Financial Openness, Foreign Remittances Inflows and Capital Market Development in Sub-Saharan Africa

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BEING A THESIS SUBMITTED TO THE DEPARTMENT OF FINANCE, FACULTY OF MANAGEMNT SCIENCES, UNIVERSITY OF BENIN, BENIN CITY

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE (M.Sc). DEGREE IN FINANCE

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DECLARATION

I Imuentinyan Hope OMORUWA a master of science (M.SC) candidature of the department of banking and finance, faculty of management sciences, university of Benin, Benin City, Nigeria, do hereby declare that this thesis is entirely my work and composition. The work embodied in this has not been submitted in candidature for any degree and it is not concurrently being submitted for any other degree. All references form the work have been duly acknowledge.

Imuentinyan Hope OMORUWA
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DATE

CERTIFICATION

We certify that this thesis carried out by **Imuentinyan Hope OMORUWA** is adequate in scope and quality in partial fulfillment of the requirements for the award of Master of Science (M.Sc) finance in the department of finance, Faculty of Management Sciences , University of Benin, Benin City, Nigeria.

Dr. J. Obayangbona **(Supervisor)**	**Date**
Dr A. O. Izekor **(Head of Department)**	**Date**

CERTIFICATION OF NON-PLAGIARISM

The undersigned attest that the thesis of **Imuentinyan Hope OMORUWA** titled, “financial openness , foreign remittance inflow and capital market development in sub saharan Africa” has successfully passed the anti-plagiarism test and does not violate any copy right regulations based on the TURNITIN anti-plagiarism, similarity index according to the report presented by the candidate.

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Ag. (Head of Department)

ATTESTATION

We the undersigned attest that **Imuentinyan Hope OMORUWA** has successfully carried out all the corrections as recommended by the external and internal examiners in this thesis titled; financial openness , foreign remittance inflow and capital market development in sub saharan Africa.

Dr. J. Obayagbona (Supervisor)	**Date**
Dr. A. O. Izekor (Head of Department)	**Date**
(External Examiner)	**Date**

DEDICATION

I dedicate this thesis to God Almighty in recognition of His grace and mercy that has been a beacon of strength throughout my master journey. To my lovely father, Elder. Dawson Omoruwa Amenaghawon for his moral support and encouragement.

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ABSTRACT

The study examined the role of financial openness and foreign remittances inflows in capital market development in Sub-Saharan Africa over the period 1990 to 2023. The specific objectives of the study were to find out whether financial openness (FOPN), foreign remittances inflows, interest rate, exchange rate and inflation rate significantly affect capital market development in the Sub-Saharan Africa countries. Nigeria, Kenya and South Africa were used as sample++ size for the Sub-Saharan Africa capital markets. Using the panel fully modified least squares econometric technique, it was found that financial openness has a strong positive relationship with capital market development in Sub Sahara Africa; foreign remittances inflows has a weak inverse relationship with capital market development, exchange rate has a weak positive effect on capital market development; and while interest rate and inflation rate has a strong negative relationship with capital market development in Sub-Sahara Africa countries. The study recommend among others that, governments and regulators should review current policy on foreign remittances with a view to repositioning it so that it will be able to attract more inflow of remittances and thereby impacting positively on the overall development Sub Sahara Africa capital markets. For instance, they should deliberately reduce the current high cost often associated with remittances inflow to the countries, and by so doing large portion of remittances received into these countries can then be utilized for innovative financial products to constantly deepen and broaden the Sub Sahara Africa capital markets.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Capital markets are organized, highly interconnected, and regulated financial markets in which long-term debts such as bonds, preference shares, equity shares, mutual funds, public deposits, derivatives, foreign exchange, and commodities are traded (Laeven, 2014). The primary role of capital markets is to channel surplus funds or the savings of companies and households into long-term productive use by making long-term investments through the issuance and trading of long-term securities (Fama, 2021). Governments also utilize the stock exchanges for the mobilization of funds to prosecute relevant projects by issuing bonds, which therefore makes the capital markets enhance capital growth by mobilizing savings for investment purposes. Africa Union (2015) indicates that the development of Africa's capital markets is a key priority for Africa to take full responsibility in financing its development; this was further corroborated by John et. al. (2018) who submitted that stock markets are very critical for the sustenance of the overall development of the Sub-Saharan Africa (SSA) region.

Capital market development occurs when a market is strengthened, and there is diversification in the provision of financial services to meet the need of economy effectively and efficiently (World Bank, 2016). In turn, "this will stimulate the activities in the market and result in economic growth; and it is reason why the capital market is seen as a channel which long-term economic growth can be sustained through the efficient allocation of fund and risk reduction for optimal returns (Adigwe, Nwanna & Ananwude, 2015; Adebowale & Akosile, 2018:248)". When a capital market is well developed, it also provides avenue for effective risk diversification, influences savings mobilization and enhances growth through changes in incentives for corporate

control in the internationally integrated capital markets: because, it makes it very easy for managers compensation to be closely tied to stock performance (Jensen & Murphy, 1990). Also, projects with high returns are also highly risky, and the market facilitate diversification of this risky assets by making available alternative assets with high rate of return (Obstfeld, 1994; Anyanwu, 1998). Therefore, well-functioning and developed capital markets attracts huge inflows of foreign investment thereby fast tract growth process of the economy.

Capital markets are also critical in tapping into foreign remittances. Remittances have become a significant source of foreign capital for many countries, at times exceeding other private capital inflows (Lartey, 2013). The remittances in SSA averaged US$43.9 billion in the 2015–22 period compared to US$4.8 billion in 2000 (World Bank, 2021). The African Capacity Building Foundation (2016) notes that "the tremendous growth in remittances offers a promising and stable potential for increasing domestic savings and fostering long-term domestic investment, especially in the underdeveloped infrastructure in priority areas such as physical infrastructure (communication and transport), healthcare, housing, education, energy, agriculture, and micro, small, and medium enterprises (MSMEs)". Osano and Languitone (2016) estimates the funding deficit for MSMEs, agri-business, housing, and infrastructure in Africa to be approximately US$300 billion per annum. Capital markets can therefore narrow these funding gaps in infrastructure for economic take-off.

Kodongo and Ojah (2016) note that there is a strong correlation between investment in infrastructure and robust economic development Tijima and chaipon (2023) describe financial openness as the degree to which a country is open to international capital flows (i.e., ranging from a case in

which no international capital flow is allowed to a case in which international capital flows are fully allowed), can affect the development of domestic financial markets (hereafter, "financial development") by increasing market liquidity and/or by improving market efficiency. Nzotta, Ezeabasili and Alajekwu (2013), asserted that financial openness may have the capacity to improve domestic stock markets by helping to pull in foreign capital which will further assist in the reduction of transaction costs.

Mohammed (2022) noted that personal transfers made or received by resident households to or from non-resident households increase the amount spending to acquired asset, this asset are traded in the capital market, in most time this also reduce the level of household borrowing. He also noted that most of this remittance from the foreign country are invested into small and medium scale business. Amuedo-Dorantes (2014) highlights the micro- and macro-economic level benefits of remittances because it helps to sustain income at the households level and promoting financial literacy which helps to encourage asset accumulation and investment expansion respectively. Misati et al., (2019) state that more receivers and senders of remittances stimulates a greater demand for financial systems and encourages greater interaction with financial institutions and financial products, thus expanding financial development which may lead to security, bond and long-term asset investment.

1.2 Statement of the Research Problem

In the empirical literature, there exists a handful of studies on the relationship between financial openness, foreign remittances inflows and financial markets (Azizi, 2019; Polat, 2018; Coulibaly, 2015; Masuduzzaman, 2014). However, to the best of the researcher's knowledge, studies that have specifically captured the effect of financial openness and foreign remittances inflows on capital market development in the Sub-Saharan African countries are still scanty (Ajilore &

Ikhide, 2012; Bhattacharya et.al, 2018; Obayagbona & Igbinovia, 2021; Martin et al, 2021). Given the huge amount of inflows of remittances to the SSA countries over the past two decades coupled with the growth engendering role of the capital market development in an economy, this study becomes apt; hence, the need to empirically investigate how financial openness and foreign remittances inflows have affected capital market development in the SSA region.

Also, it is plausible to hypothesize that inward remittances and financial openness might be an important driving force of capital market development especially in the case of less developed countries like the Sub-Sahara Africa, where a good number of the entire population are generally poor and financially handicap and excluded (Sharma, 2016). Thus, openness of the financial system becomes very strategic for attracting and encouraging inward remittances from citizens abroad and could help deal with their poverty trap. Besides, major parts of these inward remittances are invested in the domestic stock market thereby stimulating its overall depth and liquidity level (Gani, 2016). From that basis, this study additionally tries to partly answer the question of how the capital markets in the SSA could shift from a mere growth level to a well-developed ones given the combined forces of financial openness and foreign remittances inflows.

Study on the increasing growth of foreign remittances inflows have always produced divergent opinions regarding its macroeconomic impact on recipient countries especially on two grounds; such as (i) how to control macroeconomic effects of foreign remittances inflows and (ii) exploiting the developmental capability of remittances inflows (Chami et al. 2008; Sobiech, 2015; Omobolanle, Sheriffdeen & Adesoye, 2019). This has become very crucial as a result of migrants dependence on unorthodox forms of money transfer floating around foreign financial system in billions of dollars. Thus, the recurrent issue of controversial debate in the extant literature overtime is whether and in what way foreign remittances inflows have impacted the

development of domestic or recipient stock markets? This study therefore extends this line of research by focusing on the effects of remittances on capital market development in in Sub-Saharan Africa.

With respect to method of data analysis technique, the Panel Fully Modified Ordinary Least Squares (PFMOLS) was used in the analysis of data for this study. It was observed from the reviewed empirical literature that some previous studies by Abidemi and Ikponmwosa, (2013); Mustapha, Shah and Igbal, (2020); Martin et.al, (2021); Mustapha & Adesina-Uthman, 2023; Olaide and Ganiyat, (2023) used panel data analysis (PDA), cointegration and error correction model (ECM), auto regressive distributed lags (ARDL), and OLS techniques. To the best of the researcher's knowledge, no prior studies employed the Panel Fully Modified Ordinary Least Squares (PFMOLS) in the analysis of data. The FMOLS regression which was originally designed by Phillips and Hansen (1990), is more appropriate for a study of this nature than those other methods because, it has the capacity to provide optimal estimates of cointegrating regressions. It also produces reliable estimates for small sample sizes and checks the robustness of the results obtained. The method modifies least squares to account for serial correlation effects and for the endogeneity in the regressors that results from the existence of a cointegrating relationship.

1.3 Research questions

(i) What is the relationship between financial openness and capital market development in Sub-Saharan Africa Countries?

(ii) What is relationship between foreign remittance inflows and capital market development in Sub-Saharan Africa countries?

(iii) What is relationship between interest rate and capital market development in Sub-Saharan Africa countries?

(iv) What is relationship between exchange rate and capital market development in Sub-Saharan Africa countries?

(v) What is relationship between inflation rate and capital market development in Sub-Saharan Africa countries?

1.4 Objectives of the Study

The broad objective of the study is to determine the relationship between financial openness and capital market development in selected Sub-Saharan African Countries. The specific objectives are to:

(i) examine the relationship between financial openness and capital market development in Sub-Saharan Africa Countries, and

(ii) ascertain the relationship between foreign remittance inflows and capital market development in Sub-Saharan Africa countries.

(iii) find out the relationship between interest rate and capital market development in Sub-Saharan Africa countries

(iv) evaluate the relationship between exchange rate and capital market development in Sub-Saharan Africa countries

(v) Ascertain the relationship between inflation rate and capital market development in Sub-Saharan Africa countries

1.5 Hypotheses of the Study

In line with the research problems and objectives, the following null hypotheses are formulated to be tested:

i. there is no significant relationship between financial openness and capital market development in Sub-Sahara Africa Countries

ii. foreign remittance inflows does not significantly affect capital market development in Sub-Sahara Africa countries.

iii. There is no relationship between interest rate and capital market development in Sub-Saharan Africa countries

iv. exchange rate does not have relationship with capital market development in Sub-Saharan Africa countries

v. inflation rate does no have relationship withd capital market development in Sub-Saharan Africa countries

1.6 Scope of the study

This study is on the effect of financial openness, foreign remittances inflows on capital market development in the Sub-Saharan African countries. Geographically, the study scope is limited to Sub-Saharan African. The United Nation Development programme (2020) classified the Sub-Saharan countries as 46 out of the 55 African Countries, excluding Djibouti, Algeria, Somalia, Egypt, Libya . Morocco among others. The choice of the Sub-Sahara Africa is predicated on the

enormous benefit that the region have gained from remittances inflows. This has generated more revenues to government through taxes.

The relevant data for the study covered a period of 34 years (1990 to 2023) for three (3) countries such as Nigeria, Kenya and South Africa. These counties are chosen because they were found to have complete data for the period of the analysis. In addition, because of their strategic economic positions in the sub-region, coupled with the fact that they are regarded by financial experts as the three major leading capital markets in the SSA region in terms of market capitalization rate, number of listed equities and liquidity level (Calderon & Zeufack, 2020; IMF, 2022).

This period is chosen because it takes into account the huge amount of foreign remittance into the respective counties in Sub-Saharan African region in recent times. It is on record that Nigeria received one of the highest foreign remittances within the period. Hence, carrying out a study of this nature within the period will certainly provide a fair evaluation of the extent to which foreign remittances inflows and financial openness have affected the development of the Sub-Saharan African capital markets.

1.7 Significance of the study

The study is significant in the following respects:

The outcome of this study will provide clear cut understanding on how foreign remittance inflow being transfer/payments made by foreign immigrants to family members in the home country over a given period of time can help develop the domestic economy and diversify same by reducing domestic financial constrain increasing domestic investment, employment and wage, and improving human capital and technical advancement. This understanding is very crucial for

policy makers to initiate better policy to help attract more inflows of remittance into the SSA region.

To the Investor, one of the significance of this study lies in the relevant role of foreign remittances inflow to the Sub-Sahara Africa countries through the instrumentality of the stock market. The more the inflow of remittance, the more depth created in the market leading to increasing volume of activities which in turn lead stimulate the overall development of the Sub-Sahara Africa stock market with this, investors would not only be attracted to the domestic stock market but also in the banking sector which is a direct recipient of the remittances and an active participants in the market. It will also be properly guided in their investment decision on the exchange in order to make profitable returns.

Policy maker: relevant policy makers in the industry will find the outcome of this study of utmost importance in that, it will readily provide specific information that would guide their policy making decision aim at strengthening the overall development of the Sub-Sahara Africa stock markets so as to compete favourable with their respective counterparts in Europe, Asia and America.

Researcher and Academia: The study outcome will also provide relevant data and special platform for researchers, students of finance and allied discipline as well as academic to carry out further studies in the same area or similar area of interest to them.

1.8 Limitations of the study

Using three countries as sample size to represent the sub-Saharan African which is made up of 46 countries might pose a certain level of limitation to this study in terms of generalization of result. However, sticking to Nigeria, Kenya and South Africa leading capital market, in the Sub-

Saharan African which are generally believed to be the largest in terms of market capitalization and liquidity level, will certainly help to minimize this limitation.

Also, with respect to the proposed method of data analysis techniques for this study (the fully modified least squares method) it has inherent weaknesses, for instance, if it is a stochastic data set, the method may not work appropriately. However, these weaknesses will be overcome by specifying a certain length of lags that is appropriate for the model, and which also require imposing a structure on the lag lengths by making the model non-linear.

Another weakness of the FMOLS is that when there is perfect multicolinearity, its not possible to get unique estimates for the coefficients. As multicolinearity increases, the standard errors around the estimates increases, thereby reducing their precision. However, this can be overcome by increasing the sample size in order to reduce multicolinearity by providing more data points and decreasing the impact of random variations in a multiple linear regression model.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter is on literature review of related literature on financial openness, foreign remittances inflow and capital market development in sub-Saharan African countries and other part of the globe. The chapter is review under three section namely, conceptual review theoretical review and empirical review

2.2 Conceptual Review

2.2.1 Concept of Interest Rate

Many scholars have defined interest rate using different meaning in order to convey meaning to the users of accounting information or financial data. Interest rate is that price paid for loanable funds which is sometimes determine by the forces of demand and supply (Obura & Anyango, 2016). The reason of sourcing for loanable funds is to enable managers have a mix of capital structure that will enable them to have well balance gearing level for effective and efficient operations (Osoro & Ogeto, 2014).

The cost paid for loanable funds is the finance costs charged by financial institutions or individual for the funds made available by the lender to the lender who is normally based on

percentage against the principal or the actual amount borrowed. Based on the neoclassical theory view point, the upshot of interest rate adversely affects the investment decision, thereby leading to a shrink in economic activities. The finance cost paid is the charged for borrowed funds for a geared firms and the cost can either impact on the firms involved either positively or negatively which will in turn affect investment decision (Olweny & Omondi, 2011).

2.2.2 Concept of Exchange Rate

The term exchange rate is the rate at which one currency is being converted into another currency and vice versa. According to Sethi and Acharya (2020) currencies depreciated in one country deposit will be reduced since investors tend to withdraw deposit and exchanged to keep it by appreciating currency (Hard currency) or invest in another form of investment rather than bank deposit. Exchange rate could also be explained as the ratio of a unit of one currency and a unit of another currency at a particular time (Obi, Oniore & Nnadi, 2016).

Furthermore, exchange determines the relative prices of domestic and foreign goods, as well as the strength of external sector participation in the international trade (Owolabi & Adegbite, 2017). Again, exchange rate is the price of one currency vis-à-vis another currency and is the number of units of a currency required to buy another currency. It may also be viewed as the linkage between domestic and foreign prices of goods and services. Exchange rate can also appreciate or depreciate (Owolabi & Adegbite, 2017).

Ibekwe and Obiageli (2021) defined exchange rate as the value of one currency (the domestic currency) in relation to another (foreign currency). It is the price at which one unit of a country's domestic currency exchanges for any other country's currency. Similarly, Williams (2018) viewed foreign exchange rate as either appreciation or depreciation of one currency against the

other. Appreciation of a currency is a rise in its value against other currencies while foreign currency depreciation is thus a fall in value of one currency against other currencies. This therefore suggests that, during depreciation m more units of a domestic currency exchanges for one unit of a foreign currency such that the foreign currency have appreciated in value while the domestic currency have depreciated in value. In other words, currency devaluation could also mean depreciation; therefore we may use them interchangeable during the study. Devaluation signifies the reduction in the value of a currency in terms of a designated unit of gold (or other standard of measurement) while depreciation connotes to reduction of the value of a currency in terms of a specific foreign currency (Obi, Oniore & Nnadi, 2016). Williams (2018) holds that, foreign exchange rate fluctuation tends to directly affect domestic prices of imported goods and services, as well as affect both foreign debt servicing and firm performance to be specific.

2.2.3 Concept of Inflation Rate

The concept of inflation rate is one of the most frequently discoursed terms in economic discussions, yet the concept is variously misconstrued. Although, there are various schools of thought on the concept of inflation rate but there is a consensus among economists that inflation rate is a persistent rise in the prices. Simply put, inflation depicts an economic situation where there is a general rise in the prices of goods and services, continuously (Ndubuaku, Onwuka, & Chukwuka, 2019). Ilugbusi (2017) defined inflation rate as the annual rate of increase of the average price level. In other words, inflation rate is the persistence increase in prices of both goods and services over a period of time. Broadly, speaking, inflation rate is a continuing rise in prices as measured by an index such as the consumer price index (CPI) or by the implicit price deflator for Gross National Product (GNP). Inflation is frequently described as a state where “too

much money is chasing too few goods". When there is inflation, the currency losses purchasing power.

The implication of the foregoing is that changes in the individual prices or any combination of prices cannot be considered as the occurrence of inflation. However, a situation may arise such that a change in an individual price could cause the other prices to rise. A perfect example is crude oil prices. This again does not signal inflation rate unless the price adjustment in the basket is such that the aggregate price level is induced to rise. Second, the rise in the aggregate level of prices must be continuous for inflation to be said to have occurred. The aggregate price level must show a tendency of a sustained and continuous rise over different time periods. This must be separated from a situation of one off rise in the price level (Omankhanle, Isibor & Okoye, 2020).

Although, inflation rate deter performance of the financial system in most times but not in all cases as, Osho and Efuntade (2019) stressed that at bearable level inflation rate is desirable. However, beyond that level, inflation rate becomes undesirable. As such, undesirable inflation rate hampers the financial performance of corporate firms all over the world.

2.2.4 Capital Market Development

Stock market development occurs when a market is strengthened, and there is diversification in the provision of financial services to meet the need of an economy effectively and efficiently (World Bank, 2016). In turn, this will stimulate the activities in the market and result in economic growth; and this is the reason why the stock market is seen as a channel which long-term economic growth can be sustained through the efficient allocation of fund and risk

reduction for optimal returns (Adigwe, Nwanna & Ananwude, 2015; Adebowale & Akosile, 2018:248).

Capital market development is also defined as the process of improving the accessibility, transparency and efficiency of the financial markets. It involves increasing capital market liquidity, enhancing investors' confidence and developing stock exchanges, bonds markets and other financial instruments. It has also been defined as the growth of a stock market, which can be measured by its size and liquidity. In the development of stock market, certain specific factors have been identified as crucial to achieving it, and these include but not limited to liquidity, foreign investment, macroeconomic factors and institutional factors among others.

In stock investing, a developed market is a country that is most developed in terms of its economy and capital markets where there is a high income rate, openness to foreign ownership, ease of capital movement, and efficiency of market institutions (Tachiwou, 2010). In his study on West African Monetary Union, he employed two measures of stock market development (size and liquidity) , such that size was proxied by share of market capitalization over GDP and liquidity as volume of share traded over GDP; and the findings indicates a significant positive relationship between market development and economic growth.

When a stock market is well developed, it also provides avenue for effective risk diversification, influences savings mobilization and enhances growth through changes in incentives for corporate control in the internationally integrated stock markets: because, it make very easy for managers compensation to be closely tied to stock performance (Jensen & Murphy, 1990). Also, projects with high returns are also highly risky, and the market facilitate diversification of this risky assets by making available alternative assets with high rate of return

(Obstfeld, 1994; Anyanwu, 1998). Therefore, well-functioning and developed stock markets attracts huge inflows of foreign investment thereby fast tract growth process of the economy.

Thus, the study of Ita, Cornelius and Emmanuel (2010) further corroborated the above concept of stock market development when they hold that several studies employed varied measures for stock market development, for instance, the use of market capitalization as a proportion of GDP, which equals the money value of listed shares divided by GDP; and basic idea behind this measurement is that overall market size is positively correlated with the ability to mobilize capital and diversify risk on a given country (Yartey, 2008).

2.2.4.1 Measurement/Indicators of Stock Market Development

(i) Market Capitalization

Market capitalization is also refers to as market value, and is the share price times the number of share outstanding. This is a measure of capital market size and is used to ascertain the level of capital market development relative to the growth of the economy (Idenyi et.al, 2017). It is often employed by investors to assess firms' performance in relation to their sizes in a given industry

(ii) The Ratio of Market Capitalization to GDP

Stock Market Development also called market size is a major indicator of stock market development, and is usually measured as the ratio of market capitalization to gross domestic product (GDP) (Levine & Zervos, 1996). It represents a measure of the total value of all publicly traded stocks in a market divided by the total level of economic activities (proxied by GDP). The ratio compares the value of all stocks at an aggregate level to the value of the country's total output. The result of this calculation is the percentage of GDP that represents stock market value.

The assumption behind this measurement indicator is that the size of the stock market at any given point in time is positively correlated with the ability to mobilize capital and diversify risk (Idenyi et.al, 2017). The ratio is also used by many financial experts to determine whether a stock market is undervalued or overvalued compared to a historical average. The stock market capitalization-to-GDP ratio is also known as the Buffett Indicator, named after investor Warren Buffett, who popularized it. According to Gordon (2022), "a stock market capitalization-to-GDP ratio that is greater than 100% indicates that the market is overvalued, while a ratio of 50% shows undervaluation; and in cases where the ratio is between 50 and 75%, the market moderately undervalued: a fair valuation of the stock market is achieved if the ratio is between 75 and 90%, while a ratio of 90 and 115% shows that the market is moderately overvalued."

(iii) Liquidity:

It measures the speed/rate at which shares are traded or converted into cash at any given stock market globally. It is an outstanding indicator in terms of determining the level of stock market development. Thus, two measures of market liquidity are often used and these are (i) the ratio of total value traded to GDP and (ii) turnover ratio, which is the ratio of total value of traded stock to market capitalization (Levine & Zervos, 1996). The ratio of total value traded to GDP measures the value of equity transactions relative to the size of the economy; it is often a complements to the measure of stock market size since markets may be large but inactive. On the other hand, turnover ratio helps to measures the value of equity transactions relative to the size of the equity market, and it also complements the measure of stock market size since markets may be large but inactive.

(iv) All Share Index

A market index is a quick measure to judge the overall direction of the market and the scope of its movement. A market index is a statistical parameter to reflect the composite value of market characteristics. It is an average of share prices of all companies on the stock exchange market, often used as a guide to compare the performance of different companies and industries (Idenyi et.al, 2017). It is a series of numbers which shows the changing average value of the share prices of all companies on a stock exchange and which is used as a measure of how well a market is performing.

However, "some of the basic features of an index include:

i. An index measures the price performance of a basket of stocks/securities
ii. An index is used as a benchmark to track the performance of a specific set of securities and compare the returns generated by a mutual fund, portfolio manager
iii. Index ETF funds are used to invest in a specific list of securities tracked by the index
iv. Indices can be broad-based, which track the entire market, or sectorial indices which track a particular sector; and it can also be based on the market cap of the stocks they track"

(v) Risk Diversification

This measures the level of risk diversification at the stock exchange because, the ability to diversify risk by investing in an internationally diversified portfolio of stocks can attract huge foreign portfolio investors to the domestic market thereby influencing investment decisions and long term development (Devereux & Smith, 1994; Obstfeld, 1994). Thus, barriers to international capital flows like taxes, regulatory restrictions, information asymmetries among others may hinder the ability of investors to diversify risk internationally. Thus, international

capital flow barriers will impede risk diversification, reduce stock market development and integration, and keep arbitragers from equalizing the price of risk internationally (Korajczyk, 1996).

2.2.5 Financial Openness

Financial openness refers to an individual country's approach to foreign investments in corporations within its jurisdiction, to the policies of each country with respect to regulating exports of specified goods and services, and to each government's policy on what is called capital flows (Sahoo & Sethi, 2020). Financial openness is referred to as the openness of the financial market of a country to other countries such that citizens can engage in varied financial transactions offered in the domestic market. In the same time, it allows residents and domestic institutions participate the transactions in international financial markets (Arif-Ur-Rahman & Inaba, 2020). Fasanya and Olayemi (2020) assert that that financial openness includes 7 elements: capital account openness, stock market openness, American Depository Receipt (ADR) and national fund issuance, bank reformation, privatization, capital flow and foreign direct investment (FDI).

Financial openness is the degree to which a country is open to international capital flows, which can affect the development of domestic financial markets by increasing market liquidity and/or by improving market efficiency.

2.2.5.1 Components of Financial Openness

These are summarize as follows:

(i) Capital Account Openness: This is an indicator that measures the intensity of capital account openness with values ranging from zero to one

(ii) Financial Liberalization: This is the process of reducing legal controls on capital movements in and out of a country.

(iii) **Official Liberalization Indicator:** This is an indicator that measures the liberalization of the equity markets with a value of one when the market is liberalized and zero if otherwise. The values have a range of zero to one. The values have a range of zero to one. However, for other related indices, the values could range from 0 to 100 (Ozekhome, 2022; Umutlu, et.al Özkaya, 2020)

2.2.5.1.1 Financial Openness and Stock Market Development

More precisely, a higher level of financial openness lead to an increase in liquidity in the domestic financial markets, which will in turn allow domestic firms, households, and financial institutions to have better access to funds that are available in the international capital markets (Andreasen and Valenzuela, 2016). A higher level of financial openness potentially improve efficiencies of the domestic financial sector (Baltagi et al., 2009).

Almost all countries maintain some level of control over the amount of wealth that can be transferred abroad, types of investments, corporate mergers and acquisitions that can be carried outby foreign commercial or governmental entities and the level of control foreign businesses or governments can exercise over a country's financial institutions, basically, the fewer such regulations or restrictions, the more "open" the country in question (William, 2011). Controls on the movement of goods, services, and wealth are considered vital to most countries' ability to secure their economies and people from foreign threats that could develop as a result of certain types of foreign acquisitions, mergers, or investments. An example might be mandatory reviews by U.S. government agencies of proposed Chinese acquisitions of American companies that develop technologies which could be exploited for military or intelligence purposes (William,

2011). In the case of the United States, an intergovernmental organization known as the Committee on Foreign Investment in the United States (CFIUS) reviews such proposed business deals to minimize the prospects of whether foreign governments, that may not be on the best of terms with the United States, acquire American technologies which could threaten U.S. interests (Gillian, 2014).

Bourgain et al., (2012); Ma and Yao, (2022) studies showed that countries with a high degree of financial openness tend to develop a more market-based financial system and thus are able to improve the market-based monitoring of domestic banks to limit their risk-taking behaviors, market power, and economic rents. Suppose an increase in the degree of financial openness is beneficial to financial development as argued by several scholars (Hermes & Nhung, 2010; Bekaert et al., 2011; Lee & Chou, 2018). A country with a high degree of financial openness should have a high degree of financial development. Financial markets that are highly developed should have their characteristics that are similar to those of perfect markets.

According to Abidemi and Nosakhare (2013), international financial integration may lead to a faster development of domestic financial intermediaries through different channels. Financial openness may increase the depth and breadth of domestic financial markets and improve the efficiency of financial intermediation by eliminating financial repression and shifting interest rates to clearing-market competitive levels, thus reducing the cost of capital (Calderon & Kubota, 2009). It may also improve the quality and availability of financial services in the domestic market by increasing the degree of bank competition and enabling the application of more sophisticated banking techniques and technology, which may improve efficiency by reducing the cost of acquiring and processing information on potential borrowers (Levine, 1996; Caprio & Honohan, 1999).

Rising financial openness would lead to a more efficient financial system by displacing inefficient financial intermediaries and creating pressure for the implementation of reforms in the financial infrastructure so as to reduce problems of information asymmetry, adverse selection and moral hazard (Claesenset al., 2001; Chinn & Ito, 2006).

2.2.6 Foreign Remittances

Remittances are funds transferred from migrants to their home country; they are the private savings of workers and families that are spent in the home country for food, clothing, and other expenditures, and which drive the home economy (Olaide & Ganiyat, 2023). For many developing nations, remittances from citizens working abroad provide an important source of much-needed funds. In some cases, funds from remittances exceed aid sent from the developed world and are only exceeded by foreign direct investment (FDI) (Omobolanle et al., 2019). The study of (Cox et al., 1998), which surveys household in Peru, found evidence, which is consistent with exchange motive in facilitating families' interests relating to "house, property, loan repayment as well as migration cost among others.

Foreign remittances represent cash and non-cash from overseas economies occurring principally from the transitory or stable movement of individuals to those nations (IMF, 2019). It is also a "non-financial and financial materials in the form of money and assets transferred through a formal channel (Electronic wire) and informal channel (corridors) by the Nigerians in diaspora to their loved ones at home". In Nigeria, the money transferred by Nigerians abroad in the year 2018 through official channels was reported larger than other forms of foreign capital flows. It was also reported the largest in Africa and accounted for over a third of migrant remittances flow to Sub-Saharan Africa (World Bank, 2019)

2.2.6.1 Foreign Remittance Inflows and Stock Market Development

Bhattacharya et al., (2018) asserted that remittances sent from abroad to developing countries have grown significantly not only in absolute terms but also of importance regarding their share in gross domestic product. They are an important source of income for poor house-holds who usually rely on them for current consumption, education and investment. It has also been proven to be the second largest source of external financing after foreign direct investment as demonstrated by World Bank (2019) SSA region statistics record for about 30 years which showed increased from 0.8% of GDP in 1990 to 2.8% in 2019, followed by a decline of 2.5% in 2020, probably occasioned by COVID-19 era (Yaya, 2024).

Notwithstanding, the increasing trend in remittance inflows to developing countries has motivated researchers to investigate their potential contributions to economic development. A growing pool of studies has analyzed the impacts of remittances on various dimensions of development, including poverty, inequality, consumption, human capital, investment, financial development, trade balance and economic growth (Akobeng, 2016; Keho, 2017; Azizi, 2018; Eggoh, et al., 2019). Consequently, remittances have also been identified as one of the drivers of capital investment growth (Hassan, et al. 2011; Afawubo & Fromen-tin 2013; Keho 2020)

Remittance inflows to developing and low-income economies is one of the largest sources of stable external financial flows overshadowing the traditional sources like official aid and private capital flows foreign direct investment (FDI) and foreign portfolio investment (FPI). According to Gyimah, Brempong and Asiedu, (2015) foreign remittances inflow increases human development in the migrant's country by increasing household investment in education and health. McKenzie and Rapport (2011) developed a model that shows various channels through which workers' remittances influence investment in human capital. The model shows that remittances diminish poverty and encourage families to send their children to school. Therefore,

remittance supports economic growth and domestic investment and reduction in poverty in the long run through the human capital channel (Salas, 2014).

Remittance inflows increase domestic investment by increasing domestic savings in the migrant's country (Gani, 2016). Remittances are now found to be an important source of household income for many developing economies and have direct poverty mitigating effect. Therefore, higher income levels of households are usually associated with rising saving rates in developing countries (Sahoo & Dash, 2013). Finally, remittance provides critical foreign exchange that is used for import of crucial capital and intermediate goods vital for capital investment (Chami et al., 2008). However, there are some studies that predict remittances may reduce domestic investment if it is used extensively for consumption instead of funding investment such as physical capital and human capital development (Ahamada & Coulibaly, 2013). Other studies such as Mallick (2012) and Tung (2018) have predicted that remittances may result in a moral hazard or dependency syndrome situation, and this may lower private investment.

In a survey of 538 estimates reported in 95 studies, Cazachevici et al. (2020) found 40% of the studies reporting a positive effect, 40% showing no effect, and 20% reporting a negative effect. In a study for 113 countries, Chami et al., (2005) estalished negative effects of remittances on economic growth. This is because remittances are associated with reduction of labor force participation and moral hazard problems.

2.2.7 Trade Openness and Stock Market Development

Trade openness has been defined by many economists differently. The rationales of the definitions are very identical. Fatima et al., (2020) defined trade openness as the extent to which

nations are exposed to global trade with their inflow and outflow of goods and services. Similarly, Ijirshar (2019) defined it as the improved amalgamation among countries through trade liberalization in the facilitation of imports and exports across borders. Moreover, Jallow, (2019) defined trade opening as the permitted flow of products and services between nations. It could be deduced that the unrestricted movement of goods, services, investment, and labor between countries is at the heart of the definitions mentioned above. Trade openness is the liberalization of the exchange of goods and services across borders through increased integration among countries (Victor, 2019).

Furthermore, international organizations have also used different definitions as well in respect of trade opening. According to the World trade organization (1998), "it is the elimination or reduction of restrictions or barriers on the permitted exchange of products between countries" (Iloh et al., 2020). Likewise, Organization for Economic Co-operation and Development (2011) defined trade openness, "as the ratio of the average of exports and imports of goods to the GDP". Succinctly, a study by Iloh et al., (2020), has the most comprehensive definition of trade openness which is the act of eliminating or plummeting limitations or barriers to the unrestricted movement of products, services, and investment between nations such as duties and including technical barriers to certification rules. It is important to understand the term "openness" which may be may be slightly ambiguous, with a small ratio does not necessarily imply great openness toward international trade but might be related to so many factors namely: the scope of the economy, geography of the country and obstructions to external trade (OECD, 2011).

Several scholars have forecasted the effect of trade opening on economic development, job creation, poverty reduction, investment attraction, and domestic firm persistence (Fatima et al. 2020; see also Ijirshar & Victor, 2019; Tambunan, 2011; Wacziarg, 2001 & Mehic & Sabina,

2008). Nevertheless, the actual effect of trade opening on the global economy has remained a contentious issue on the global stage. Although Ijirshar, (2019) submitted a significant positive and negative relationship between financial opening and stock market development, those of Menyah et al., (2014) found no correlation on capital market development and the trade opening in twenty-one Sub-Saharan African nations, including Gambia. Previous studies on trade opening and economic development have largely suffered from at least two serious flaws that call the results into question: The method by which trade opening is measured and the approximation methods used (Bourdon et al., 2017).

2.3 Theoretical Review

2.3.1 Financial Openness Theory

The theory of financial openness, also known as financial globalization, is a multifaceted concept with roots in various economic and political developments. Understanding its origins requires examining the key factors that contributed to its emergence and evolution.

The groundwork for financial openness was laid over several decades, with significant acceleration in the latter half of the 20th century. The Bretton Woods system, established after World War II, initially aimed for a managed system of exchange rates and capital controls to promote stability and prevent financial crises. However, this system gradually eroded. The rise of the Eurodollar market, the increasing volume of international trade, and the growing influence of multinational corporations created pressures for greater financial liberalization.

The debate over the optimal degree of financial openness, the role of capital controls, and the design of regulatory frameworks remains active. The rise of new financial technologies, such as

cryptocurrencies and decentralized finance (DeFi), presents new challenges and opportunities for financial openness.

financial market openness can influence economic growth through several channels. Increased openness can lead to greater capital inflows, which can boost investment and stimulate economic activity (Beck, Levine, & Loayza, 2000). Furthermore, it can enhance market efficiency by promoting competition and innovation, leading to better allocation of capital and improved resource utilization (Abiad, Oomes, & Ueda, 2008). However, the impact of financial openness is not always straightforward. Some studies suggest that excessive or poorly managed financial liberalization can lead to financial instability and crises, potentially harming economic growth (Demirguc-Kunt, & Detragiache, 1998).

Openness theory of financial development argues that the integration of a country in global goods and capital markets can promote financial development (Badar, 2018).

Openness theory of financial development argues that established incumbent industrial and financial interest groups oppose financial development because it breeds competition by easing the entry of new firms into the market and, thus, erodes the monopolistic rents of the incumbent groups (Rajan and Zingales, 2003). Trade and financial openness bring in foreign competition and reduce the power of incumbent groups who oppose financial development. Openness to trade and capital flows, not only, limits the incumbents' ability to oppose financial development, but it also generates incentives for them to support and promote financial development. An economy should open to both trade and capital flows simultaneously because one without the other would not give the desired results. Trade openness without financial openness is likely to result in more loan subsidies and financial repression. Whereas financial openness without trade openness will

only allow the largest domestic firms to tap foreign capital markets but will not allow small, potentially growing but financially constraint domestic firms to access foreign funds.

2.3.1 Remittance-led Development Theory

The Remittance-led Development Theory doesn't have a single, universally recognized author or propounder. Instead, it's a concept that has been developed and explored by various researchers and institutions, including the World Bank. This theory suggests that international remittances – money sent home by migrants – can significantly contribute to the economic development of their home countries (Pernilla & Josefin, 2014).

This theory indicates that foreign investment activities resulting from remittances cause the market to returns to rise. This is through broadening the investor base leading to diversification and risk sharing. Merton (1987) provides an intuitive and tractable model for illustrating how broadening the investor

base for a given stock and by extension for an emerging equity market may raise the market returns through risk pooling.

Remittance-led development theory posits that the flow of money from migrants to their home countries (remittances) can significantly contribute to the economic and social development of those countries. This theory suggests that remittances can stimulate growth by increasing investment, reducing poverty, and improving human development indicators (Kunofiwa, 2013).

The assumed barriers to foreigners' investments from holding fully diversified portfolios, are informational in that; investors will fail to invest in stocks if they are not fully informed about them. If both the domestic and informed foreign investors have the same information set, they will invest equivalently. Migrants net purchases creates substantial shocks to net investor demand as foreign inflows maybe based on foreign inflows based on foreign investors'

perception that the shares are undervalued or that there are other portfolio benefits that may be derived by investing in emerging markets (Richards, 2004).

Hence, if the diaspora population is more informed of the stock market, they will increase their amount of remittances in investments. This will positively affect the performance of the NSE. Consequently, the amount of diaspora remittance in the market drives up returns and performance of the stock market. The implication of the theory is that investment of diaspora remittance at the stock market will push stock prices up due to increased demand (Wanyoike, 2015). In low remittance recipient countries, remittances decrease stock market development; however, in remittance dependent countries, remittances promote stock market development.

2.3.3 Portfolio Flow Theory

Portfolio theory is at the heart of securities portfolio management, providing investors and portfolio

managers with methods of analysis and selection of securities that allow them to achieve optimal return in line with investor goals. Portfolio theory development took place through three historical phases: traditional portfolio theory (TPT), modern portfolio theory (MPT), and post-modern portfolio theory (PMPT). TPT relied on the ana- lysis of individual securities. It was characterized by a simple, non-systemic, subjective, and insufficiently analytical approach to forming an optimal portfolio (Miljan, 2021).

The flow theory of international capital flows focuses on exploring the relationship between capital flows and the level of interest rate. According to the theory, interest rate is the decisive factor of international capital flows, and the differences of interest rate causes capital flows. The growth of foreign interest rate increases the outflows of domestic capital to foreign countries, which will continue if the foreign interest rate keeps a high level relative to domestic interest rate.

On the contrary, the growth of domestic interest rate would lead to inflows of foreign or reduce domestic capital outflows (Duo, 2018).

Branson (1968) analyzed international capital flows and believed that short-term capital flows are determined by imports, exports, interest rates and exchange rates, while long-term capital flows are determined by domestic income, interest rates and foreign interest rates. He also took these factors into the Markowitz Tobin model, and concluded that the ratio of foreign assets to a given wealth is a function of domestic interest rate, foreign interest rate, risk and the stock of wealth (Duo, 2018).

2.3.4 Financial Integration Theory

Financial integration is a complex phenomenon with various theoretical underpinnings and empirical implications. It involves the interconnectedness of financial markets across different economies, often facilitated by cross-border capital flows, foreign participation in domestic markets, and information sharing among financial institutions (Liliana, 2022). The creation of monetary unions, like the Eurozone, significantly impacts financial integration by eliminating currency risk, thereby increasing financial integration among member countries. However, this process doesn't always lead to higher welfare, as increased capital mobility can create multiple equilibria, including "bad equilibria" characterized by inefficient capital flights.

One key theoretical perspective connects the exchange rate regime to financial integration. Under flexible exchange rates, national governments can expropriate foreign creditors by depreciating the exchange rate, which induces investors to impose tight constraints on international borrowing. Creating a monetary union, by eliminating this source of currency risk, increases financial integration among member countries (Liliana, 2022).

Financial integration can lead to better governance, effective capital allocation, and increased development and investment. However, it can also cause financial contagion during crises. Since the mid-1980s, capital flows have increased significantly among industrial countries and, more importantly, between industrial and emerging countries. While capital inflows have been linked to strong growth rates in several emerging nations, some have also faced periodic development slowdowns and major financial crises with serious macroeconomic and social consequences (Liliana, 2022).

Financial globalization and financial integration are distinct but intertwined concepts. Financial globalization refers to the growing global interconnections produced by cross-border financial movements, while financial integration refers to a country's connections to international capital markets. In addition, Increased financial globalization is inextricably linked to increased financial integration (Marc, Rehan & Amjad, 2023).

The impact of financial integration on developing economies is a subject of ongoing debate. Some studies suggest that financial integration can lead to faster growth rates in developing nations. However, establishing a reliable causal relationship between the degree of financial integration and output growth performance is challenging (Marc, Rehan & Amjad, 2023). There is little evidence that financial integration has helped developing countries better moderate swings in consumption growth.

The relationship between financial integration and economic growth is further explored in the context of renewable energy investments, technology transfer, and climate change. Financial integration plays an important role in fostering global economic growth (Liliana, 2022). Regional financial integration helps economies improve and harmonize their financial systems. Empirical

studies use financial openness to measure a country's global market integration. Financial integration boosts regional growth as regulatory flexibility and cross-border money flows boost resource efficiency and financing (Nassani, et al. 2025).

2.4 Empirical Review

Relevant empirical literature were reviewed in this section on financial openness, foreign remittances inflows and capital market development in Sub-Sahara Africa and other parts of the globe. For example, Oyerinde (2019) examined the impact of FPI on the stock market in Nigeria for the period 1980 to 2014. Employing the cointegration econometric analysis, the empirical findings indicate that in the long run, FPI significantly impact stock market development. Also, GDP, exchange rate and inflation rate significantly influenced foreign capital flow to Nigeria.

Obayagbona and Igbinovia (2021) examined how financial openness, foreign portfolio investment affect stock market development in Nigeria over the period 1986 to 2018. Utilizing the VECM technique, it was found that foreign portfolio investment and financial openness do not affect capital market development.

Kolapo, (2023) carried out an analysis of the effects of institutional quality and openness on the development of the Nigerian stock market from 1996 to 2021 is therefore crucial. The Auto Regressive Distributive Lag (ARDL) method was used to analyze data from World Bank databases and the Lane-Milesi Ferreti index, with results showing that institutional quality has a positive and significant impact on stock market development in Nigeria. The results showed that institutional quality has a positive and significant impact on stock market development in Nigeria. Meanwhile, development of the stock market, institutional quality, and openness are related over the long term based on the ARDL bounds test. A further finding revealed that the development

of Nigeria's banking sector and the exchange rate had positive (negative) effects on the development of the stock market, respectively.

Oke, Uadiale, and Okpala (2011) examined the effect of remittances on financial development in Nigeria for the period 1977 to 2009. Y employed the Generalized Method of Moments (GMM) and the ordinary least square (OLS) techniques and found that migrants' remittances had positive and significant both measures of financial development.

Ajilore and Ikhide (2012) examined the relationship between migrants' remittances and financial development in five Sub-Saharan African (SSA) countries over the period 1985 to 2009. They employed the ARDL technique for the analysis of data and the results indicate that migrants' remittance significantly promoted financial development in four of the studied SSA countries (Lesotho, Cape-Verde, Senegal, and Togo) with exception to Nigeria. Abidemi and Nosakhare (2013) empirically determined the main effects of financial openness on capital market development for a group of West African Countries for the period 1988 to 2010. Using the panel data regression technique, it was found that higher financial openness in the sub-region enhances the development of domestic capital markets.

Akkoyunlu (2013) studied the link between financial development and migrants' remittances. Using secondary data over 50 years in Turkey. The study employed the Toda and Yamamoto, and the vector auto-regression techniques and the findings of the study showed that migrants' remittances had insignificant impact on financial development in Turkey. David et al. (2014) investigate the relationship between openness and financial development using data from 34 sub-Saharan Africa economies over the period 1970–2009. Employing the panel data techniques, it was found that trade openness had significant positive relationship with financial development.

For a panel of 31 countries for the period 1980 to 2012, Githaiga and Kabiru (2014) examined the impact of international remittances on financial sector development. Employing the GMM technique, it was found that remittances had a significant negative relationship with financial development. Ojapinwa and Bashorun (2014) analyzed the relationship between remittances and financial development for the period spanning 1996 – 2010, for a panel of 32 Sub-Saharan African countries. Using the GMM method, it was observed that a significant positive relationship exist between remittances inflows and financial development in Sub-Saharan African countries.

Shahzad and Raza (2014) examined the effect of international remittances on financial development for five South Asian countries over the period 1989 to 2011. Employing the panel pooled estimation technique, it was found that remittances inflow significantly enhanced financial development. Also, for a panel of 54 developing Africa countries, Sobiech (2015) investigated the relationship between diaspora remittances and financial development from 1970 to 2010. The GMM technique was utilized and it was found that remittances inflows had significant inverse impact on financial development.

In another related study by Karikari et al. (2016) on diaspora remittances and financial development of 50 African countries over the period 1990 to 2011; and after utilizing the Vector Error Correction Model, found a significant positive effect of remittances inflows on financial development. In Jordan and Alaaddin (2016) explored the relationship between international remittances and banking sector development in Pakistan for the period 1964 to 2013. Employing the ECM technique, the outcome demonstrate significant positive effect of foreign remittances inflows on banking sector development.

In another related study by Muktadir-Al-Mukit and Islam (2016), utilizing VECM and VAR techniques, found that foreign remittances inflows significantly impact banking sector development in Bangladesh. Misati and Kamau (2018) evaluated foreign remittances inflows and financial development in Kenya between the period of 2006 to 2016. They utilized the ARDL technique and it was observed that foreign remittances inflow significantly and positively affect financial development. Also, Nyangau (2018) analyzed the relationship between diaspora remittances and financial development in Kenya over the period 1970 to 2017. They employed the ARDL technique and found that foreign remittances inflows, investment and interest rate had significant positive impact on financial development in Kenya.

Ugwuegbe et al (2018) analyzed the impact of international remittances on financial sector development in West Africa Monetary Zone (WAMZ) for the period, 1996 to 2016. The outcome of the finding using the GMM technique reveled that foreign remittances inflow had significant positive effect on financial development. Using the error correction estimation technique, Omobolanle et al.(2019) analyzed the effect of migrants remittances on financial development in Nigeria for the period of 2006 to 2017 and found significant positive effect of foreign remittances inflow on financial sector development in Nigeria.

Agu, Ogu and Ezeanyeji (2019) employed the OLS and ARDL to analyse the impact of foreign portfolio investment on stock market returns in Nigeria for the period 1986 to 2017. The empirical results revealed that FPI has significant positive impact on stock market return in the short run but rather prove otherwise in the long run result.

Focusing on a panel of 124 developing countries in Europe, during the period, 1990 to 2015, Azizi (2019) analyzed the impacts of migrants' remittances on financial development; and using

the panel data analysis technique, they found that foreign remittances inflow had significant positive impact on financial sector development. Keho (2020) analyzed the effect of migrants remittances on financial development in selected West African countries for the period 1980to 2017. They used the common correlated effects mean group (CCEMG) panel estimation technique and found significant positive relationship exist between foreign remittance and financial development.

Mustafa, Shah and Iqbal (2020) examined the relationship between migrants' remittances and financial development in Pakistan for the period 1976 to 2015. They employed the ARDL method and found that foreign remittances inflows significantly and positively affect financial market development.

Hussaini, Musa and Muhammad (2021) investigated the impact of migrants remittances on the development of the financial sector in Nigeria, using data from 1986 to 2020. After utilizing the ARDL method of analysis, they found that foreign remittances had significant positive effect on financial sector development.

Martin, Clement, Patrick and Gideon, (2021) examined the nexus between financial openness and capital market development in Sub-Saharan African Countries for 30 years period ranging from 1990 - 2019. The study adopted ex-post facto research design while the time series data were analyzed using descriptive statistics, correlation, unit root test, granger causality test, Johansen co-integration and error correction model via E-Views 10. The result revealed that there is a significant positive relationship between financial openness and capital market development.

Diem and Hoai (2021), investigated the influences of trade and financial openness on financial development over the period 2003 to 2017 from a sample of 64 developing countries in Asia, employing a Bayesian model averaging approach to take into account model uncertainty. It was found that remittances inflows and financial openness significantly affect financial market development.

Olaide and Ganiyat (2023) examined the impact of remittances on financial development in Nigeria for the period 1981 to 2021. The outcome after utilizing the ARDL technique demonstrated a significant positive relationship between foreign remittances inflow and banking sector development, as well as a weak impact on stock market development. Yaya (2024) analyzed the effect of remittances and financial development on growth or investment with little attention on their interactive effect for the period 1975 to 2019. Utilizing the panel Pooled Mean Group estimator, it was found that foreign remittances inflow and financial development significantly and positively impact domestic investment.

Obayagbona and Edo-Osagie (2024) examined the role of foreign remittances inflows and official development assistance in financial market development in Nigeria for the period 1990 to 2023. The fully modified least square technique was employed for the analysis of data, and the results obtained indicate that foreign remittances inflows (FRMI) has significant positive impact on financial market development under the two models; while official development assistance inflows (ODAI) has a significant negative relationship with financial market development in the two models also. On the other hand, exchange rate (EXRT) has significant positive impact on financial market development under the M3/GDP model, but was not significant in the CPS/GDP model. Financial openness (FOPN) however had a weak inverse relationship with financial market development in Nigeria.

Table 2.1: A Summarize Table of the Reviewed Empirical Literature

S/N	Author/Year	Country/Region	Methodology	Period of Study	Finding
1	Oke, Uadiale, and Okpala (2011)	Nigeria	GMM and OLS	1977 – 2009.	"estimate showed that migrants' remittances had positive and significant both measures of financial development
2	Ajilore and Ikhide (2012)	five Sub-Saharan African (SSA) countries	ARDL	1985 to 2009	The findings from the study revealed that migrants' remittance significantly promoted financial development in four of the studied SSA countries (Lesotho, Cape-Verde, Senegal, and Togo) with exception to Nigeria
3	Abidemi and Nosakhare (2013)	Nigeria	panel data regression technique	1988 to 2010	The findings from the study indicate that higher financial openness in the sub-region would enhance the development of domestic capital markets
4	Akkoyunlu (2013)	Turkey	vector auto-regression techniques	1980 – 2012	findings of the study showed that migrants' remittances had insignificant impact on financial development in Turkey
5	David et al. (2014)	34 sub-Saharan Africa economies	OLS	1970–2009.	trade openness has contributed to financial development more strongly in economies with better institutions
6	Githaiga and Kabiru (2014)	Nigeria	OLS	1980 – 2012	remittances had a negative and significant impact on financial development (proxy by domestic credit to private sector) and foreign direct

					investment
7.	Ojapinwa and Bashorun (2014)	32 Sub-Saharan African countries	GMM	1996 – 2010	remittances significantly enhanced financial development in Sub-Saharan African countries
8	Shahzad and Raza (2014)	South Asian countries.	panel pooled estimation technique	1989 to 2011	The findings of the study revealed that remittances significantly enhanced financial development
9	Sobiech (2015)	West African Countries	GMM	1970–2010	migrants' remittances resulted in a declined in financial development
10	Karikari et al. (2016)	Africa countries	Vector Error Correction Model	1990 to 2011	migrants remittances had significantly positive impact on financial development
11	Jordan and Alaaddin (2016)	Pakistan	error correction modelling method	1964 –2013	international remittances promote banking sector development
12	Muktadir-Al-Mukit and Islam (2016)	Bangladesh.	VECM and VAR	1976 to 2012	migrants remittances significantly enhanced the disbursement of banking sector credit
13	Misati and Kamau (2018)	Kenya	autoregressive distributed lag (ARDL)	2006 – 2016,	there is impact of migrants remittances on financial development
14	Nyangau (2018)	Kenya	ARDL	1970 to 2017	diaspora remittance contributed significantly to promoting financial development in Kenya
15	Ugwuegbe et al.(2018)	West Africa Monetary Zone (WAMZ)	GMM	1996 –2016	migrant remittances significantly promoted financial development in WAMZ region
16	Omobolanle et al.(2019)	Nigeria	ECM	2006 to 2017	migrants remittances significantly contributed the financial sector development in Nigeria

17	Oyerinde (2019)	Nigeria	cointegration econometric analysis	1980 to 2014.	the long run, FPI significantly impact stock market development
18	Agu, Ogu and Ezeanyeji (2019)	Nigeria	OLS and ARDL	1986 to 2017	FPI has significant positive impact on stock market return in the short run but rather prove otherwise in the long run result
19	Azizi (2019)	Europe	panel fixed effect technique	1990 –2015	the results showed that migrants remittances promote financial development
20	Keho (2020)	West African countries	CCEMG	1980 –2017	migrants remittance had negative and significant impact on financial development
21	Joel and Eghosa (2020)	Nigeria	VECM	1986 to 2018	financial openness does not significantly impact the development of the Nigerian Capital Market
22	Mustafa, Shah and Iqbal (2020)	Pakistan	ARDL	1976 to 2015	impact of migrants' remittances on financial development depends on the proxy for financial development
23	Hussaini, Musa and Muhammad (2021)	Nigeria	ARDL	1986 to 2020	migrants remittances contributed to the growth of the Nigerian financial sector
24	Martin et al., (2021)	Sub-Saharan African Countries	ECM and cointegration	1990 – 2019	there is a significant positive relationship between financial openness and capital market development
25	Deim and Hoai (2021)	Asia	Bayesian model averaging approach	2003–2017	financial openness has an insignificant positive effect on financial development
26	Obayagbona and Igbinovia (2021)	Nigeria	VECM	1986 to 2018)	financial openness does not significantly impact the development of the Nigerian Capital Market

27	Kolapo, (2023)	Nigeria	ARDL	1996 to 2021	institutional quality has a positive and significant impact on stock market development in Nigeria
28	Obayagbona & Edo-Osagie (2024)	Nigeria	OLS	1990 to 2023	remittances inflows has negative relationship with official development assistance in financial market development in Nigeria
29	Olaide and Ganiyat (2023)	Nigeria	ARDL	1981 to 2021	international remittances had positive and significant impact on banking sector development, and an insignificant impact on stock market development
30	Yaya (2024)	Sub-Saharan African countries	panel Pooled Mean Group estimator.	1975–2019	remittances and financial development have positive effects on domestic investment"

Source: Author's Compilations (2024)

2.5 Gaps in the Empirical Literature

The importance of capital market lies in the financial intermediation capacity to link the deficit sector with the surplus sector of the economy. According to Fama, (2021) well-developed capital markets play a significant role in financing the corporate sector. They have being looked at as a mechanism that can potentially help channel private sector funding to strategic sectors of the economy that face huge financing gaps, such as housing, infrastructure, small and medium enterprises (SMEs), and climate change.

In this study several literature has been reviewed, this literature include Abidemi and Nosakhare (2013) empirically determines the main effects of financial openness on capital market development for a group of West African Countries. Martin et al., (2021) examined the nexus between financial openness and capital market development in Sub-Saharan African Countries for 30 years period ranging from 1990 - 2019. Olaide and Ganiyat (2023) examined the impact

of remittances on financial development in Nigeria for the period 1981 to 2021. Mustapha & Adesina-Uthman (2023) examined the impact of remittances on financial development in Nigeria for the period 1981 to 2021. Mustafa, Shah and Iqbal (2020) examined the relationship between migrants' remittances and financial development in Pakistan. Keho (2020) analyzed the effect of migrants remittances on financial development. The study spanned the period 1980 –2017. Omobolanle et al.(2019) analyzed the effect of migrants remittances on financial development in Nigeria. Nyangau (2018) analyzed the relationship between diaspora remittances and financial development in Kenya. Misati and Kamau (2018) examined the impact of migrants remittances on financial development in Kenya. The study used quarterly data covering the period 2006 – 2016.

Among all the above literature in this study none of them has been able to focused their attention on relationship between financial openness and capital market development in selected Sub-Saharan African Countries.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

The main focus of this chapter is on the methodological procedures involved in the analysis of data on the relationship between financial openness, foreign remittances inflows and capital market development in Sub-Saharan African (SSA). The methodological procedures involved but not limited to research design, population and sample size, sources of data, theoretical framework, model specification, method of data analysis and measurement of variables.

3.2 Research Design

The longitudinal research design (expost facto) is used in this study. This enable the researchers to estimate how independent factors affect dependent variable, such that the researcher cannot manipulate the data because it has already occurred coupled with the fact that it is historical in nature.

3.3 Population and Sample Size

The population of the study is all the countries that makeup the Sub-Saharan Africa for the period, 1990 to 2023 (34 years). The United Nation Development Programme (2020) classified the SSA countries as 46 out of the 55 Africa's countries excluding Djibouti, Algeria, Somalia, Egypt, Libya, Morocco etc. The sample size for the study is made up of three countries

which where selected from three region, namely Kenya from the Eastern part of Africa, South Africa in the Southern part of Africa and Nigeria from the Western part of Africa, and. These three countries (Kenya, South Africa and Nigeria) were chosen using the judgmental sampling technique because they are believed to have the most developed financial systems, significant FDI inflow, and vibrant capital markets in the region and have also accounted for the highest foreign capital inflows (foreign remittances inclusive) over the years.

3.4 Sources of Data

This portion of a research study contain data collection methods e.g secondary data, data source e.g data bases, data collection instrument e.g software, sampling frame and sample size. This will enable the readers to understand the origin, quality and potential limitations of the data. This study uses secondary data covering a period of thirty four (34) years (1990 to 2023) using sampling frame. The data are sourced from the World Bank,

3.5 Theoretical Framework

This is the portion of the thesis where the theoretical framework is linked with the empirical model. This study is anchored on variant flow theory of capital movement advanced by Sachs, Tornel and Velasco (1996). According to the theory aggregate stock of capital in a given economy is given by:

$$KA = \beta(r, r^{*}) + q \qquad (3.1)$$

Where:

KA is the stock of capital, β is the level of capital mobility, r is domestic interest rate, r* is foreign interest rate and q is capital investment not related or independent of interest rate.

(3.1),

Differentiating equation, we have

$dKA = d\beta/dr + d\beta/dr^*dr^*$ (3.2)

given that;

$d\beta/dr > 0$ and $d\beta/dr^* < 0$

By implication, an increase in the level of financial openness as well as domestic interest rate increase aggregate foreign capital inflows (inclusive of foreign remittances) and a reduction in the foreign interest rate relative to domestic interest rate will decrease outflow: hence, equation (3.2) will be re-written as:

$dKA = \beta rdr--\beta r^*dr + dq$ (3.3)

$KA = \beta rdr--\beta r^* dr + dq$ (3.4)

And rewriting equation 3.4, we now have:

$KA = \beta r_{r—}\beta r_{*}\ r^* + q$ 3.5

Meaning that, $KA = f(\beta, r, r^*, q)$ 3.6

Where KA is the change in capital stock, β is the change in capital mobility, r is change in domestic

return on investment, r* is foreign return on investment and q is change in capital flow or investment independent of interest rate".

3.6 Model Specification

To empirically examine the theoretical framework on which the study is based, as well as the theoretical linkage, the study draws on the model developed by Azebi and Dein (2020), who hinges on the varibant flow theory of capital movement advocated by Sachs, Tornell and Velasco (1996). Accordingly, this study adapts Azebi and Deins model to suit the Nigeria context while aligning it with variant flow theory. The modified economic model is specify as follows:

CMD: f(FOPN, FREM, INTR, EXR, INFLR) 3.7

Where:

CMD: Capital Market Development (Proxy by Ratio of Market Capitalization to Gross Domestic Product)

FOPN: Financial Openness

FREM: Foreign Remittances Inflows

INTR: Interest Rate

EXRT: Exchange Rate

INFLR: Inflation Rate

The econometric form of equation (3.7) is stated as follows:

$$CMD: \beta 0 + \beta_1 FOPN_{t-1} + \beta_2 FREM_{t-1} + \beta_3 INTR_{t-1} + \beta_4 EXR_{t-1} + \beta_5 INFLR_{t-1} + Ut \quad 3.8$$

Where:

CMD: Capital Market Development (Proxy by Ratio of Market Capitalization to Gross Domestic Product)

FOPN: Financial Openness

FREM: Foreign Remittances Inflows

INTR: Interest Rate

EXRT: Exchange Rate

INFLR: Inflation Rate

U_{it} : the error term

The apriori coefficient for the FOPN, FREM and INTR is expected to be positive. This means that this variable has direct relationship with capital market development. An increase in FOPN, FREM and INTR will lead to an increase in capital market development. The apriori expectation of EXR is expected to be positive or negative, which depict that the relationship

between exchange rate might not be positive. And while INFLR is expected to be negative, meaning that it is not expected to have a relationship between inflation rate and capital market development.

Accordingly, it is expected that financial openness and remittances inflows should positively impact capital market development. A rising interest rate may attract more foreign investors into the domestic market but may discourage domestic investment from the market hence, INTR >0<0; A Rising exchange rate will attract more residents abroad to send more money home to their loves for upkeep as well as for investment in buying of shares and bonds in the domestic stock market; hence, it is expected to be positively related to capital market development.

3.7 Method of Data Analysis

Three main methods was used in the analysis of this study. They are the panel unit root test, correlation coefficient and the Panel Fully Modified Ordinary Least Square (PFMOLS) technique. The Levin, Lin & Chu t (LLC), Fisher Chi-square-ADF and PP-Fisher Chi-square unit root tests methods was used to conduct the unit root tests in order to ascertain the stationarity properties of the variables used. The reason for this was to avoid spurious regression results. The Panel Fully Modified Least Squares (PFMOLS) regression model was employed in order to analyze the relationship between financial openness, foreign remittances inflows and capital market development in Sub-Sahara Africa. The fully modified least squares regression was originally designed in the work of Phillips and Hansen (1990) to provide optimal estimates of cointegrating regressions. The method modifies least squares to account for serial correlation effects and for the endogeneity in the regressors that results from the existence of a cointegrating relationship. The coefficients obtained from the estimation were then used to verify the working

hypotheses of the study. Therefore, the choice of the PFMOLS over Ordinary Least Squares (OLS) estimators is based on the fact that it has the dual advantage of correcting for both serial correlation and potential endogeneity problems that arise when the OLS estimators are used. The Eview 10.0 was used for the analysis of the data.

3.8 Measurement of Variables

Table 3.1: Description of Data

Variables	Acronym	Measurement	Source	Expected Sign
Capital Market Development	CMD	measured by ratio of market capitalization to GDP	Kabuga (2020); World Bank Data	-
Financial Openness	FOPN	Ratio of foreign financial assets plus foreign financial liabilities to gross domestic products (GDP)	Obayagbona and Igbinovia (2021), Azebi and Dein (2020); World Bank Data	+
Foreign Remittances	FREM	Taken as Transfers from International Migrants to Family Members in their Home Country of Origin	Uguru (2016), Kabuga (2020), World Bank Data (2022); World Bank Data	+
Interest Rate	INTR	Measured as commercial interest rate charges on time deposit maturing for 12 months	Kabuga (2020), Azebi and Dein (2020); World Bank Data	+/-
Exchange Rate	EXRT	Real Effective Exchange Rate (NEER; $CPiw/CP_{home}$	Chughtai (2015), Ehigiamusoe and Lean (2019), Elijah (2018); World Bank Data	-
Inflation Rate	INFLR	Measured as Annual consumer price index (CPI)	Dias (2013) and Ehigiamusoe and Lean (2019); World Bank	-

			Data	

Source: Author's Compilations (2025).

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS OF RESULTS

4.1 Introduction

In this chapter, the empirical analysis of the impact of financial openness and foreign remittances inflows on capital market development in Sub-Sahara Africa is performed. This involves the presentation and analysis of data in order to empirically evaluate the main objectives of the study. Hence both statistical and econometric methods were employed in the analysis. The statistical analysis involves correlation, cointegration, while the econometric analysis involves the use of panel fully modified least squares (PFMOLS) and dynamic least squares econometric techniques. The analysis is divided into two (2) sub sections namely, Nigeria, Kenya, South Africa (individual countries analysis) and combine analysis (Sub-Saharan Africa) respectively.

4.2 Cointegration Test Result

To test for cointegration as to whether a long run relationship exist among the variables used for the respective individual countries (Nigeria, Kenya and South Africa), the Johansen Fisher Panel cointegration test was employed in this regard. The panel tests was based on two main tests statistic (the eigenvalue test (λ-max) and the trace test statistic). As can be seen in Table 4.1, both the eigenvalue test (λ-max) and the trace test statistics indicate that there are three (3), four (4)

and three (3) significant cointegrating vectors between financial openness, foreign remittances inflows and capital market development in Nigeria, Kenya and South Africa respectively. This implies that a long run relationship exists among these variables. Hence, the results of the cointegration tests are summarized in Table 4.1.

Table 4.1: Johansen Fisher Panel Cointegration Tests Results (For Nigeria, Kenya and South Africa

Nigeria				
Trace Test		**Maximum**	**Eigenvalue**	**Test**
Null Hypothesis	**Fisher Statistic**	**Prob. Value**	**Fisher Statistic**	**Prob. Value**
r = 0*	124.6074	0.0001*	47.52566	0.0061*
r ≤ 1	77.08178	0.0117*	31.64925	0.0901
r ≤ 2	45.43253	0.0830	23.14765	0.1673
r ≤ 3	22.28488	0.2830	14.29720	0.3411
r ≤ 4	7.987681	0.4667	6.909369	0.4999
r ≤ 5	1.078312	0.2991	1.078312	0.2991
Kenya				
Null Hypothesis	**Fisher Statistic**	**Prob. Value**	**Fisher Statistic**	**Prob. Value**
r = 0*	118.3940	0.0006*	43.36786	0.0206*
r ≤ 1	75.02616	0.0181*	34.57616	0.0412*
r ≤ 2	40.45001	0.2068	24.90248	0.1062
r ≤ 3	15.54752	0.7436	10.88660	0.6586
r ≤ 4	4.660925	0.8437	4.059558	0.8530
r ≤ 5	0.601367	0.4381	0.601367	0.4381
South Africa				
Null Hypothesis	**Fisher Statistic**	**Prob. Value**	**Fisher Statistic**	**Prob. Value**
r = 0*	124.6074	0.0001*	47.52566	0.0061*
r ≤ 1	77.08178	0.0117*	31.64925	0.0901
r ≤ 2	45.43253	0.0830	23.14765	0.1673

r ≤ 3	22.28488	0.2830	14.29720	0.3411
r ≤ 4	7.987681	0.4667	6.909369	0.4999
r ≤ 5	1.078312	0.2991	1.078312	0.2991

Source: Author's computations (2025)

4.2 Correlation Analysis

The correlation analysis in Table 4.3 was employed to examine financial openness, foreign remittances inflows and capital market development in Sub-Sahara Africa. The results of the correlation matrix revealed that capital market development (CMD) has a negative correlation value of -0.54543 with foreign remittances inflows (FREM), a moderate negative correlation values of -0.44847 and -0.47494 with financial openness (FOPN) and exchange rate (EXRT); as well respectively as weak negative correlation values of -0.05020 and -0.34565 with interest rate (INTR) and inflation rate (INFLR) respectively. Indeed, there is a high positive correlation values of 0.81666 and 0.72265 among financial openness (FOPN), foreign remittances inflows (FREM) and exchange rate (EXRT). There is also a high positive correlation value of 0.73892 between foreign remittances inflows (FREM) and exchange rate. Thus, we conclude that, the correlation matrix results obtained is generally below the 80% threshold, indicating the absence of multicolinearity among the hypothesized variables in the model.

Table 4.2: Pairwise Correlation Matrix

	CMD	FOPN	FREMT	INTR	EXRT	INFLR
CMD	1					
FOPN	-0.44847	1				
FREMT	-0.54543	0.81666	1			
INTR	-0.05020	0.06621	0.12385	1		
EXRT	-0.47494	0.72265	0.73892	0.03563	1	
INFLR	-0.34565	-0.03794	0.02819	-0.61772	0.06692	1

Source: Author's Compilations (2025)

4.3 Panel Unit Root Test

The capital markets are usually strictly regulated globally and because of this, there is high tendency of the influences of country-specific characteristics (individual heterogeneity) and common (homogenous) characteristics of the economies used in the trends of capital market development. This calls for the use of panel unit root tests to check for the stationarity status of the data in order to avoid incidence of spurious‖ inference. In this section, the test developed by Levin, Lin and Chu (LLC) was used to examine the stationarity properties of the homogenous panel. This test assumes identical cointegration vectors among the countries. Given that each of the country in the study is likely to exhibit differences in their emissions, especially as it relates to financial openness and related factors outcomes, heterogenous-based results from the Im, Pesaran and Shin (IPS, 2003) and the Augmented Dickey-Fuller tests are also included in the study. The results of the unit root test are presented in Table 4.4. The results reported in the first order indicate that all the variables are in rates, ratios or indexes. This is reflected in the results of the unit root test which shows that all the variables are integrated of order one (i.e., I[1]). This is seen from the fact that the test statistic for each variable is significant at the 5 percent level and are therefore useful for estimating a cointegrating equation.

4.3: Panel Unit Root Test

Variables	**Common unit process**	**individual unit root process**		
	LLC	**IPS**	**ADF**	**PP-Fisher**
CMD	-5.81301	-8.74878	64.3311	93.3155
FOPN	-6.75189	-7.04254	52.0031	67.9152
FREMT	-4.77149	-4.71374	32.7691	61.6474
INTR	-5.81029	-7.22162	53.3555	99.0909
EXRT	-4.09532	-4.48127	31.0575	37.9822

INFLR	-6.05101	-7.45756	55.4448	71.5008

Source: Estimated by the Author. ***Note: ** and * indicate significant at 1% and 5 % levels respectively; IPS = Im, Pesaran & Shin; LLC = Levin, Lin & Chu***
Source: Author's Computation (2025); from Eviews 10.0

4.4 Cointegration Tests

The results of the panel cointegration tests are presented in Table 4.5. The coefficients of the residual based (Pedroni) panel cointegration tests are all significant at the 5 percent level. The pedroni residual cointegration test indicates that the null hypothesis of no cointegration can be rejected for each of the equations. Thus, the cointegration tests results show that there is strong long run relationships among the variables in the study. The fully modified least square estimation framework can therefore be employed in the empirical analysis.

Table 4.4: Pedroni Residual Cointegration Test

	Pedroni statistic	**Prob.**
Panel v-Statistic	0.267923	0.3944
Panel rho-Statistic	-1.615072	0.0531
Panel PP-Statistic	-3.925544	0.0000
Panel ADF-Statistic	-1.611958	0.0535

Source: Author's Computation (2025); from Eviews 10.0

4.5 Panel Dynamic Ordinary Least Square (PDLS)[2] Analysis of Individual Country Nigeria, Kenya and South Africa

The behaviour of capital market development (CMD) in the context of the movements in financial openness, foreign remittances inflows and other related variables in Nigeria, Kenya and South Africa are individually captured using the panel dynamic least squares (PDLS) technique. The R-Bar squared criterion was used for the selection of the parsimonious equation. The results of the estimated panel dynamic least squares for Nigeria, Kenya and South Africa capital market development are presented together in Table 4.2. The results show a very impressive diagnostic

outcome for the three countries' models. For instance, in Nigeria, the R-squared value of 0.90 is high and it indicates that over 90% of the systematic variation in capital market development (CMD) in the period is explained by the movements in the explanatory variables; even the R-Bar squared value of 0.72 is equally very high. Also, in the case of Kenya, the R-squared value of 0.96 is also very high, indicating that over 96% of the systematic variation in capital market development is explained by the movements in the explanatory variables; and the R-Bar squared value of 0.72 is equally very high. For the South African case, the R-squared value of 0.97 and the R-Bar squared value of 0.93 are very high and higher than those of Kenya and equal those of Nigeria. In a nut-shell, the three models possess high predictive abilities hence, we accept the hypothesis of a significant linear relationship between capital market development (CMD) and all the explanatory variables combined for the three countries (Nigeria, Kenya and South Africa).

Table 4.5: Financial Openness, Foreign Remittances Inflows and Capital Market Development in Nigeria, Kenya and South Africa (PDLS)

	NIGERIA			**KENYA**			**SOUTH AFRICA**		
Variables	Coeff.	T-Ratio	Prob.	Coeff.	T-Ratio	Prob.	Coeff.	T-Ratio	Prob.
FOPN	-1.3746	-3.4667	0.006**	11.253	7.334	0.005**	164.51	13.770	0.000**
FREM	6.0413	5.3368	0.000**	8.3939	3.845	0.031*	-271.78	-3.582	0.005**
INTR	-2.4506	-4.1065	0.002**	4.9720	5.444	0.012*	14.683	3.5524	0.005**
EXRT	0.0046	0.1723	0.866	1.3001	5.239	0.013*	-29.335	-10.040	0.000**
INFLR	-1.3884	-4.0155	0.002**	14.009	7.1142	0.005**	-14.639	-7.7021	0.000**
SMD(-3)	-	-	-	-0.287	-2.498	0.087			

Constant	39.006	4.0517	0.002	-341.9	-6.327	0.008	370.79	10.659	0.000
R^2 = 0.90	$\bar{R}^2$ = 0.72			R^2 = 0.96	$\bar{R}^2$ = 0.72		R^2 = 0.97	$\bar{R}^2$ = 0.93	

Source: Author's compilations (2025). Notes: **Sig at 1% Level; *Sig at 5% level.

For Nigeria Case:

In the Nigeria model in Table 4.2, it is seen that the coefficients of financial openness (FOPN), interest rate (INTR) and inflation rate (INFLR) are significantly and inversely related to capital market development (CMD) in Nigeria. The variables passed the 1% significant levels, indicating that they are important drivers of capital market development in the country. More specifically, the negative signs suggest that as FOPN, INTR and INFLR rise, the overall development of capital market in Nigeria reduces by approximately -1.3746%, -2.4506% and -1.3884% respectively. However, exchange rate (EXRT) has a weak positive relationship with capital market development, suggesting that it does not play any relevant role in capital market development. Those of foreign remittances inflows (FREM) which were financial openness (FOPN), interest rate (INTR) and inflation rate (INFLR) has a significant positive relationship with capital market development in Nigeria overtime. The impulse of this is that, as FREM increases, capital market development in Nigeria rises by about 6.0413 percent. This means that FREM is a potent driver of CMD.

For Kenya Case:

In Table 4.2, a close examination of the coefficients of the variables in terms of their significance level reveal that, all the hypothesized variables in the model such as financial openness (FOPN), foreign remittances inflows (FREM), interest rate (INTR), exchange rate (EXRT) and inflation rate (INFLR) are significantly and positively related to capital market development (CMD) in Kenya in the period of investigation. The variables passed the 1% and 5% significance levels.

What this mean is that, in the determination of the level of capital market development (CMD) in Kenya, financial openness (FOPN), foreign remittances inflows (FREM) and related variables are significant factors that should not be undermined.

For South Africa Case:

Furthermore, the analysis in Table 4.2 also disclosed that all the hypothesized variables in the model, such as financial openness (FOPN), foreign remittances inflows (REMT), interest rate (INTR), exchange rate (EXRT) and inflation rate (INFLR) are all significantly related to capital market development (CMD) in South Africa. Specifically, while those of FOPN and INTR has significant positive impact on capital market development, those of FREM, EXRT and INFLR has significant negative impact on capital market development in South Africa. This simply means that financial openness (FOPN), foreign remittances inflows (REMT) and related factors are key drivers of the South African capital market development.

4.6 Panel Fully Modified Least Squares (PFMOLS) Analysis for SSA

In the results of the estimated panel fully modified least squares (PFMOLS) regression for the model presented in Table 4.6 in respect of Sub Sahara Africa, the diagnostic indicators are very impressive. The model is shown to have a high predictive ability as is shown in the R squared value of 0.85. This shows that over 85 % of the systematic variations in capital market development (CMD) is captured by changes in the explanatory variables. The adjusted R-squared value of 0.84% is equally very high and it implies that the model has a good predictive ability. Hence, we cannot reject a significant relation between the dependent variable (CMD) and all the explanatory variables combined.

The particular relevance of each variable in the model can be considered by looking at the significance of each of the coefficients in the model. In the result, financial openness (FOPN) has a strong positive relationship with capital market development (CMD) in Sub Sahara Africa, the variables passed the 5% significance level. This suggests that in the determination of capital market development (CMD) in the SSA, financial openness (FOPN) is a relevant factor that should not be ignored by the regulator and governments due to the fact that it has demonstrated to be a potent driver of capital market development in the sub region. Indeed, financial openness has allowed residents and domestic institutions within the SSA region to participate in transactions in international financial markets Arif-Ur-Rahman and Inaba, (2020), and this openness as asserted by Fasanya and Olayemi (2020) usually includes 7 elements: capital account openness, stock market openness, American Depository Receipt (ADR) and national fund issuance, bank reformation, privatization and capital flow and foreign direct investment (FDI) respectively. The coefficient of foreign remittances inflows (FREM) has a weak inverse relationship with capital market development (CMD), suggesting that it is not relevant in determining capital market development in the SSA markets.

Those of exchange rate (EXRT) is not significantly related to capital market development (CMD) in the SSA region, as it failed the 5% significant level; suggesting that the rate of exchange between the dollars and other international currencies against the respective countries local currencies do not play any relevant role in the determination of capital market development in Sub-Sahara Africa. The coefficients of interest rate (INTR) and inflation rate (INFLR) are seen to be significantly and inversely related to capital market development (CMD) in Sub-Sahara Africa (SSA); both variables passed the 1 percent and 5 percent significance levels. The impulse of this results is that, interest rate (INTR) and inflation rate (INFLR) levels are potent

drivers of Sub-Sahara Africa capital market development (CMD) overtime. However, and in the specifics, the negative signs are indications that as interest rate and inflation rate rises, capital market development in the Sub-Sahara Africa countries reduces by -1.474843% and -0.580323 approximately. This outcome is a further confirmation of the theoretical expectations that a rising interest rate and inflation rate is detrimental to the overall health of the capital market.

Table 4.6: Financial Openness, Foreign Remittances Inflows and Capital Market Development in Sub-Sahara Africa (PFMOLS) (SSA)

Variable	Coefficient	T-Ratio	Prob.
FOPN	1.285743	2.088587	0.0395*
FREM	-1.895762	-0.863552	0.3901
INTR	-1.474843	-3.671098	0.0004**
EXRT	0.024836	0.664931	0.5078
INFLR	-0.580323	-1.957490	0.0534*
$R^2 = 0.85$	$\overline{R}^2 = 0.84$		

Source: Author's Computation (2025) from Eview 10.0. Note: **sig. at 5% level, *sig. at 5% level.

4.7 Discussion of Findings

The significant positive relationship between financial openness (FOPN) and capital market development (CMD) in SSA countries demonstrates that FOPN is a relevant driver of capital market development in the sub region of Africa. This result is in line with theoretical expectation of a significant positive relationship of FOPN with CMD. Indeed, financial openness, according to standard economic theory, provides lower cost of financing, efficient allocation of resources,

international risk sharing, increase in investments, financial development and growth. In general, an increase in the level of financial openness enhances the size and activity of financial i3nstitutions, improve efficiency in the banking system, and contribute to deepen private bond markets in the domestic market with moderate to high levels of institutional quality and investors' protection. The respective governments in the SSA should review and strengthen current trade liberalization policy with a view to making it more foreign investors friendly by abrogating some of the crude and stringent rules that seem to be inhibiting inflow of foreign investment. By so doing, it will make the Sub-Sahara African capital markets more competitive in the global financial flows, attract more foreign portfolio investors and in turn impact positively on the overall market development. The finding agrees with the findings of Abidemi and Nosakhare (2013), Diem and Hoai (2021), Arif-Ur-Rahman and Inaba (2020), Fasanya and Olayemi (2020), Calderon and Kubota, 2009; Sahoo and Sethi (2020) who submitted that financial openness significantly and positively impact capital market development. However, the finding does not align with the studies of Obayagbona and Igbinovia (2021), Ganiyat (2023), Obayagbona and Edo-Osagie (2024) who found a weak relationship between financial openness and capital market development.

Remittance inflows to developing and low-income economies have been identified as one of the drivers of capital investment growth (Afawubo & Fromen-tin 2013; Keho 2020); increases human development in the migrant's country by increasing household investment in education and health (Gyimah, Brempong & Asiedu, 2015); and is also one of the largest sources of stable external financial flows overshadowing the traditional sources like official aid and private capital flows and foreign direct investment (FDI). However, the outcome of this study has proven otherwise, with a weak inverse relationship of remittances with capital market development in

the SSA, suggesting the tendency of remittances inflows to reduce capital market development. This was envisaged by Ahamada and Coulibaly (2013) and Mallick (2012) that remittances may reduce domestic investment if it is used extensively for consumption instead of funding investment like physical capital and human capital development. This was also corroborated by Tung (2018) he added that remittances may result in a moral hazard or dependency syndrome situation, and this may lower private investment. Therefore, this weak negative effect of remittances inflows on capital market development suggests the need for deliberate effort on the part of the respective governments and regulators to reduce the current high cost often associated with remittances inflow to the SSA regional markets, and by so doing large portion of remittances received can then be utilized for innovative financial products to constantly deepen and broaden the SSA capital markets. This is one of the potent means by which remittances inflow can constantly have positive impact on the development of the SSA capital markets.

With respect to interest rate, the finding from this study has shown a significant negative relationship between INTR and capital market development. This means that as interest rate rises stock market development decreases. This is clearly in line with theoretical expectation. A rise in interest rate level causes investors to be more reluctant to bid up stock prices because the value of future earnings looks less attractive as well as those of bonds that pay more competitive yields (Adebowale & Akosile, 2018). By so doing, the overall market activities is weakened. For instance, increasing interest rates can have an impact on equity markets by influencing future earnings growth rate of listed firms. However, unlike bond prices, which tend to go down when yields go up, stock prices might rise or fall with changes in interest rates. Therefore, the null hypothesis of no significant relationship between interest rate and capital market development does not hold hence the alternative hypothesis is accepted.

The finding aligns with those of Abidemi and Nosakhare (2013), Diem and Hoai (2021) that international financial integration may lead to a faster development of domestic financial intermediaries through different channels; it increases the depth and breadth of domestic financial markets and improve the efficiency of financial intermediation by eliminating financial repression and shifting interest rates to clearing-market competitive levels, thus reducing the cost of capital (Calderon & Kubota, 2009; Sahoo & Sethi, 2020; Arif-Ur-Rahman & Inaba, 2020). It however disagreed with the findings of Obayagbona and Igbinovia (2021), Obayagbona and Edo-Osagie (2024) who found a weak relationship between financial openness and capital market development.

Considering the submission of Ugwuegbe et al (2018), Mustafa, Shah and Iqbal (2020), Hussaini, Musa and Muhammad (2021), Diem and Hoai (2021), and Olaide and Ganiyat (2023) that remittances inflows drive the home economy due to the fact that they are funds transferred from migrants to their home country, representing private savings of workers and families that are spent in the home country for food, clothing, and other expenditures; this finding does not seems to align with this submission. It does not also align with those of Ahamada and Coulibaly (2013), Mallick (2012) who submitted that remittances may reduce domestic investment if it is used extensively for consumption instead of funding investment such as physical capital and human capital development. Tung (2018) added that remittances may result in a moral hazard or dependency syndrome situation, and this may lower private investment.

This finding does not align with the findings of Oyerinde (2019), and Obayagbona and Edo-Osagie (2024) who found that exchange rate is significantly and positively related to capital market development (CMD) in the SSA. However, this finding is not in agreement with the

finding of Oyerinde (2019) who observed that inflation rate and interest rate significantly and positive impacted capital market development.

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market development (CMD) in the SSA. However, this finding is not in agreement with the finding of Oyerinde (2019) who observed that inflation rate and interest rate significantly and positive impacted capital market development.

4.9 Test of Hypotheses

Hypothesis One: We hypothesized that, there is no significant relationship between financial openness and capital market development in Sub-Sahara Africa Countries. However, on the basis of the results obtained from the empirical investigation (see Table 4.6: t-Stat. = 2.088587; Prob. Value = 0.0395), it was observed that capital market development in Sub-Sahara Africa Countries is significantly driven by financial openness (FOPN) which is also inline with the apriori expectation in this study. Therefore, we reject the null hypothesis which state that there is no significant relationship between financial openness and capital market development in Sub-Sahara Africa Countries and accept the alternative hypothesis that there is a significant relationship between financial openness and capital market development in Sub-Sahara Africa Countries.

Hypothesis Two: It was hypothesized that foreign remittance inflows does not significantly affect capital market development in Sub-Sahara Africa countries. However, the results obtained from the empirical analysis of data in Table 4.6 (see Table 4.5: t-Stat. = -0.863552; Prob. Value = 0.3901), it was discovered that foreign remittance inflows has no significant effect on capital market development in Sub-Sahara Africa overtime. Hence, while the null hypothesis is accepted, the alternative hypothesis is rejected in this regard.

Hypothesis Three: It was hypothesized that, interest rate (INTR) does not significantly affect capital market development in Sub-Sahara Africa Countries. However, on the basis of the results obtained from the empirical investigation (see Table 4.6: t-Stat. = -3.671098; Prob. Value =

0.0004), it was observed that capital market development in Sub-Saharan Africa Countries is significantly driven by interest rate (INTR). Therefore, while we reject the null hypothesis, the alternative hypothesis is accepted.

Hypothesis Four: It was hypothesized that exchange rate (EXRT) does not significantly affect capital market development in Sub-Sahara Africa countries. However, the results obtained from the empirical analysis of data in Table 4.6 (see Table 4.5: t-Stat. = 0.664931; Prob. Value = 0.5078), it was discovered that exchange rate (EXRT) has no significant effect on capital market development in Sub-Saharan African. Hence, while the null hypothesis is accepted, the alternative hypothesis is rejected in this regard.

Hypothesis Five: It was hypothesized that there is no significant relationship between inflation rate (INFLR) and capital market development in Sub-Sahara Africa Countries. However, on the basis of the results obtained from the empirical investigation (see Table 4.6: t-Stat. = -1.957490; Prob. Value = 0.0534), it was observed that inflation rate (INFLR) is a potent factor affecting capital market development in Sub-Sahara Africa countries. Thus, the null hypothesis which state that there is no significant relationship between inflation rate (INFLR) and capital market development in Sub-Sahara Africa Countries is rejected while the alternative hypothesis that there is a significant relationship between inflation rate (INFLR) and capital market development in Sub-Sahara Africa Countries is accepted.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSON AND RECOMMENDATIONS

5.1 Introduction

This chapter focuses on the summary of findings from the empirical analysis, conclusion and policy recommendations. The contributions to knowledge and areas of further studies are also presented.

5.2 Summary of Findings

The study examined the relationship between financial openness, foreign remittances inflows and capital market development in Sub-Saharan Africa. On the basis of the analysis of data in chapter four, the following specific findings are made:

(i) That financial openness (FOPN) has a strong positive relationship with capital market development (CMD) in Sub Sahara Africa, the variables passed the 5% significance level. This suggests that in the determination of capital market development (CMD) in the SSA, financial openness (FOPN) is a relevant factor that should not be ignored by the regulator and governments due to the fact that it has been demonstrated to be a potent driver of capital market development in the sub region.

(ii) That foreign remittances inflows (FREM) have a weak inverse relationship with capital market development (CMD), suggesting that it is not relevant in determining capital market development in the SSA markets.

(iii) That exchange rate (EXRT) is not significantly related to capital market development (CMD) in the SSA region, as it failed the 5% significant level; suggesting that the rate of exchange between the dollars and other international currencies against the respective countries local currencies do not play any relevant role in the determination of capital market development in Sub-Sahara Africa.

(iv) That interest rate (INTR) has a strong negative relationship with capital market development (CMD) in Sub-Sahara Africa (SSA), suggesting that it is a potent factor for determining the level of development of the SSA markets.

(v) That inflation rate (INFR) is seen to have significant negative relationship with capital market development (CMD) in Sub-Sahara Africa (SSA); meaning that the rate of

inflation in the SSA region is a significant factor for determining capital market development in the SSA.

5.3 Conclusion

Financial openness and foreign remittances inflows have been recognized as strong drivers of capital market development globally. Following this submission, there was the need to empirically investigate submission in the Sub-Saharan African countries context in order to ascertain the extent to which financial openness and foreign remittances inflows have impacted the development of capital market in Sub-Sahara Africa. Relevant data were collected from the World Bank Data over the period 1990 to 2023 for Nigeria, Kenya and South Africa as sample for SSA countries. The panel fully modified least square econometric technique was employed for the analysis of data and the results obtained revealed that, financial openness (FOPN) has a strong positive relationship with capital market development (CMD) in Sub Sahara Africa; foreign remittances inflows (FREM) has a weak inverse relationship with capital market development, exchange rate (EXRT) has a weak positive effect on CMD; and while interest rate (INTR) and inflation rate (INFLR) has a strong negative relationship with capital market development in Sub-Sahara Africa countries. The study therefore conclude that, in the determination of capital markets development of SSA countries, FOPN, INTR and INFLR are relevant drivers that must be taken into consideration otherwise, development of the regional market will be a mirage.

5.4 Recommendations

Based on the findings from this study, the following specific recommendations for policy decisions are brought forward:

First, the respective governments in the SSA should review and strengthen current trade liberalization policy with a view to making it more foreign investors friendly by abrogating some of the crude and stringent rules that seem to be inhibiting inflow of foreign investment. By so doing, it will make the Sub-Sahara African capital markets more competitive in the global financial flows, attract more foreign portfolio investors and in turn impact positively on the overall market development.

Secondly, since foreign remittances inflows (FREM) have an insignificant negative relationship with capital market development, in Sub-Sahara Africa, governments and regulators should review current policy on foreign remittances with a view to repositioning it so that it will be able to attract more inflow of remittances continue and thereby impacting positively on the overall development SAA capital markets. For instance, they should deliberately reduce the current high cost often associated with remittances inflow to the countries, and by so doing large portion of remittances received into these countries can then be utilized for innovative financial products to constantly deepen and broaden the SSA capital markets.

Thirdly, the respective SSA monetary authorities should be more proactive by constantly engaging on realistic macroeconomic measures to overhaul the current investment climate in the SSA markets so that the sub region will not only be attractive to foreign investors but also be a haven for steady remittances inflows. This could be achieved by formulating appropriate policies to reduce current interest rate as well as ensuring that inflationary trend is effectively curtained in the SSA This measure will go a long way to ensuring that interest rate and inflation rate continue to have the needed positive impact on capital market development in Sub-Sahara Africa.

Lastly, there is need to demutualize (for those who have not done so) the SSA capital markets to constantly guarantee foreign investors' confidence on the efficiency of the markets.

This will help to minimize rapid capital flight from the SSA markets when there are problems from outside the sub-region market, and in turn foreign investments, and especially remittances inflows will have the much needed positive impact on the development of SSA capital markets.

5.5 Suggestions for Further Studies

First, this study has only examined the relationship between financial openness, foreign remittances inflows and capital market development in Sub-Saharan Africa (Nigeria, Kenya and South Africa). We suggests that a further study involving other channels of foreign capital inflows such as FDI, foreign portfolio investment, official development assistance among others should equally be investigated. This will help us to see the broader impact of foreign capital inflows on capital market development in the SSA.

Lastly, we also suggest that either generalize methods of moment should be employed in order to see if there is any significant difference in the results obtained from the fully modified least squares method employed in this study. Sometimes, methods of data analysis could make a difference.

5.6 Contributions to Knowledge

The study contributed to knowledge in the following ways:

(i) it evaluated the effect of financial openness and foreign remittances inflows on capital market development beyond the usual country-specific scope to that of cross-country study in Sub-Saharan Africa countries.

(ii) it is one of the fewest studies that utilized panel fully modified least square (FMOLS) in the empirical analysis of capital market development in relation to financial openness and remittances inflows, and this makes it differ from prior studies, thereby effectively close the gap in the empirical literature.

(iii) the study utilizes recent SSA capital markets development and financial openness data for its empirical analysis; hence, the recency of the data utilized makes this study unique from previous studies in this area

(iv) it demonstrated that proper overhauling of the current trade liberalization policies in the SSA, the respective capital markets in the sub-region will be more competitive in the global financial flows, attract more foreign investors to stimulate the rapid development of the capital markets.

(v) it further provided clear cut understanding on how remittance inflow can be utilized to develop domestic economies and diversify same by reducing domestic financial constrain, increasing domestic investment, employment and wage, and improving human capital and technical advancement. This understanding is very crucial for policy makers to initiate better policy that would attract more inflows of remittance into the SSA region.

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APPENDICES

Combined Results SSA

Fully Modified Least Squares

Dependent Variable: CMD
Method: Panel Fully Modified Least Squares (FMOLS)
Date: 03/06/25 Time: 08:51
Sample (adjusted): 1991 2023

Periods included: 33
Cross-sections included: 3
Total panel (balanced) observations: 99
Panel method: Pooled estimation
Cointegrating equation deterministics: C
First-stage residuals use heterogeneous long-run coefficients
Coefficient covariance computed using default method
Long-run covariance estimates (Bartlett kernel, Newey-West fixed bandwidth)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FOPN	1.285743	0.615604	2.088587	0.0395
REMT	-1.895762	2.195306	-0.863552	0.3901
INTR	-1.474843	0.401744	-3.671098	0.0004
EXRT	0.024836	0.037351	0.664931	0.5078
INFLR	-0.580323	0.296463	-1.957490	0.0534

R-squared	0.858201	Mean dependent var	76.89598
Adjusted R-squared	0.847294	S.D. dependent var	95.24498
S.E. of regression	37.21949	Sum squared resid	126061.4
Long-run variance	437.2837		

Correlation Matrix

	CMD	FOPN	REMT	INTR	EXRT	INFLR
CMD	1	-0.448479289 4345308	-0.545431405 1053015	-0.050204248 14214931	-0.474945171 7569117	-0.345659408 3072344
FOPN	-0.448479289 4345308	1	0.816664051 5874521	0.066214608 93104322	0.722659681 9965551	-0.037943561 22932661
REMT	-0.545431405 1053015	0.816664051 5874521	1	0.123856624 9513329	0.738923675 8903274	0.028191594 38109445
INTR	-0.050204248 14214931	0.066214608 93104322	0.123856624 9513329	1	0.035639610 47305608	-0.617727665 0424592
EXRT	-0.474945171 7569117	0.722659681 9965551	0.738923675 8903274	0.035639610 47305608	1	0.066925412 87847806
INFLR	-0.345659408 3072344	-0.037943561 22932661	0.028191594 38109445	-0.617727665 0424592	0.066925412 87847806	1

Cointegration Test

Pedroni Residual Cointegration Test
Series: CMD FOPN REMT INTR EXRT
INFLR
Date: 03/06/25 Time: 08:53
Sample: 1990 2023
Included observations: 102
Cross-sections included: 3
Null Hypothesis: No cointegration
Trend assumption: No deterministic trend
User-specified lag length: 1
Newey-West automatic bandwidth selection and Bartlett kernel

Alternative hypothesis: common AR coefs. (within-dimension)

	Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	0.267923	0.3944	0.620232	0.2676
Panel rho-Statistic	-1.615072	0.0531	-0.640110	0.2611
Panel PP-Statistic	-3.925544	0.0000	-2.653690	0.0040
Panel ADF-Statistic	-1.611958	0.0535	-1.914078	0.0278

Alternative hypothesis: individual AR coefs. (between-dimension)

	Statistic	Prob.
Group rho-Statistic	0.084792	0.5338
Group PP-Statistic	-2.424324	0.0077
Group ADF-Statistic	-1.894153	0.0291

Cross section specific results

Phillips-Peron results (non-parametric)

Cross ID	AR(1)	Variance	HAC	Bandwidth	Obs
1	0.315	32.31277	28.34794	3.00	33
2	0.323	100.4542	70.80637	6.00	33
3	0.061	1016.790	1079.051	3.00	33

Augmented Dickey-Fuller results (parametric)

Cross ID	AR(1)	Variance	Lag	Max lag	Obs
1	0.101	29.92689	1	--	32
2	0.188	92.93366	1	--	32
3	0.020	1042.112	1	--	32

Unit root test (levels)

Panel unit root test: Summary
Series: CMD
Date: 03/06/25 Time: 08:55
Sample: 1990 2023
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-0.63828	0.2616	3	96
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.11843	0.1317	3	96
ADF - Fisher Chi-square	9.56746	0.1441	3	96
PP - Fisher Chi-square	13.6596	0.0337	3	99

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: FOPN
Date: 03/06/25 Time: 08:56
Sample: 1990 2023
Exogenous variables: Individual effects
User-specified lags: 1

Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	0.46765	0.6800	3	96
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	0.29857	0.6174	3	96
ADF - Fisher Chi-square	9.11883	0.1670	3	96
PP - Fisher Chi-square	7.14985	0.3072	3	99

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: REMT
Date: 03/06/25 Time: 08:56
Sample: 1990 2023
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-1.84095	0.0328	3	96
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.55724	0.0597	3	96
ADF - Fisher Chi-square	11.4057	0.0766	3	96
PP - Fisher Chi-square	6.25441	0.3953	3	99

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: INTR
Date: 03/06/25 Time: 08:56
Sample: 1990 2023
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-1.83921	0.0329	3	96
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.29758	0.0108	3	96
ADF - Fisher Chi-square	15.2004	0.0188	3	96
PP - Fisher Chi-square	25.8575	0.0002	3	99

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: EXRT
Date: 03/06/25 Time: 08:56
Sample: 1990 2023
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	1.91882	0.9725	3	96
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	3.18187	0.9993	3	96
ADF - Fisher Chi-square	0.28231	0.9996	3	96
PP - Fisher Chi-square	0.23305	0.9998	3	99

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: INFLR
Date: 03/06/25 Time: 08:57
Sample: 1990 2023
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-3.34444	0.0004	3	96
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-3.17508	0.0007	3	96
ADF - Fisher Chi-square	21.2836	0.0016	3	96
PP - Fisher Chi-square	17.2988	0.0082	3	99

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

Unit root test (first diff.)

Panel unit root test: Summary
Series: D(CMD)
Date: 03/06/25 Time: 08:57
Sample: 1990 2023
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-5.81301	0.0000	3	93

Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-8.74878	0.0000	3	93
ADF - Fisher Chi-square	64.3311	0.0000	3	93
PP - Fisher Chi-square	93.3155	0.0000	3	96

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: D(FOPN)
Date: 03/06/25 Time: 08:57
Sample: 1990 2023
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-6.75189	0.0000	3	93
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-7.04254	0.0000	3	93
ADF - Fisher Chi-square	52.0031	0.0000	3	93
PP - Fisher Chi-square	67.9152	0.0000	3	96

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: D(REMT)
Date: 03/06/25 Time: 08:58
Sample: 1990 2023
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-4.77149	0.0000	3	93
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-4.71374	0.0000	3	93
ADF - Fisher Chi-square	32.7691	0.0000	3	93
PP - Fisher Chi-square	61.6474	0.0000	3	96

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: D(INTR)
Date: 03/06/25 Time: 08:58
Sample: 1990 2023
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-5.81029	0.0000	3	93
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-7.22162	0.0000	3	93
ADF - Fisher Chi-square	53.3555	0.0000	3	93
PP - Fisher Chi-square	99.0909	0.0000	3	96

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary

Series: D(EXRT)
Date: 03/06/25 Time: 08:58
Sample: 1990 2023
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-4.09532	0.0000	3	93
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-4.48127	0.0000	3	93
ADF - Fisher Chi-square	31.0575	0.0000	3	93
PP - Fisher Chi-square	37.9822	0.0000	3	96

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: D(INFLR)
Date: 03/06/25 Time: 08:58
Sample: 1990 2023
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-6.05101	0.0000	3	93
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-7.45756	0.0000	3	93
ADF - Fisher Chi-square	55.4448	0.0000	3	93
PP - Fisher Chi-square	71.5008	0.0000	3	96

** Probabilities for Fisher tests are computed using an asymptotic

Chi
-square distribution. All other tests assume asymptotic normality.

Appendix 2

Individual Country Countries Results

Nigeria Results

Dependent Variable: SMD
Method: Dynamic Least Squares (DOLS)
Date: 03/13/25 Time: 18:19
Sample (adjusted): 1992 2022
Included observations: 31 after adjustments
Cointegrating equation deterministics: C
Fixed leads and lags specification (lead=1, lag=1)

Long-run variance estimate (Bartlett kernel, Newey-West fixed bandwidth =
4.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FOPN	-1.374603	0.396508	-3.466772	0.0061
REMT	6.041305	1.131992	5.336879	0.0003
INTR	-2.450643	0.596767	-4.106530	0.0021
EXRT	0.004610	0.026743	0.172381	0.8666
INFLR	-1.388424	0.345762	-4.015543	0.0025
C	39.00605	9.626996	4.051737	0.0023

R-squared	0.909674	Mean dependent var	10.42597
Adjusted R-squared	0.729021	S.D. dependent var	8.574769
S.E. of regression	4.463651	Sum squared resid	199.2418
Long-run variance	19.52245		

	CMD	FOPN	REMT	INTR	EXRT	INFLR
CMD	1	0.848020374 6867182	0.564835816 1714361	-0.440985574 7297519	-0.802912243 6547522	-0.471777895 0614643
FOPN	0.848020374 6867182	1	0.609498963 3765029	-0.451240395 3143109	-0.948847054 8315506	-0.395992802 8778658
REMT	0.564835816 1714361	0.609498963 3765029	1	-0.338884894 8567062	-0.647538571 5630902	-0.594044936 3657688
INTR	-0.440985574 7297519	-0.451240395 3143109	-0.338884894 8567062	1	-0.330650518 1534446	-0.041044106 31287166
EXRT	-0.802912243 6547522	-0.948847054 8315506	-0.647538571 5630902	-0.330650518 1534446	1	-0.455099669 3399072
INFLR	-0.471777895 0614643	-0.395992802 8778658	-0.594044936 3657688	-0.041044106 31287166	-0.455099669 3399072	1

Date: 03/06/25 Time: 09:16
Sample (adjusted): 1992 2023
Included observations: 32 after adjustments
Trend assumption: Linear deterministic trend
Series: CMD FOPN REMT INTR EXRT INFLR
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.773538	124.6074	95.75366	0.0001
At most 1 *	0.628066	77.08178	69.81889	0.0117
At most 2	0.514882	45.43253	47.85613	0.0830
At most 3	0.360320	22.28488	29.79707	0.2830
At most 4	0.194198	7.987681	15.49471	0.4667
At most 5	0.033136	1.078312	3.841466	0.2991

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.773538	47.52566	40.07757	0.0061
At most 1	0.628066	31.64925	33.87687	0.0901
At most 2	0.514882	23.14765	27.58434	0.1673
At most 3	0.360320	14.29720	21.13162	0.3411
At most 4	0.194198	6.909369	14.26460	0.4999
At most 5	0.033136	1.078312	3.841466	0.2991

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Kenya Results

Dependent Variable: CMD
Method: Dynamic Least Squares (DOLS)
Date: 03/06/25 Time: 09:23
Sample (adjusted): 1995 2022
Included observations: 28 after adjustments
Cointegrating equation deterministics: C
Fixed leads and lags specification (lead=1, lag=1)
Long-run variance estimate (Bartlett kernel, Newey-West fixed bandwidth =
4.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FOPN	11.25339	1.534330	7.334399	0.0052
REMT	8.393995	2.182740	3.845623	0.0310
INTR	4.972094	0.913234	5.444492	0.0122
EXRT	1.300183	0.248138	5.239768	0.0135
INFLR	14.00915	1.969155	7.114296	0.0057
SMD(-3)	-0.287848	0.115193	-2.498846	0.0878
C	-341.9803	54.04835	-6.327302	0.0080

R-squared	0.969147	Mean dependent var	20.41212
Adjusted R-squared	0.722327	S.D. dependent var	11.37171
S.E. of regression	5.992284	Sum squared resid	107.7224
Long-run variance	7.670399		

Date: 03/06/25 Time: 09:27
Sample (adjusted): 1992 2023
Included observations: 32 after adjustments
Trend assumption: Linear deterministic trend
Series: CMD FOPN REMT INTR EXRT INFLR
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.742116	118.3940	95.75366	0.0006
At most 1 *	0.660576	75.02616	69.81889	0.0181
At most 2	0.540769	40.45001	47.85613	0.2068
At most 3	0.288376	15.54752	29.79707	0.7436
At most 4	0.119144	4.660925	15.49471	0.8437
At most 5	0.018617	0.601367	3.841466	0.4381

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.742116	43.36786	40.07757	0.0206

At most 1 *	0.660576	34.57616	33.87687	0.0412
At most 2	0.540769	24.90248	27.58434	0.1062
At most 3	0.288376	10.88660	21.13162	0.6586
At most 4	0.119144	4.059558	14.26460	0.8530
At most 5	0.018617	0.601367	3.841466	0.4381

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

CMD	FOPN	REMT	INTR	EXRT	INFLR
-0.015877	0.391654	0.013344	0.125819	0.011831	0.166469
-0.066308	0.468424	0.319988	-0.154142	-0.028499	-0.013627
0.046578	0.147767	-1.132617	0.097886	-0.001872	-0.066715
-0.100048	-0.050913	-0.561338	-0.029738	0.016433	0.075922
0.055428	-0.238663	-0.334890	-0.068592	0.033008	0.058528
-0.002219	-0.337776	-0.025598	-0.013650	0.076330	0.022902

	CMD	FOPN	REMT	INTR	EXRT	INFLR
CMD	1	0.326939014884761	-0.066467938 80006654	-0.220502811 7035482	0.054809064 56632815	0.122540966 3811385
FOPN	0.326939014 884761	1	-0.062808454 69188651	-0.059159900 24654726	0.618932600 9962726	-0.356443858 3405529
REMT	-0.066467938 80006654	-0.062808454 69188651	1	-0.221206325 3237279	0.400403535 6048235	-0.126423325 0428587
INTR	-0.220502811 7035482	-0.059159900 24654726	-0.221206325 3237279	1	-0.020273445 29869323	-0.282659401 4727904
EXRT	0.054809064 56632815	0.618932600 9962726	0.400403535 6048235	-0.020273445 29869323	1	-0.487116476 1650894
INFLR	0.122540966 3811385	-0.356443858 3405529	-0.126423325 0428587	-0.282659401 4727904	-0.487116476 1650894	1

South Africa Results

Dependent Variable: CMD
Method: Dynamic Least Squares (DOLS)
Date: 03/06/25 Time: 09:29
Sample (adjusted): 1992 2022
Included observations: 31 after adjustments
Cointegrating equation deterministics: C
Fixed leads and lags specification (lead=1, lag=1)
Long-run variance estimate (Bartlett kernel, Newey-West fixed
bandwidth =
4.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FOPN	164.5135	11.94715	13.77010	0.0000
REMT	-271.7808	75.86304	-3.582519	0.0050
INTR	14.68309	4.133216	3.552462	0.0052
EXRT	-29.33515	2.921644	-10.04063	0.0000
INFLR	-14.63993	1.900759	-7.702146	0.0000
C	370.7921	34.78663	10.65904	0.0000

R-squared	0.978710	Mean dependent var	199.3734
Adjusted R-squared	0.936129	S.D. dependent var	62.39188
S.E. of regression	15.76813	Sum squared resid	2486.340
Long-run variance	69.17538		

Date: 03/06/25 Time: 09:30
Sample (adjusted): 1992 2023
Included observations: 32 after adjustments
Trend assumption: Linear deterministic trend
Series: CMD FOPN REMT INTR EXRT INFLR
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.773538	124.6074	95.75366	0.0001
At most 1 *	0.628066	77.08178	69.81889	0.0117
At most 2	0.514882	45.43253	47.85613	0.0830
At most 3	0.360320	22.28488	29.79707	0.2830
At most 4	0.194198	7.987681	15.49471	0.4667
At most 5	0.033136	1.078312	3.841466	0.2991

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**

None *	0.773538	47.52566	40.07757	0.0061
At most 1	0.628066	31.64925	33.87687	0.0901
At most 2	0.514882	23.14765	27.58434	0.1673
At most 3	0.360320	14.29720	21.13162	0.3411
At most 4	0.194198	6.909369	14.26460	0.4999
At most 5	0.033136	1.078312	3.841466	0.2991

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

CMD	FOPN	REMT	INTR	EXRT	INFLR
0.013778	-1.657034	10.35412	0.144226	0.315289	0.475360
-0.005819	2.978516	8.137223	0.906548	-0.652899	0.016784
0.042442	-2.469410	-5.308278	0.124401	0.143888	-0.019818
0.003133	-1.496727	16.89581	0.120185	0.209220	-0.060226
-0.009416	-1.559405	-12.58096	0.098085	0.576160	-0.113239
0.000685	-0.879829	4.297406	-0.178603	-0.149001	-0.057715

	CMD	FOPN	REMT	INTR	EXRT	INFLR
CMD	1	0.848020374 6867182	0.564835816 1714361	-0.440985574 7297519	0.802912243 6547522	-0.471777895 0614643
FOPN	0.848020374 6867182	1	0.609498963 3765029	-0.451240395 3143109	0.948847054 8315506	-0.395992802 8778658
REMT	0.564835816 1714361	0.609498963 3765029	1	-0.338884894 8567062	0.647538571 5630902	-0.594044936 3657688
INTR	-0.440985574 7297519	-0.451240395 3143109	-0.338884894 8567062	1	-0.330650518 1534446	0.041044106 31287166
EXRT	0.802912243 6547522	0.948847054 8315506	0.647538571 5630902	-0.330650518 1534446	1	-0.455099669 3399072
INFLR	-0.471777895 0614643	-0.395992802 8778658	-0.594044936 3657688	0.041044106 31287166	-0.455099669 3399072	1

DATA

Country	YEAR	CMD	FOPN	REMT	INTR	EXRT	INFLR
Nigeria	1990	0	0.764609	0.018522	17.46624	8.038285	7.3644

Nigeria	1991	0	0.908076	0.11011	0.990847	9.909492	13.00697
Nigeria	1992	0	0.176189	0.108433	-14.9872	17.29843	44.58884
Nigeria	1993	3.777257	0.151343	1.398342	-7.05247	22.0654	57.16525
Nigeria	1994	3.703127	-0.05425	0.683925	-15.9202	21.996	57.03171
Nigeria	1995	5.518885	0.434358	0.177436	-31.4526	21.89526	72.8355
Nigeria	1996	6.845681	1.042841	0.159687	-5.26078	21.88443	29.26829
Nigeria	1997	6.252938	0.944051	0.291629	12.12661	21.88605	8.529874
Nigeria	1998	4.725689	0.930455	0.205363	11.48467	21.886	9.996378
Nigeria	1999	4.970118	10.92573	2.19977	6.047248	92.3381	6.618373
Nigeria	2000	4.970118	16.84121	2.012139	-1.14089	101.6973	6.933292
Nigeria	2001	0	18.01769	1.585983	12.1387	111.2313	18.87365
Nigeria	2002	2.497463	13.20523	1.271864	3.023542	120.5782	12.87658
Nigeria	2003	0	12.94994	1.014733	9.935713	129.2224	14.03178
Nigeria	2004	11.68635	19.24194	1.674024	-2.60485	132.888	14.99803
Nigeria	2005	12.66234	22.00363	8.333829	-1.59368	131.2743	17.86349
Nigeria	2006	13.76801	25.95325	7.100771	-5.62797	128.6517	8.225222
Nigeria	2007	30.50899	26.27191	6.473937	9.187171	125.8081	5.388008
Nigeria	2008	14.15777	25.32498	5.655763	6.684909	118.5667	11.58108
Nigeria	2009	10.92286	24.70409	6.227202	18.18	148.88	12.53783
Nigeria	2010	13.77322	16.88093	5.380183	1.067736	150.2975	13.74005
Nigeria	2011	9.416533	16.02961	4.97429	5.68558	153.8625	10.82614
Nigeria	2012	12.11395	18.78486	4.427622	6.224809	157.5	12.22424
Nigeria	2013	15.49841	15.88519	3.998536	11.20162	157.3117	8.495518
Nigeria	2014	10.9314	11.746	3.657206	11.35621	158.5526	8.047411
Nigeria	2015	10.13614	10.79962	4.183556	13.59615	192.4403	9.009435
Nigeria	2016	7.362535	19.40463	4.867906	6.686234	253.492	15.69681
Nigeria	2017	9.905001	29.21444	5.864875	5.790567	305.7901	16.50227
Nigeria	2018	7.473943	28.07042	5.764468	6.055977	306.0837	12.09511
Nigeria	2019	9.256055	12.52637	5.017577	4.522188	306.921	11.39642
Nigeria	2020	13.08866	20.72795	3.981395	5.37128	358.8108	13.24602
Nigeria	2021	33.64089	21.12007	4.419672	1.227719	401.152	16.95285
Nigeria	2022	33.64089	7.9286	4.21606	0.919232	425.9792	18.84719
Nigeria	2023	19.1535	10.40313	5.373024	1.23305	425.9792	24.65955
Kenya	1990	0	-0.6406	1.624524	7.332797	22.91477	17.78181
Kenya	1991	18.48295	-0.98562	1.522176	5.745513	27.50787	20.0845
Kenya	1992	0	-0.73774	1.398932	1.825329	32.21683	27.33236
Kenya	1993	18.48295	5.226771	2.05397	3.413472	58.00133	45.97888
Kenya	1994	42.62223	2.221338	1.920497	16.42811	56.05058	28.81439
Kenya	1995	22.302	2.600537	0.96722	15.80165	51.42983	1.554328
Kenya	1996	14.93475	3.936662	0.726746	-5.77659	57.11487	8.864087
Kenya	1997	13.82321	4.244017	3.862643	16.87957	58.73184	11.36185

Kenya	1998	14.81886	3.816167	3.774037	21.09633	60.3667	6.722437
Kenya	1999	14.81886	4.274077	4.535157	17.45405	70.32622	5.742001
Kenya	2000	9.880798	6.834377	4.23365	15.32743	76.17554	9.980025
Kenya	2001	8.049433	6.954214	0.392071	17.8125	78.5632	5.738598
Kenya	2002	10.88621	7.858101	0.434626	17.35814	78.74914	1.961308
Kenya	2003	28.06371	8.253812	0.441781	9.770511	75.93557	9.815691
Kenya	2004	24.17452	8.734233	2.334908	5.045258	79.17388	11.62404
Kenya	2005	34.06994	9.757579	2.268083	7.609988	75.55411	10.31278
Kenya	2006	44.05736	8.014101	2.208898	-8.00987	72.10084	14.45373
Kenya	2007	41.75649	7.987452	2.018912	4.819091	67.31764	9.75888
Kenya	2008	30.23834	7.198492	1.859074	-0.985	69.17532	26.23982
Kenya	2009	25.89733	5.748891	1.491151	-10.096	77.35201	9.234126
Kenya	2010	31.8482	5.933451	1.510292	12.52696	79.23315	3.961389
Kenya	2011	31.8482	6.279036	1.993087	4.526186	88.81077	14.02249
Kenya	2012	21.76813	5.821388	2.147327	9.313511	84.5296	9.37777
Kenya	2013	0	6.326033	2.11488	9.293946	86.12288	5.717494
Kenya	2014	0	7.077053	2.110023	8.249079	87.92216	6.878155
Kenya	2015	0	6.923585	2.23796	6.268806	98.17845	6.582154
Kenya	2016	24.96704	6.517411	2.331933	10.11813	101.5044	6.29725
Kenya	2017	21.25855	6.23112	2.391951	5.656748	103.41	8.00565
Kenya	2018	20.8888	7.716248	2.95041	8.48796	101.3016	4.689806
Kenya	2019	24.96704	7.975773	2.827492	7.831101	101.9913	5.239638
Kenya	2020	21.25855	7.375001	3.087631	6.714634	106.4508	5.405162
Kenya	2021	20.8888	5.368812	3.436612	7.427581	109.6377	6.107936
Kenya	2022	14.07411	2.485992	3.547179	5.028922	117.866	7.659863
Kenya	2023	14.07411	7.368289	3.913057	7.050094	139.8464	7.671396
South Africa	1990	108.5845	0.006343	0.107573	4.811415	2.587321	14.32096
South Africa	1991	136.6122	0	0.095494	4.027493	2.761315	15.3348
South Africa	1992	111.6291	-0.07219	0.081165	3.654137	2.852014	13.87468
South Africa	1993	147.49	-0.11205	0.069092	2.464688	3.267742	9.717467
South Africa	1994	169.0566	-0.13446	0.064337	5.25547	3.550798	8.938525
South Africa	1995	161.5209	-0.10455	0.048148	6.367395	3.627085	8.680444
South Africa	1996	147.9899	-0.19014	0.045876	10.64481	4.299349	7.354113
South Africa	1997	136.1359	-0.13771	0.104154	10.9699	4.607962	8.597783
South	1998	110.1662	-0.20612	0.169042	12.69103	5.528284	6.880546

Africa							
South Africa	1999	171.4259	0.014882	0.202527	10.39507	6.109484	5.181493
South Africa	2000	134.6274	0.069894	0.213943	4.870582	6.939828	5.338951
South Africa	2001	108.8914	0.236599	0.20794	5.538341	8.609181	5.7019
South Africa	2002	140.9883	0.668791	0.207737	2.854186	10.54075	9.494711
South Africa	2003	132.3468	0.643796	0.198357	8.047848	7.564749	5.679418
South Africa	2004	172.9897	0.553851	0.182997	4.950384	6.459693	-0.69203
South Africa	2005	190.1601	0.67612	0.212408	4.761489	6.359328	2.062846
South Africa	2006	234.0668	0.900979	0.227714	4.810302	6.771549	3.243908
South Africa	2007	248.6467	0.915556	0.237888	4.546046	7.045365	6.177807
South Africa	2008	152.6897	1.235562	0.247901	6.745152	8.261223	10.07458
South Africa	2009	242.309	1.074032	0.261423	2.802509	8.473674	7.215314
South Africa	2010	221.6309	0.853008	0.256268	3.49096	7.321222	4.08973
South Africa	2011	172.2038	1.148456	0.25282	3.279301	7.261132	4.999267
South Africa	2012	208.96	1.21413	0.249662	3.882873	8.209969	5.724658
South Africa	2013	235.1821	1.671908	0.242128	2.509245	9.655056	5.784469
South Africa	2014	244.9983	1.653192	0.239613	3.567028	10.85266	6.129838
South Africa	2015	212.2655	2.376572	0.238024	3.667743	12.75893	4.540642
South Africa	2016	293.9935	2.275921	0.233457	3.278252	14.70961	6.571396
South Africa	2017	322.711	1.913336	0.22909	4.647315	13.3238	5.184247
South Africa	2018	213.5237	1.963455	0.229246	5.856184	13.23393	4.517165
South Africa	2019	271.3229	2.249837	0.228613	5.268416	14.44843	4.120246
South Africa	2020	311.1265	3.528745	0.239924	2.198414	16.45911	3.210036

South Africa	2021	271.5702	3.175217	0.220166	0.472107	14.77868	4.611672
South Africa	2022	287.9554	3.262367	0.214503	3.618541	16.35585	7.039727
South Africa	2023	287.9554	3.771222	0.211029	6.388794	18.45024	6.073909

Sources: World Bank Data