.05 percent threshold, it indicates that the situation is more grave than previously assumed. We must infer that the model does not exhibit heteroskedasticity at this level since we cannot reject the null hypothesis at a significance level of 5%. For us, this is the only logical consequence. If we accept the null hypothesis, the data set should have a normal distribution with a standard deviation of 5 to 10%. The typical residue frequency distribution is 5% of the total. Because the chance of 0.0004% exceeds the significance criterion of 0.05 percent, the Jarque-Bera probability cannot be declared significant. This means that the probability is statistically significant. At the 5% significance level, residuals will have no normal distribution if the null hypothesis regarding cointegration is valid.

Granger causality

The Granger causality test is a statistical examination that was first used to check a hypothesis in 1969. Its goal is to find out whether or not one time series can help predict another. Its goal is to

find out whether or not one time series can help predict another. Granger, C. W. J. (1969) As a matter of course, regressions show "mere" correlations. However, Clive Granger argued that causality in economics could be tested by seeing how well someone could predict the future values of one time series using the past values of another time series. Granger came up with this method after noticing that regressions usually show "mere" correlations. Economists say that the Granger test only finds "predictive causality" because the question of "true causality" is very philosophical and because of the post hoc ergo propter hoc fallacy, which is the idea that the fact that one thing came before another can be used as proof of causation.

Table 4.6 granger causality test

Null Hypothesis	Obs.	F-Statistic	Prob.
BM does not Granger Cause GDP.	39	0.70099	0.5031
GDP does not Granger Cause BM		0.01343	0.9867
REER does not Granger Causes GDP	39	0.15835	0.8542
GDP does not Granger cause REER		0.21543	0.8073
FDI does not Granger Cause GDP	39	2.54684	0.0932
GDP does not Granger Cause FDI		0.43427	0.6513
REER does not Granger Cause BM	39	6.15520	0.0052**
BM does not Granger Cause REER		2.73630	0.0791
FDI does not Granger Cause BM	39	0.74095	0.4842
BM does not Granger Cause FDI		0.42654	0.6562
FDI does not Granger Cause	39	6.23567	0.0049**
REER does not Granger Cause FDI		3.36598	0.0464**

The results in Table 4.6 show that the variables have both bidirectional and unidirectional causality. The results show that the exchange rate and broad money have unidirectional causality; at the 5% level, the real exchange rate causes broad money, but broad money does not cause the real exchange rate. At the 5% level of significance, FDI and exchange rate have bidirectional causality, which means the two variables cause each other.

Stability tests

In nonlinear models, parameter instability is not all that frequent a phenomenon. (2018, Saliminezhad et al.) As a consequence of this, in order to determine whether or not the findings are accurate, it is necessary to conduct an investigation into the consistency of the estimated model that was applied. In order to do this, we make use of a test known as the CUSUM of squares, which was developed by Brown and the other researchers in his group in 1975.

During the whole process of estimating, the stability of the model must be reviewed and rechecked at all times; how much importance you put on the post-estimation test is a decision that is wholly under your control (Hansen, 2000).

Figure 4.1 CUSUM test
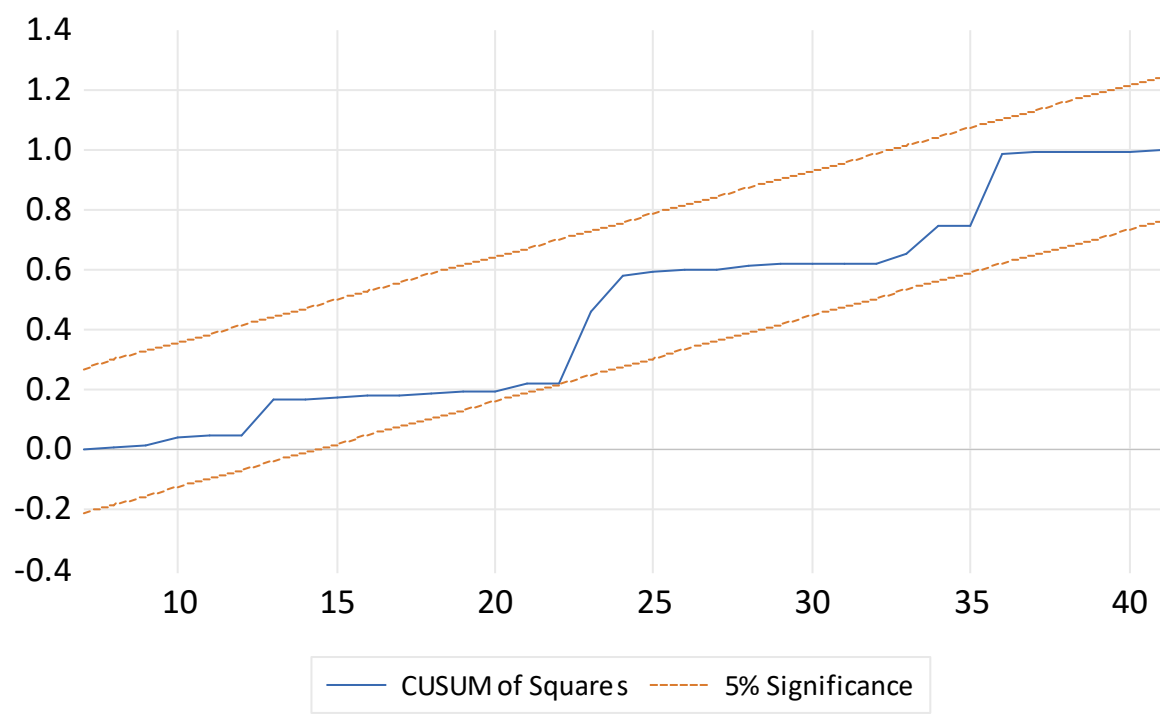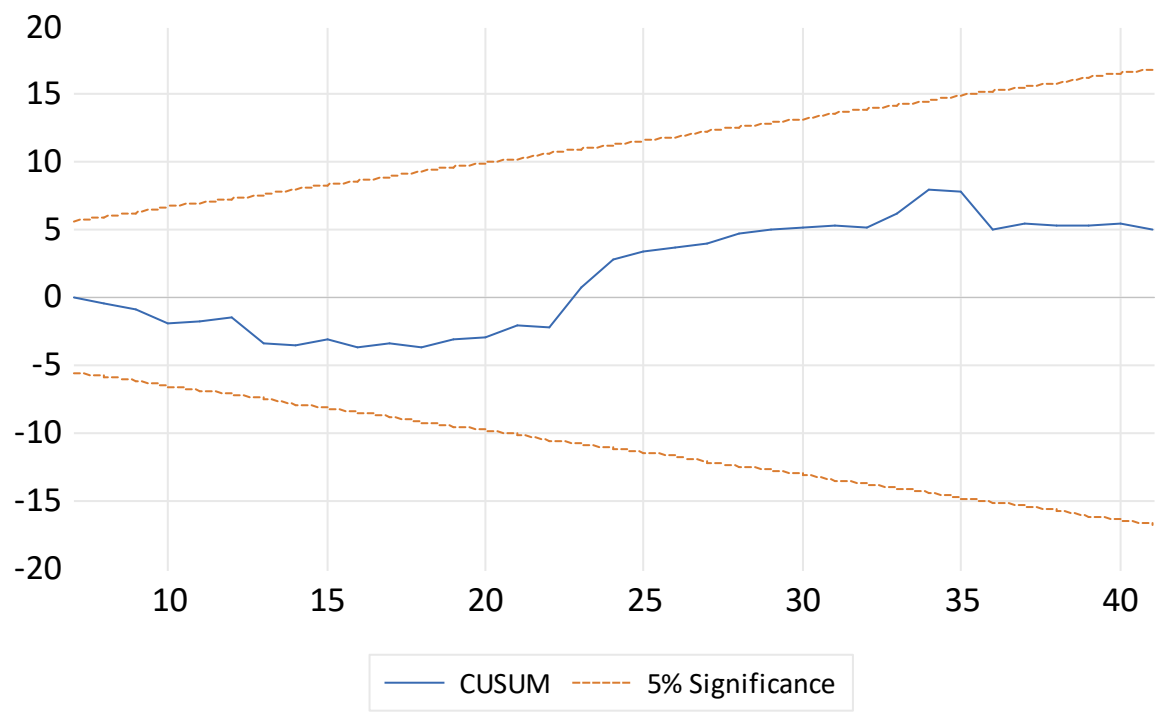
It is fairly rare for nonlinear models to have parameter instability (Saliminezhad et al., 2018). As a consequence, the stability of the estimated model that was used must be reviewed in order to assess the validity of the findings. To do this, we use Brown and colleagues' CUSUM and CUSUM of Squares tests (1975).

Depending on how much reliance you place on the post-estimation test, the model's stability

must be maintained at all times throughout the estimating process (Hansen, 2000).

Cusum tests examine the stability of coefficients as part of a multiple linear regression study. Recursive residuals (standardized one-step-ahead prediction errors) are generated repeatedly from nested subsamples of data, and sums or sums of squares of recursive residuals are employed in inference. Under the null hypothesis that parameters remain constant, numbers outside the sequence's predicted range indicate that the model's structure has changed over time. As a consequence, the thesis demonstrates perimeter stability.

CHAPTER FIVE

Overview, conclusion and Recommendations

Overview

Irrespective of an economy's current level of growth, investment accounts for a significant portion of total expenditure in every economy. As a result, investment is critical for every nation's economic growth since it improves employment and productivity. Recently, developing-country monetary and fiscal authorities have concluded that FDI is critical to promoting economic development in their respective economies. Politicians understand that foreign direct investment (FDI) may boost a country's technical progress, create jobs, and enhance its overall economic position (Abbas et al., 2011) According to previous research, many developing nations, particularly those in Africa, Asia, and Latin America, have significant obstacles when seeking to undertake long-term investments with the aim of attaining sustainable economic growth and development (Miraskari et al., 2014). The fact that most nations have trouble obtaining FDI, which may help them overcome impediments to economic growth and development, complicates the problem's resolution (Kudaisi, 2014 & Mona, 2015)

FDI, refers to any investment made directly by a foreign organization into a local enterprise. To put it another way, FDI is distinguished from foreign portfolio investment by the concept of direct control as a distinguishing feature of the former. As a result, it is critical for countries still on the road to growth to strive toward the goal of attracting FDI. The notion that enhanced worker productivity and access to tacit knowledge may be attained via the introduction of cutting-edge technology as a consequence of FDI is widely acknowledged. In addition to these advantages, foreign direct investment improves the host country's balance of payments and creates opportunities for new jobs. Different theories have been put forward to try to figure out what makes FDI from outside the nation attractive.

The proportion of FDI coming into developing nations' export sectors is an important indicator of such countries' economic success. When a nation opens itself up to foreign direct investment, it may make it simpler to transfer managerial, technological, and human capabilities to another country (FDI). One of the numerous advantages of FDI, In line with W.B, is that it boosts productivity and results in a workforce with a higher average level of education. This was in addition to the fact that the two nations already wanted to share their expertise and resources.

Furthermore, the recipient country gets the chance to showcase its goods and services on the global market. The goal of this research is to look at the influence of FDI on sustainable development in Sierra Leone. This thesis makes use of secondary data. Secondary data is information collected by someone other than the original data consumer. Censuses, information gained by government agencies, organizational records, and data initially acquired for various research purposes are all examples of common secondary data sources for the social sciences. On the other hand, primary data are those gathered directly by the study's researcher.

Secondary data analysis may help researchers avoid wasting time on data collection and, in the case of quantitative data, can lead to bigger and higher-quality databases than any one researcher could acquire on their own. The time spent on data collecting might be reduced by using this method of analysis. Analysts of social and economic development respect secondary data since it is difficult to conduct a new poll that correctly represents earlier change and/or achievements. On the other side, the marketing research field may not benefit as much from secondary data analysis due to the presence of inaccurate or outdated information. Correlation among FDI and economic growth in Sierra Leone is determined using data from the World Bank data portal. The Development Data Group of the World Bank manages the statistical and data activities as well as the many macro, financial, and sector databases. To ensure that all data consumers may have faith in the quality and integrity of the data delivered, the group works closely with the Bank's regional and global processes and adheres to professional data collecting, compilation, and dissemination standards. This thesis makes use of because autoregressive distributed lag models (ARDL) play an important role, it is necessary to study an economic condition. In a time-varying economy, changes in one economic variable may trigger changes in another. This change in a variable is not reflected immediately but is spread out over time. Not just macroeconomic circumstances but also other factors, such as a company's yearly loss or profit, may affect a company's brand image over time. Table 4.2 displays the results of the ADF unit root test; this result suggests that the variables are stable at both the level and the first difference. With p values of 0.0037 and 0.0369, respectively, foreign direct investment and wide money are both stable at the level, but only the real effective exchange rate and economic growth are stationary at the first difference. Based on the findings of the ADF unit root test, instruct the researcher to utilize the ARDL model for regression analysis. The ARDL bond test approach was utilized to

see whether there is a long-run relationship between GDP growth and the other variables in this research. The purpose of this research was to see whether these qualities had a long-term relationship. The method's findings are shown in Table 4.3. Here are the deciding factors: If the F-statistics are less than I, Ho implies that there is no long-run relationship (0). H1 = If the F-statistics are greater than the I (1) threshold, the Ho hypothesis is rejected.There is no long-term link. We used the Alkaike information criteria for automated selection since we had a large sample set. We may infer that there is a long-term relationship between the variables since the F-statistic is bigger than both the lower and upper bounds. The findings of the ARDL long and short run tests are shown in Table 4.4, which reveal that FDI has a positive and substantial influence on economic development in Sierra Leone in both the long and short run. This conclusion is congruent with the results of Mehic et al. (2013), who evaluated the influence of foreign direct investment (FDI) on economic development in Southeast European transition nations. From 1998 to 2007, the empirical research included seven Southeast European countries. The estimation model adopted by the authors is Prais-Winsten regression with panel-corrected standard errors. The major research conclusion is that FDI has a statistically significant beneficial impact on economic growth. When domestic investment figures are incorporated, the impact of FDI becomes statistically significant and robust.

As part of the strategy, a bivariate Granger causality test was run to analyze the real exchange rate's impact on GDP growth. The empirical data shows a statistically significant positive association between the real effective exchange rate and economic expansion. Evidence of the real effective exchange rate's role in spurring economic development is also substantial, and the statistics demonstrate that monetary policy is more successful in the long term than fiscal policy. According to the data, the real exchange rate of Sierra Leone is primarily influenced by terms of trade, exchange rate depreciation, the investment to GDP ratio, and an excess supply of domestic credit.

The hypothesis predicts a normal distribution with no serial correlation and conditional heteroskedasticity, as shown in Table 4.5 above. The results of this discovery are consistent with what the theory predicted. They are nowhere near a typical distribution. Despite the alternative

hypotheses' claims to the contrary, the null hypothesis demonstrates that the model lacks serial correlation. The probability of this occurring is 0.775, which is much bigger than the 0.05% threshold and a factor of two higher. In this situation, the null hypothesis is determined to be true, and the possibility of serial correlation in the model is disregarded. The model does not demonstrate heteroskedasticity at the 5% significance level as a result of the null hypothesis. This is the case since the significance level is set at 5. This model does not stay stuck at 5% after being put through its paces. If the likelihood value of 0.8459 exceeds the 0.05 percent threshold, the issue is more serious than originally anticipated. Because we cannot reject the null hypothesis at a significance level of 5%, we must conclude that the model does not show heteroskedasticity at this level. This is the only logical conclusion for us. If the null hypothesis is accepted, the data should have a normal distribution with a standard deviation of 5 to 10%. The average residue frequency distribution accounts for 5% of the total. The Jarque-Bera probability cannot be considered significant since the chance of 0.0004% exceeds the significance criteria of 0.05 percent. This indicates that the likelihood is statistically significant. If the null hypothesis of cointegration is correct, residuals will have no normal distribution at the 5% significance level. Table 4.6 shows that the variables exhibit both bidirectional and unidirectional causation. The findings reveal that the exchange rate and wide money have unidirectional causation; at the 5% level, the actual exchange rate causes broad money but not broad money. FDI and exchange rate exhibit bidirectional causation at the 5% level of significance, which indicates the two variables cause each other.

Stability examinations

Parameter instability is not a common occurrence in nonlinear models. Saliminezhad et al. (2018) As a result, in order to evaluate whether or not the conclusions are correct, a study of the consistency of the estimated model that was used is required. We use a test called the CUSUM of squares, which Brown and his group's colleagues created in 1975, to accomplish this.

The model's stability must be examined and rechecked at all times throughout the estimation process; how much emphasis you place on the post-estimation test is entirely up to you (Hansen, 2000).

Parameter instability is uncommon in nonlinear models (Saliminezhad et al., 2018). As a result, in order to examine the validity of the results, the stability of the estimated model that was

utilized must be assessed. We employ Brown and colleagues' CUSUM and CUSUM of Squares tests to do this (1975).

The model's stability must be maintained at all times throughout the estimating process, depending on how much trust you put in the post-estimation test (Hansen, 2000).

Cusum tests are used to check the stability of coefficients in a multiple linear regression analysis. Inference is based on sums or sums of squares of recursive residuals (standardized one-step-ahead prediction errors) created periodically from nested subsamples of data. Numbers outside the sequence's projected range show that the model's structure has altered over time under the null hypothesis that parameters stay constant. As a result, the thesis exhibits perimeter stability.

Conclusion

The purpose of this thesis is to analyze the influence of foreign direct investment on the economic development of Sierra Leone from 1980 to 2020. FDI) may boost the home nation technical expansion, provide job opportunities, and benefit the economy overall (Abbas et al., 2011). Finally, FDI is distinguished from foreign envelop expenditure by the idea of direct control as a distinguishing feature of the former. As a result, it is critical for countries still on the road to growth to strive toward the goal of attracting foreign direct investment (FDI). The notion that enhanced worker productivity and access to tacit knowledge may be attained via the introduction of cutting-edge technology as a consequence of FDI is widely acknowledged. In addition to these advantages, foreign direct investment improves the home nation balance of payments and creates opportunities for new jobs. A variety of hypotheses have been offered in an attempt to acquire a better understanding of the variables that attract foreign direct investment (FDI) from outside the nation. The results of this thesis reveal that there is a long-term link betwixt the variables since the F-statistic is bigger than both the lower and upper bounds. The findings of the ARDL long & short run tests are shown in Table 4.4, which reveal that FDI has a positive and substantial influence on sustainable development in Sierra Leone in both the long and short run. This conclusion is congruent with the results of Mehic et al. (2013), who evaluated the impact of FDI on sustainable expansion in Southeast European transition nations. From 1998 to 2007, the empirical research included seven Southeast European countries. The estimation model adopted by the authors is Prais-Winsten regression with panel-corrected standard errors. The major study conclusion is that FDI has a statistically important beneficial impact on

sustainable development. When domestic investment figures are incorporated, the impact of FDI becomes statistically important & robust.

In addition, the broad money has a good effect on the growth of the economy in Sierra Leone, and the exchange rate has a statistically significant positive effect on the economy in both the short and long terms. This finding agrees with the findings of Tarawalie (2010), which analyzes the influence of Sierra Leone's actual effective exchange rate on sustainable development To determine what factors affect the actual effective exchange rate, an analytical framework is first constructed. We then use quarterly data and innovative econometric approaches to examine the relationship between the effective exchange rate & substainable development growth.

As part of the strategy, a bivariate Granger causality test was run to analyze the real exchange rate's impact on GDP growth. The empirical data shows a statistically important positive association betwixt the real effective exchange rate and economic expansion. Evidence of the real effective exchange rate's role in spurring economic development is also substantial, and the statistics demonstrate that monetary policy is more successful in the long term than fiscal policy. According to the data, the real exchange rate of Sierra Leone is primarily influenced by terms of trade, exchange rate depreciation, the capital to GDP ratio, & an excess supply of domestic credit.

Recommendations

If the host nation is going to be successful in luring FDI & reaping the advantages of foreign corporations and the transfer of knowledge, then it has to establish sensible rules for foreign businesses and enterprises that have to do with safeguarding foreign investment.
The government needs to provide assistance to the private sector in order to encourage domestic resource mobilization for productive investment. In order to achieve greater levels of productivity, a domestic business climate that is conducive to entrepreneurship and that enables the private sector to compete with international companies in the provision of services is required. In order for the domestic business sector to take part in the functioning of the global economy in its entirety, the government needs to aim for a greater degree of openness to international commerce. It has been shown that the degree to which commerce is open is a crucial element that impact the flow of FDI into a nation. To encourage domestic and international investment, the

government needs to adopt more liberalization measures. In addition, the effective reduction of global and regional trade barriers makes participating nations more appealing for FDI; Sierra Leone can do more to make it easier for international enterprises to come and build a presence there.

The government needs to work toward fostering openness on all macroeconomic problems, combating corruption in all areas of the economy, and enhancing trust among foreign investors in order to attract more foreign capital to the nation.

Although the success of the host nation's GDP is an essential aspect that enhances investor confidence, our research did not reveal a statistically significant relationship between the two. This can't be disregarded; instead, efforts should be made to boost GDP growth by encouraging domestic manufacturing and adding new employment.

FDI flow into developing nations like Sierra Leone has been linked to improvements in energy and infrastructure. Therefore, the government should strive to enhance both of these facets in order to attract more financial backing and raise output at the hands of the sector's already established enterprises.

Another important issue that influences investors' decisions about the flow of FDI into most nations is inflation. So, to get people to invest in an economy, the government should work through the central bank and the ministry of finance to keep inflation in the single-digit range, which is the best case scenario.

Since most economists believe that currency fluctuations have a negative impact on foreign direct investment (FDI), the focus of monetary policy should be on regulating exchange rates in the financial market. This should be done to avoid higher levels of exchange rate volatility. Additionally, interest rates should be targeted to remain below levels that would cause inflation.

The findings also imply that in nations without natural resources, FDI and institutions are adequate to drive development. However, as these nations' institutions strengthen, the growth-

enhancing advantages of FDI diminish. Given the sort or type of FDI that these nations are expected to attract, a concentration on obtaining FDI should be adequate to foster development in countries with limited natural resources. Non-resource FDIs have better and more direct links to the local economy. Because FDI depends on host nations for inputs, more employment may be generated, greater degrees of technical transfer can occur, and more supplies can be gained from the local economy.

As a result, it is critical for such governments to develop policies that would attract FDI. Additionally, institutions have a beneficial association with economic development. As a result, in order to attain faster development, these nations would benefit from strengthening the quality of their institutions. However, Sierra Leone should be aware that when institutional quality improves, the incremental growth gains from FDI diminish. Our findings suggest that FDI has a favorable influence on Sierra Leone's economic development. As a result, before enacting policies to achieve the growth impacts of FDI, policymakers should evaluate their unique situation.

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Appendixes

Descriptive statistic

Date: 12/19/22   Time: 14:26
Sample: 1 41

	GDP	BM	REER	FDI
Mean	2.478683	32.06374	167.2780	3.062452
Median	3.464602	26.53900	123.2416	2.119176
Maximum	26.41732	88.40061	562.5820	32.30120
Minimum	-20.59877	2.622800	91.35332	-28.62426
Std. Dev.	8.329432	21.52872	114.4563	8.004615
Skewness	-0.155265	1.073509	2.164901	-0.122292
Kurtosis	5.342862	3.202623	6.653904	11.33398
Jarque-Bera	9.541778	7.945016	54.83443	118.7548
Probability	0.008473	0.018826	0.000000	0.000000
Sum	101.6260	1314.614	6858.397	125.5605
Sum Sq. Dev.	2775.177	18539.44	524010.0	2562.954
Observations	41	41	41	41

Unit root test

Null Hypothesis: GDP has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 9 (Automatic - based on t-statistic, lagpval=0.5, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.626764	0.7588
Test critical values:	1% level	-4.284580	
	5% level	-3.562882	
	10% level	-3.215267	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(GDP) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 2 (Automatic - based on t-statistic, lagpval=0.1, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.007029	0.0001
Test critical values:	1% level	-4.226815	
	5% level	-3.536601	
	10% level	-3.200320	

Null Hypothesis: FDI has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.980766	0.0037
Test critical values:	1% level	-3.605593	
	5% level	-2.936942	
	10% level	-2.606857	

Null Hypothesis: REER has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.444216	0.5511
Test critical values:	1% level	-3.605593	
	5% level	-2.936942	
	10% level	-2.606857	

*MacKinnon (1996) one-sided p-values.
Null Hypothesis: D(REER) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.825481	0.0057
Test critical values:	1% level	-3.610453	
	5% level	-2.938987	
	10% level	-2.607932	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: BM has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.071834	0.0369
Test critical values:	1% level	-3.605593	
	5% level	-2.936942	
	10% level	-2.606857	

*MacKinnon (1996) one-sided p-values.

PP UNIT ROOT TEST

Null Hypothesis: FDI has a unit root
Exogenous: Constant, Linear Trend
Lag length: 8 (Spectral OLS AR based on t-statistic, lagpval=0.5, maxlag=9)

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-10.88995	0.0000
Test critical values:	1% level	-4.205004	
	5% level	-3.526609	
	10% level	-3.194611	

Null Hypothesis: GDP has a unit root
Exogenous: Constant, Linear Trend
Lag length: 9 (Spectral OLS AR based on t-statistic, lagpval=0.5, maxlag=9)

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-6.713393	0.0000
Test critical values:	1% level	-4.205004	
	5% level	-3.526609	
	10% level	-3.194611	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: REER has a unit root
Exogenous: Constant, Linear Trend
Lag length: 7 (Spectral OLS AR based on t-statistic, lagpval=0.5, maxlag=9)

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-0.290966	0.9882
Test critical values:	1% level	-4.205004	
	5% level	-3.526609	
	10% level	-3.194611	

Null Hypothesis: D(REER) has a unit root
Exogenous: Constant, Linear Trend
Lag length: 9 (Spectral OLS AR based on t-statistic, lagpval=0.5, maxlag=9)

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-7.433820	0.0000
Test critical values:	1% level	-4.211868	
	5% level	-3.529758	
	10% level	-3.196411	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: BM has a unit root
Exogenous: Constant, Linear Trend
Lag length: 7 (Spectral OLS AR based on t-statistic, lagpval=0.5, maxlag=9)

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-3.513355	0.0515
Test critical values:	1% level	-4.205004	
	5% level	-3.526609	
	10% level	-3.194611	

*MacKinnon (1996) one-sided p-values.

ARDL BOUND TEST

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
		Asymptotic: n=1000		
F-statistic	6.939555	10%	2.37	3.2
k	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66

ARDL LONG RUN

ARDL Long Run Form and Bounds Test
Dependent Variable: D(GDP)
Selected Model: ARDL(4, 1, 4, 4)
Case 2: Restricted Constant and No Trend
Date: 12/19/22   Time: 14:35
Sample: 1 41
Included observations: 37

Conditional Error Correction Regression

| Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.287526	4.334975	1.911782	0.0703
GDP(-1)*	-0.542077	0.342630	-1.582105	0.1293
BM(-1)	-0.263542	0.120141	-2.193614	0.0402
REER(-1)	0.009598	0.020698	0.463722	0.6479
FDI(-1)	-0.336358	0.401856	-0.837011	0.4125
D(GDP(-1))	-0.619392	0.296990	-2.085565	0.0500
D(GDP(-2))	-0.449225	0.231405	-1.941289	0.0664
D(GDP(-3))	-0.272001	0.157367	-1.728447	0.0993
D(BM)	-0.111328	0.105932	-1.050941	0.3058
D(REER)	-0.011658	0.041790	-0.278959	0.7831
D(REER(-1))	-0.083819	0.047367	-1.769554	0.0920
D(REER(-2))	-0.040554	0.050379	-0.804975	0.4303
D(REER(-3))	0.092448	0.045420	2.035407	0.0553
D(FDI)	0.060830	0.210400	0.289114	0.7755
D(FDI(-1))	0.644240	0.351043	1.835217	0.0814
D(FDI(-2))	1.261150	0.315723	3.994477	0.0007
D(FDI(-3))	0.985614	0.274776	3.586974	0.0018

ARDL SHORT RUN

ARDL Error Correction Regression
Dependent Variable: D(GDP)
Selected Model: ARDL(4, 1, 4, 4)
Case 2: Restricted Constant and No Trend
Date: 12/19/22   Time: 14:36
Sample: 1 41
Included observations: 37

ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP(-1))	-0.619392	0.161507	-3.835079	0.0010
D(GDP(-2))	-0.449225	0.157028	-2.860792	0.0097
D(GDP(-3))	-0.272001	0.127706	-2.129907	0.0458
D(BM)	-0.111328	0.080971	-1.374918	0.1844
D(REER)	-0.011658	0.033535	-0.347629	0.7318
D(REER(-1))	-0.083819	0.038414	-2.181978	0.0412
D(REER(-2))	-0.040554	0.045777	-0.885894	0.3862
D(REER(-3))	0.092448	0.036850	2.508778	0.0208
D(FDI)	0.060830	0.173482	0.350638	0.7295
D(FDI(-1))	0.644240	0.215651	2.987417	0.0073
D(FDI(-2))	1.261150	0.212299	5.940451	0.0000
D(FDI(-3))	0.985614	0.225250	4.375640	0.0003
CointEq(-1)*	-0.542077	0.146757	-3.693705	0.0014

RESIDUAL DIAGNOTIC TEST

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	0.212826	Prob. F(2,33)	0.8094
Obs*R-squared	0.509372	Prob. Chi-Square(2)	0.7752
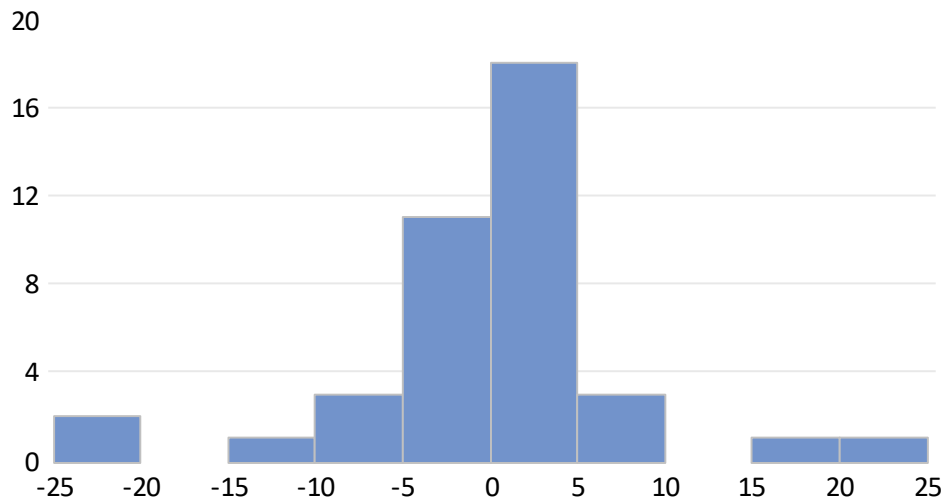
Series: Residuals	
Sample 2 41	
Observations 40	
Mean	3.11e-16
Median	0.804598
Maximum	24.55294
Minimum	-24.07522
Std. Dev.	8.108888
Skewness	-0.208379
Kurtosis	5.995734
Jarque-Bera	15.24685
Probability	0.000489

Heteroskedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

F-statistic	0.315119	Prob. F(4,35)	0.8659
Obs*R-squared	1.390467	Prob. Chi-Square(4)	0.8459
Scaled explained SS	2.659170	Prob. Chi-Square(4)	0.6164

GRANGER CAUSALITY TEST

Pairwise Granger Causality Tests
Date: 12/19/22   Time: 14:44
Sample: 1 41
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
BM does not Granger Cause GDP	39	0.70099	0.5031
GDP does not Granger Cause BM		0.01343	0.9867
REER does not Granger Cause GDP	39	0.15835	0.8542
GDP does not Granger Cause REER		0.21543	0.8073
FDI does not Granger Cause GDP	39	2.54684	0.0932
GDP does not Granger Cause FDI		0.43427	0.6513
REER does not Granger Cause BM	39	6.15520	0.0052
BM does not Granger Cause REER		2.73630	0.0791
FDI does not Granger Cause BM	39	0.74095	0.4842
BM does not Granger Cause FDI		0.42654	0.6562
FDI does not Granger Cause REER	39	6.23567	0.0049
REER does not Granger Cause FDI		3.36598	0.0464

STABILITY TEST