FOREIGN CAPITAL INFLOWS AND STOCK MARKET PERFORMANCE IN SELECTED AFRICAN COUNTRIES

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Abstract

Foreign capital inflows are an important factor that affects stock market performance as well as the economy of any country. This study aims to determine the nexus between foreign capital inflows and stock market performance in Nigeria, Kenya, Egypt and South Africa. The study used annual time series data from four African countries for the period 1990 to 2018. The Autoregressive distributed lag (ARDL) approach to cointegration relationship modelling was used in the empirical analysis. The findings of the study revealed that FDI and FPI have a significant positive relationship with market capitalization rate among the countries in Africa. FDI and FPI have an insignificant relationship with stock market volatility in African countries. The study recommends that countries should devise effective policies and standards to effectively obtain more foreign capital into the market. Inflows of foreign should be strongly based on internal developments or factors within the stock market such as high liquidity or structural depth of the market and not on investor-determined factors that are usually extraneous to the characteristics of the capital market. Finally, in as much as the study focuses on the role of foreign capital inflows in the stock market, domestic development of the market is critical for long-run sustainability.

Keywords: Foreign direct investment; foreign portfolio investment; African stock market performance; stock market volatility; and Market capitalization rate

JEL classification: G1, F21

1. INTRODUCTION

A prominent attribute of today's world is the flow of capital in various forms such as foreign portfolio investment (FPI), foreign debts, foreign direct investment (FDI), developmental assistance, management participation, remittances, skills and technology transfer among countries by foreign investors, multinational enterprises (MNE), Government and international organizations. Countries are making efforts to stimulate foreign capital inflows on the basis that, gains in the form of increased

efficiency in resource allocation and productivity improvements are caused by the rise in foreign capital inflows (Brainard, Robert & Thye, 2016).

According to World Bank (2016), financial markets have witnessed an exceptional level of foreign capital inflows as well as cross-border economic, financial and business fusion in developed and developing economies. For a rapidly growing financial system, improving the outputs of foreign capital inflows, encouraging foreign investors to invest, creating employment and expansion should be the ultimate priority for governments in an emerging economy (Iamsiraroj & Doucouliagos 2015). The inflows of foreign capital into emerging economies provides capital for investment as well as technology and managerial knowledge that can increase and add to the financial development and economic growth of the host country in the long run (Shahbaz & Rahman, 2012).

As the economy continues to grow and develop, more capital is needed for the sustenance of the economy and the stock market is one of the avenues for the mobilization and allocation of such capital both within and outside the economy. A well-performing stock market plays a key role in boosting foreign capital inflows to the economy by globally diversifying risk for foreign investors; enhancing liquidity in the capital market; increasing the wealth of shareholders and attracting foreign investors. On the other hand, a nonperforming stock market is an obstacle to development and growth in emerging economies. And this may be attributed to the illiquidity of the stock market, underdeveloped financial market, low investment in the economy and discouraging savings as a result of low income coupled with high consumption. Hence, the inflows of foreign capital supplement the domestic capital to strengthen the financial system of the economy.

For a continent like Africa, the injection of foreign capital is very crucial to enhancing the performance of the stock market. Hence, efforts are being put in place to improve investor awareness, access to funds, development of the financial market, confidence and standardization of the procedures to look more transparent to attract international capital inflows (UNCTAD, 2020). Africa has a handful of prominent exchanges and many small and new exchanges that are characterized by small market capitalization, small trading volume, a small number of new issues raised, few companies listed and few listed stocks. Moreover, the movement of capital globally has accelerated faster in the past two decades, thus offering emerging economies restored hope of accessing global markets for needed financial resources to assist their economic growth while becoming fully integrated into the global economy.

The primary goal of this study is to identify the key foreign capital inflows variables that affect stock market performance in selected African countries. The selected Africa countries are Nigeria, South Africa, Kenya and Egypt. These countries were focused on because they are among the few vibrant stock exchanges market in terms of market performance, market capitalization and the number of listed companies in the market. The remaining parts of the study are structured as follows: section two examine relevant literature on foreign capital inflow, stock market performance in Africa, stock market volatility, and theoretical framework;

method of data analysis and discussion of the result are the focus of section three and four respectively, and section five is on conclusion of the paper.

2. LITERATURE REVIEW

2.1. STOCK MARKET PERFORMANCE

Stock market performance is an indicator of the entire stock market or particular stock that send out a signal to investors about a stock market, guide investors in decision making and serve as a means to convey information to investors about the future direction of stock prices (Economy watch, 2010). Several factors affect the performance of the stock market and this includes company-specific factors, economic factors, financial factors, political factors, international factors as well as social factors. According to Fernando (2018), a well-performing stock market is essential for the inflows of capital domestically and internationally, while an underperforming stock market restricts foreign capital inflows. The inefficiency of the stock market which is characterized by instability occurring in the stock markets has partial or general effects on the economy (Demir, 2019). The size of the bond market, stock market volatility, and market capitalization rate are some of the popular proxies for measuring the performance of the stock market.

2.2. AFRICA STOCK MARKET PERFORMANCE

The stock market plays an important role in the growth and development of the Africa economy. Adesina (2018) the president of the Africa development bank states that the Africa stock market has remained tough and revolutionary surrounded by slow worldwide growth after the synchronized upturn in 2017. Chaitanya (2019) states that there has been an increase in the number of stock exchanges in Africa from eight (8) in 1989 to thirty-seven (37) currently. However, the increase in the numbers of exchanges in Africa is not commensurate with the growth and performance of the stock markets. This could be attributed to the fact that many stock exchanges in Africa are relatively small, shallow, illiquid, inefficient, paucity of new listings, lack of product diversity, inflexible and outdated regulations, and local investor capacity is often limited (Muchira, 2018).

2.2.1. NIGERIA STOCK MARKET PERFORMANCE

The Nigerian Stock Exchange (NSE) was established in 1960 in Lagos. As of 31st may 2018, there were 169 companies listed in the NSE having a total market capitalization of more than ₦13 trillion (NSE, 2018). The stock market in Nigeria began 2019 on a high note, hitting in January a 10-year peak of 45,092.83 in the Nigerian stock exchange's all share index (NSE ASI). This was driven mainly by the NSE ASI positive performance in 2017, which emerged as the top performer in Africa and the world third-best (CNN as cited in NSE, 2018).

However, the second quarter of the year 2019 was characterized by volatility in oil prices, political uncertainties, and global rising yields which resulted in bearish sentiments that led to the fall of equity market capitalization and all-share index (ASI) by 13.87% and 17.81%, closing at ₦11.73 and 31,430.50 respectively

(nse.com.ng). Lagos chamber of commerce and industry (LCCI) and Price Waterhouse Cooper Nigeria (2016) reports that Nigeria is the world fastest growing economy with a growth of 7.7% which makes Nigeria, the largest economy in Africa with a worth of US$478 billion. Besides, Nigeria is the world 7th most populous nation, with its population of about 177 million people and the largest market in Africa with a young, growing and active population. These statistics show the potentials and capacity the country has and is a hub for foreign investment that will spur foreign capital inflows. To boost the inflow of foreign capital into Nigeria, the government repealed legislation that prevented the flow of foreign capital into the country. Therefore, this has encouraged foreign investors to invest in the Nigerian stock market; simulate the enlisting of the international broker as dealers on the Nigerian stock exchange and; multi and cross border listings on the international market are permitted by Nigerian companies (NSE, 2018).

2.2.2. KENYA STOCK MARKET PERFORMANCE

The Nairobi Securities Exchange (NSE) was founded in 1954 as the Nairobi Stock Exchange which is located in Nairobi the capital of Kenya. Kenya's stock market is among the most advanced stock markets in the Eastern countries of Africa and Central African countries. Nonetheless, NSE is new and emerging according to global standards. Kenya's stock market continues to develop and plays a crucial role through various means in the economic development process in Kenya. In 2014, the Nairobi Stock Exchange received formal approval from CMA to operate as a demutualized entity (NSE, 2015). The NSE decreased by 7.32% since early 2019, according to trading on a contract for difference (CFD) (tradingeconomics.com).

2.2.3. SOUTH AFRICA STOCK MARKET PERFORMANCE

The South Africa stock market is among the best in the world. As of March 2011, with a market capitalization value of 6,785.6 billion dollars up from 6,143.2 dollars the previous year. The Johannesburg Stock Exchange (JSE) was ranked 20th largest in the world (JSE, 2011). As of December 2019, JSE was ranked the largest exchange in Africa and in terms of market capitalization, JSE was ranked the 19th largest stock exchange globally (JSE, 2019). The JSE was found in 1887 during the first gold rush in South Africa and it is Africa's largest and oldest stock exchange. In 1963, the JSE joined the world federation of exchanges following the first laws regulating the financial market in 1947 and in the early 1990s the JSE converted to a system of electronic trading. By 31st December 2015 JSE market capitalization rate amounted to R14, 271 billion and has become one of the largest stock exchanges in the world in its over 130 years of existence (JSE, 2019).

2.2.4. EGYPT STOCK MARKET PERFORMANCE

There are two stock exchanges in Egypt; the Cairo stock Exchange and the Alexandria stock exchange. Cairo stock exchange was founded in 1903 and the Alexandria stock exchange in 1883, with the same board of directors responsible for both of them and they share the same system of trading, clearing and settlements and are also part of the Federation of Euro-Asian stock exchange. The Egyptian stock exchanges has historically hit an all-time high of 18414.11 in April 2018 and had an

increase of 6.99% since the beginning of 2019 (tradingeconomies.com). However, in 2018 the Egyptian stock exchange was negatively affected by economic crisis which subsequently lead to a downward trend after a historic high that reached 18414.11 points in April. The benchmark EGX30 decreased by 1,983.37 or 13.21% through the year to end the year at 13,035.77 points compared with 15,019.14 at the end of 2017. The trading value for EGX30 recorded 188 billion to 43 billion shares (Mohammed, 2019).

2.3. STOCK MARKET VOLATILITY

Stock market volatility plays a significant role in measuring the performance of the stock market. The volatility of the stock market refers to the movement of the prices of stock over time and can be understood by the measurements of standard deviations which is the average value of a stock price over a period different from the mean and Beta, an indicator of the volatility of the stock market (Lobel, 2020). Volatility is a function of uncertainty and it could reduce profits substantially as well increase the probability of major losses in a more volatile stock market. Volatility in the stock market is important in the evaluation, analysis and management of portfolio by financial and economic agents (Marozva, 2020). Bhowmik 2013 noted that excessive stock market volatility leads to stock market fluctuations, hinders finance and foreign trade and weakens the value of the currency. Moreover, when a market is less volatile, there is a reduction in risk and the cost associated with investing in assets. Therefore, if the market is very volatile only insignificant investment activities will lead to soaring returns. More Volatile stock has more than 1.0 beta in the stock market and less risky stocks close to the value of zero (Lobel, 2020). The prediction of the volatility of the stock market is important to agents of the economy because it implies measurement of risk exposure to their investment (Sherazi & Ahmad, 2014). Also, a less volatile stock market will increase stock market performance and draw speculators and investors to a market.

2.4. FOREIGN CAPITAL INFLOWS

Chigbu, Ubah and Chigbu (2019) see foreign capital inflows as the injection of external capital into a domestic economy for investment, trade and production. Foreign capital inflows consist of capital made available by foreign investors, the government of foreign nations and international organization to a country with the projection of enhancing sustainable development and getting profitable returns from capital participation in the economy. The two major components of foreign capital inflow are foreign direct investment and foreign portfolio investment.

2.4.1. FOREIGN DIRECT INVESTMENT

FDI are essential financial resources to any economy since it constitutes a major part of gross domestic product (GDP). Steinbock (2013) describes foreign direct investment as a dynamic cross-border resource flow capable of providing the required capital for financing long-term developmental projects and driving sustainable growth. IMF (2015) describes FDI as an investment that represents long-

term involvements and control by a resident entity in an economy (foreign direct investor or parent enterprise) and a host economy (a company resident in an economy). FDI also includes setting up a direct commercial interest in a foreign nation such as the acquisitions or setting up of manufacturing firms and the construction of warehouses or the purchase of building (OECD, 2020). This means that international investors have a major impact on the company affairs of the host country.

2.4.2. FOREIGN PORTFOLIO INVESTMENT

Onuorah and Akujuobi (2013) describe FPI as a type of foreign capital inflows that is made up of financial resources and assets transfer such as cash, tradable securities (issued or backed by the government), bond, equity shares, promissory notes, debentures and money market instruments issued in a domestic stock market by citizens of some other foreign countries with the aim of sharing profit. FPI arises when local investors buy non-controlling management and interest from an international company or buy foreign financial instruments such as shares, government bonds corporate bonds, derivatives and short-term securities. FPI are financial flows to a country that needs return in the long and short run through investment in the stock and bond market. Investment in the foreign portfolio is usually short-term in the international market (investopedia.com).

2.4.3. FOREIGN CAPITAL INFLOWS AND STOCK MARKET PERFORMANCE IN AFRICA

Africa has become a center of attraction for foreign capital inflows through foreign investment. Abdimomynova (2018) avers that factors such as the geographical location of countries, development of the financial market, government investment policy, capital and trade openness, institutional quality include direct and indirect factors creates opportunities for the inflow of foreign capital in Africa. Ernst and Young (2019) posit that the African continent is the desired destination for foreign capital inflows because of its untapped abundant human and natural resources as well as many other opportunities in the continent. In 2018, $46bn worth of foreign capital were injected into Africa in the form of FDI alone and thus representing an increment of 11 per cent when compared to 2017 (AfDB, 2018).

Abubakar and Danladi (2018) noted that emerging economies have consistently continued to engage in policies changes to boost the inflows of foreign capital. This trend could be attributed to the positive impact of foreign capital on emerging economies through multinational enterprises and foreign investors. African Development Bank (2016) asserts that foreign capital inflows into Africa have stayed stable given the weak economic situation in the other part of the world. In 2015, African countries earned an estimated USD 208.3 billion of an international fund in the form of trade, foreign investments, foreign aid and remittances.

In 2017, FDI inflows to Africa continent was $42 billion which represented 6% inflows of FDI to emerging economies (from a total of $671 billion). The top five recipients of foreign capital in Africa were Egypt ($7.4 billion), Ethiopia ($3.6 billion), Nigeria ($3.5 billion), Ghana ($3.3 billion), and Morocco ($2.7 billion)

(World Bank, 2018). In 2018, South Africa was the highest beneficiary of foreign capital inflow in Africa and it was closely followed by Nigeria and Egypt, respectively. From the regional perspective, Egypt is the highest recipient of capital inflow in North Africa, while Nigeria and Kenya are the biggest recipients in West and East Africa, respectively. Furthermore, Ernst and Young (2019) state that foreign investment flows from international investors are partly influenced by a deep historical relation. France, for example, is a major investor in francophone Africa. In Africa, emerging partners include China, India and the United Arab Emirates (UAE) and they played a significant role in job creation through their projects.

2.5. EMPIRICAL REVIEW

Nyan'oro (2013) investigates the relationships between foreign portfolio flows and performance of the stock market in Nairobi Securities Exchange (NSE) Kenya employing monthly data from April 1996 to December 2011. The study uses the ARIMA framework to model portfolio flows. A graph of the trend of net inflows, standardized net inflow, the autocorrelation function (ACF) and partial autocorrelation function (PACF) of standardized flows was also used. The findings of the research revealed that foreign investor's involvement has an impact on domestic stock market returns.

Raza, Syed and Syed (2014) examine the relationship between foreign capital inflows, economic growth and stock market capitalization of 18 Asian counties by performing an ARDL bound testing cointegration approach. Results indicated that there exists a negative significant connection between foreign capital flows and FDI. Also, economic growth has a strong positive relationship with the stock market capitalization, while in the long run, the effect of workers remittances is insignificant. Ali, Mehmet and Ozkan, (2014) employ a Levine-Lin-Chu Panel Unit Root Test, an Im-Pesaran-Shin Unit Root Test and a Panel Cointegration test to explore the relationship between foreign direct investment and GDP in Argentina, Brazil, Turkey and Thailand. The study finds that foreign direct investment is positively related to the growth of GDP in Argentina, Brazil, Turkey and Thailand in the long term.

Tsaurai (2014) use the bi-variate causality test framework to determine the causal relationship between the stock market and foreign direct investment in Zimbabwe. The findings of the research showed that the relationship between the stock market and FDI net inflows in Zimbabwe exist in the long run. Nether less, there was no direct causal relationship from neither stock market to FDI nor from FDI to stock market development, implying that stock market development and FDI net inflows in Zimbabwe are indirectly related to other variables which work should be a subject of another study to be investigated. Badr (2015) investigates the relationship between stock market development and Egyptian economy growth from 2002-2013. Unit root tests were conducted for time series data in their first differences and their levels according to Dickey-Fuller. Johansen co-integration analysis was carried out. Vector autoregression estimates (VAR) was selected to check the long-run relationship between stock market development and economic

growth. The study employs the VAR Granger causality test. Lastly, the impulse response function (IRF) and the variance decomposition were employed to forecast the future relationship between the variables of the study. The findings of the study did not show a causal relationship between the development of the stock market and economic growth. Nevertheless, the findings indicate a relationship between FDI, stock market development and economic growth.

Omodero and Ekwe (2016) analyze foreign direct investment (FDI) impacts on the Nigeria stock market performances from the periods of 1985-2014. The study employed multiple regression of least square estimation to analyze the data. The study is based on independent variables such as consumer price index, real gross domestic product (RGDP), money supply (M2), real effective exchange rate, treasury bills, share price index and the Nigerian stock exchange transactions. The research showed FDI has a negative and insignificant effect on macroeconomic variables use to examine Nigeria stock performance and the economy. Considering the Autoregressive Distributive lag approach (ARDL), Rasheed, Rilwan and Yetunde (2017) investigate the relationship between the Post-Structural Adjustment Policy impact of foreign capital inflows and the stock market development in Nigeria during the period between 1986-2016. The study employed four independent variables namely; foreign portfolio investment, foreign direct investment, inflation and exchange rate. The findings of the study revealed that foreign capital inflows had a significant steady-state long-run relationship with stock market development in Nigeria.

Kunal and Phani (2017) use the macro-level analysis to assess the causality relationship between stock market performance, exchange rates and foreign direct investment (FDI) capital inflow in the Indian economy. The result of the study showed that improvement of stock market performance should be a priority likewise the exchange rate. A favorable exchange rate and rise in stock market return will assist in rising the inflows of the FDI Indian economy. Afaq, Khan, Saddique and Hashmi (2017) examine the nexus between inflation and stock market performance on foreign portfolio investment (FPI) in China using quarterly data. The effects of inflation and stock market prices on FPI was determined by autoregressive distributed lag based on stationarity results. The findings of the study show that stock market performance has a significant positive effect on FPI, while inflation shows a negative association with the FPI. Also, the research found that the FPI in China was substantially affected by some events in history such as Asia's financial crisis of 2008, and in the 2015 Shanghai Composite Stock Index crash.

Humanicki, Kelm and Olszewski (2017) investigate the relationship between FPI and FDI mutually in an attempt to answer the question from the foreign investors' point of view if FPI and FDI can substitute or complement each other. They examine the short-run and long-run relationships between FPI and FDI using vector error correction (VEC) regressions on the data for Poland. The findings show that FPI and FDI may be considered as substitutes but FDI continues to dominate FPI during economical stable periods while FPI begins to gain relevance during and economic distress and insecurity. Ekine, Ewubare and Ajie (2019)

investigate the effect of foreign direct investment and foreign portfolio investment performance on the Nigerian economy from the span of 1980 - 2017. Using the ordinary least square (OLS) regression analysis, the findings of the study indicate that the Nigeria economy performance is related directly to FPI and FDI inflows.

Quamnuzzana and Wei (2019) employing dynamic panel system-GMM estimation to examine the level of financial inclusion and stock market development against capital inflows to the economy through the decomposition of the development and degradation namely, positive and negative shocks on financial inclusion as stock market development. From 1993 through 2017, they adopted panel data of 58 emerging economies, the results revealed the asymmetric connections between financial inclusion, stock market development, and cross-broader capital flows in emerging economies. Besides, they noted a positive shock in financial inclusion and stock market development and a positive link with cross-broader capital flows.

2.6. THEORETICAL FRAMEWORK FOR STOCK MARKET DEVELOPMENT

As a framework for the empirical strategy, this study adopts the simple Marshallian market framework for presenting the development of the capital market. Given that the system is a "market" the forces of demand and supply tend to play predominant roles in the direction of movement in the activities. Hence, the theoretical framework shown in this study indicates that supply and demand factors are responsible for the development of the capital market in a country. The supply-side is based on the activities of issuers, while the demand side is based on the activities of investors. Any factor that pushes either the issuers or the investors are therefore considered as the leading factors that influence capital market development. Essentially, "issuers and investors will participate in a stock market if they expect economic benefits". Apart from that, a playing field that ensures fair play and sustainable distribution of resources also promote market participation. These factors are therefore considered as major instruments that drive demand and supply which are the building blocks of the capital market development. Given that issuers involve firms and governments, institutional factors tend to drive the supply side, while both economic and institutional factors influence the demand side.

3. DATA AND METHOD

The annual time series data for Nigeria, Kenya, Egypt and South Africa were obtained from the World Bank Financial Structure Database, World Bank's World Development Indicators and the IMF's World Economic Outlook Database. The countries were selected because they have the leading and most vibrant capital markets in Africa (IMF, 2018).

3.1. MEASUREMENT OF VARIABLES

1. Market Capitalization Rate (MCR): This is the major variable used to measure stock market development which is computed as the proportion of market

capitalization in total GDP. This measure equals the value of listed shares divided by GDP. The assumption behind this measure is that overall market size is positively correlated with the ability to mobilize capital and diversify the risk on an economy-wide basis (Demirguc-Kunt and Levine, 1996).

2. Stock Market Volatility: The measure of stock market volatility is based on the estimations of a univariate GARCH (1,1) using annual data as follows:

$$sp_t = \alpha_0 + \alpha_1 sp_{t-1} + \varepsilon_t \qquad\qquad (3.1)$$

$$\sigma_t^2 = \omega + \beta\varepsilon_{t-1}^2 + \delta\sigma_{t-1}^2 \qquad\qquad (3.2)$$

Where: σ_t^2 is the variance of ε_t conditional upon information up to period t. The fitted values of σ_t^2 are the conditional variances that are used to represent the stock market volatility measure.

3. Foreign Direct Investment: FDI inflow to GDP ratio

4. Foreign Private Investment: FPI inflow to GDP ratio.

5. Financial Development: is measured as the ratio of the total money supply to GDP in the economy. It helps to identify the level of overall liquidity in the economy.

6. Financial Openness: is the index of financial openness constructed by Menzie Chinn and Hira Ito in 2006 which is based on the binary dummy variables that codify the tabulation of restrictions on cross-border financial transactions reported in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER).

7. Macroeconomic Environment: this relates to those factors in the economy that act as controls for the pattern of influences of foreign investment on the capital market. These include per capita income levels which show the level of purchasing power of citizens and the overall performance of the economy. The external price level (captured by the naira exchange rate) shows the pattern of price movements in the international sector and suggest that level of stability in the international market. The investment rate shows the overall rate of investor confidence in the economy.

3.2. MODEL SPECIFICATION

The model specified in this study relies on the framework provided from the theoretical background in the study. The model will be based on the assumption that foreign capital inflows are part of the capital resources used in the capital market in the selected countries. Hence, the model will demonstrate that the performance of the capital is explained by the foreign capital inflows and other crucial factors as:

$$CMP = f(FCAP, X) \qquad\qquad (3.3)$$

Where CMP = Capital market performance
FCAP = foreign capital inflows

X = other factors that explain stock market performance but are not related to foreign capital flows, including financial sector development and the macroeconomic environment.

Stock market performance in this study is considered in terms of trend expansion and stability. Hence, the model seeks to show the pattern of the contribution of foreign capital inflows to the development of the capital market as well as the stability of the market. Hence, capital market performance is captured using two variables market capitalization rate (MCR) and the volatility of the stock market (MVOL). Moreover, foreign capital inflows are categorized into direct investment (FDI) and portfolio investment (FPI). The model is therefore modified to show that market performance is explained by movements in both direct and portfolio capital inflows:

$$CMP = f(FDI, FPI, X) \tag{3.4}$$

In the study, variables included as controls include the level of financial market development (FDEV), GDP per capita (PCI), level of financial openness (FOPN), the exchange rate (EXRT), the level of investment, and (INVR). Thus, the model in econometric form is specified as:

$$CMP = \gamma_0 + \gamma_1 FDI_t + \gamma_2 FPI_t + \gamma_3 FDEV_t + \gamma_4 PCI_t + \gamma_5 FOPN_t + \gamma_6 EXRT_t + \gamma_7 INVR_{t} + v_{i,t} \tag{3.5}$$

From the model, it is expected that the coefficients of FDI and FPI should have positive signs since inflows of capital are expected to boost the liquidity of the markets. Moreover, financial development, income levels, financial openness, investment, and institutional quality are expected to also promote the performance of the capital market. On the other hand, the exchange rate is expected to negatively affect the performance of the market, since the rising exchange rate imposes significant constraints on economic and financial activities, especially in the external sector. Given the two measures of the capital market performance, the two models to be estimated include:

$$MCR = \gamma_0 + \gamma_1 FDI_t + \gamma_2 FPI_t + \gamma_3 FDEV_t + \gamma_4 PCI_t + \gamma_5 FOPN_t + \gamma_6 EXRT_t + \gamma_7 INVR_{t} + v_{i,t} \tag{3.6}$$

$$MVOL = \gamma_0 + \gamma_1 FDI_t + \gamma_2 FPI_t + \gamma_3 FDEV_t + \gamma_4 PCI_t + \gamma_5 FOPN_t + \gamma_6 EXRT_t + \gamma_7 INVR_{t} + v_{i,t} \tag{3.7}$$

The Autoregressive Distributed Lags (ARDL) approach to cointegration relationship modelling is adopted in the study as the method of analysis. The expanded ARDL model explains the dynamic relationship between foreign capital inflow and capital market performance among the selected countries. The ARDL forms of the two equations to be estimated are

$$\Delta cmp_t = \alpha_0 + \phi cmp_{t-1} + \delta_1 fdi_{t-1} + \delta_2 fpi_{t-1} + \delta_3 fdev_{t-1} + \delta_4 pci_{t-1}$$
$$+ \delta_5 fopn + \delta_6 exrt_{t-1} + \delta_7 invr_{t-1}$$
$$+ \sum_{i=1}^{p-1} \psi_i smp_{t-i} + \sum_{i=1}^{p-1} \varphi_1 \Delta fdi_{t-i}$$
$$+ \sum_{i=1}^{p-1} \varphi_2 \Delta fpi_{t-i} + \sum_{i=1}^{p-1} \varphi_3 \Delta fdev_{t-i} + \sum_{i=1}^{p-1} \varphi_4 \Delta pci_{t-i}$$
$$+ \sum_{i=1}^{p-1} \varphi_5 \Delta fopn_{t-i}$$
$$+ \sum_{i=1}^{q_1-1} \varphi_6 \Delta exrt_{t-i} + \sum_{i=1}^{q_1-1} \varphi_7 \Delta invr_{t-i} + \delta ECM_{t-1}$$
$$+ \xi_t \qquad (3.8)$$

Note that *CMP* represents the two variables used to capture capital market performance. It should be noted that each of the equations is estimated for each of the selected countries in the study.

4. RESULT AND DISCUSSION

4.1 DESCRIPTIVE STATISTICS

The summary of the annualized data used in the analysis discussed in this section. Note that the data are essentially in ratios, which provides a useful pattern for evaluation and comparison. The results presented in Table 4.1 show the descriptive for the pooled datasets for the four countries included in the analysis. The average ratio of MCAP to GDP is 68.11 per cent, with a standard deviation of 82.79. This result shows that on average, the capital market has represented a very large segment of the economies. However, the maximum value of 371.36 per cent and the minimum value of 3.92 per cent indicate that not all countries had a high MCAP rate. Indeed, only South Africa had a rate that was over 50 per cent among the countries, suggesting that South Africa has a far more developed capital market than the other three countries in the study. The skewness and kurtosis for the MCAPR variable are generally high, which indicates the strong outliers present in the MCAPR dataset for the four countries in our sample.

Table 4.1: Descriptive Statistics

Variable	Mean	Max.	Min.	Std. Dev.	Skew.	Kurt.	J-B	Prob.
MCAPR	68.11	371.36	3.92	82.79	1.55	4.55	56.17	0.00
FDI	1.96	9.35	-0.20	1.94	2.17	7.88	199.19	0.00
FPI	2.78	22.15	-9.95	6.14	1.12	3.99	28.11	0.00
FDEV	61.85	98.14	9.01	29.59	-0.72	2.03	14.01	0.00

FOPEN	-0.25	2.33	-1.92	1.41	0.76	2.18	13.97	0.00
INVR	17.76	28.49	10.65	3.34	0.78	4.37	20.25	0.00
PCIG	1.84	30.36	-4.43	3.48	4.84	41.68	7417.46	0.00
EXRT	34.65	306.08	2.76	63.59	2.43	8.68	261.26	0.00

Source: *Author's computation from E-view output 2021*

The average ratio of FDI to GDP (1.96 per cent) is less than that of FPI to GDP (2.78 per cent) among the countries. This shows that portfolio capital has had greater inflows into the African financial markets than direct capital. The implications of this are that financial capital inflows may have more unstable influences on the capital markets in Africa. As expected, the standard deviation of the FPI ratio is much larger than that of the FDI ratio, showing the unstable nature of foreign portfolio investment inflows to the countries.

Financial development is high on average for the countries, with a mean value of 61.85, although South Africa again has the larger financial development values. For instance, the maximum FDEV value is 89.14, obviously for South Africa, while the minimum value is 9.01. These results show that financial and capital market systems and their development are much more pronounced in South Africa when compared with the other African economies. The average financial openness index for the countries is negative at -0.25, which shows that the financial markets in Africa a still relatively less open externally, although some countries scored up to 2.33 per cent at some periods in the study. The average investment to GDP ratio is 17.76 per cent, with a very small standard deviation of 3.34 which shows that the mean value is very representative of the economies in the study. Thus, on average, about 17.3 per cent of national income is set aside for investment among the countries. Given the strategic needs of African economies, an investment rate of 17.3 per cent is grossly inadequate. The Table also shows that the average per capita income growth was 1.84 per cent for the economies, with a maximum value reaching as high as 30.36 per cent for a given year.

Another important statistic computed in Table 4.1 is the Jacque-Bera (J-B) statistic which indicates the pattern of the probability distribution of the datasets. From the Table, the J-B statistics for all the variables significant at the 5 per cent level, which means that the hypothesis of non-normality of the data series cannot be rejected at the 5 per cent level. Thus, it can be seen that most of the series are non-normally distributed. The data can therefore be estimated within a panel-data based estimation framework.

4.2. UNIT ROOT AND COINTEGRATION ANALYSIS

Given that the data used in the study exhibit both country-specific characteristics (individual heterogeneity) and common (homogenous) characteristics, there is a need for the use of panel unit root tests to check for the stationarity of the data. In this study, the tests developed by Levin, Lin and Chu (LLC) is used to examine the stationarity properties of the homogenous panel. This test assumes identical cointegration vectors among the countries. However, the different countries are likely to exhibit differences in their financial market

characteristics, hence the common unit root assumption may not be sufficiently realistic. To overcome this unique assumption for the firms in the sample, the Im, Pesaran and Shin (IPS, 2003) and the Augmented Dickey-Fuller tests, which allow for heterogeneity in the panel's cross-section and assumes a null hypothesis of no cointegration in the panel data, are adopted. Moreover, the test results are presented in levels and first differences to determine, in comparative terms, the unit root among the time series and also to obtain more robust results. The tests results are presented in Table 4.2.

It should be noted that only the tests for the variables both in levels and first differences are reported. This is because the author observes that much of the variables used in the study are in ratios or logs which enhance the stability of datasets over time. From the results, it can be seen that the coefficients of the test for all the variables in levels indicate that all the variables are non-stationary (given that the critical test values are higher than the test statistic). For the differenced variables, however, the test statistic values are higher than the critical values at the 5 per cent level. Based on this outcome, the results indicate that all the variables are stationarity in first differences and are therefore all integrated of order one (i.e., I[1]). Therefore, a cointegrated analysis can be performed for the variables with meaningful outcomes. It is therefore appropriate to use the ARDL-based cointegration analysis to estimate the relationships between the variables.

Table 4.2: *Panel Data Unit Root Tests Results*

Variables	Homogeneous Unit Root Process				Heterogeneous Unit Root Process			
	Level		1st Diff		Level		1st Diff	
	LLC	Breitung	LLC	Breitung	IPS	ADF-Fisher	IPS	ADF-Fisher
MCAPR	-0.47	-0.46	-3.40	-2.94**	-0.33	8.98	26.87**	39.58**
MVOL	-1.09	-0.19	-5.69**	-3.85**	-1.45	0.18	-6.18**	5.40**
FDI	-2.27**	-1.97*	-3.88**	-2.92**	27.46*	26.2**	-5.64**	45.21**
FPI	-1.55**	-2.11**	-5.86**	-1.99**	-4.79	43.20**	-9.68**	79.81**
FDEV	-0.99	0.79	-3.78	2.60**	-1.59	14.95	-3.90**	29.79**
FOPEN	-2.27	0.72	-5.39	1.72*	-2.28	21.29	-4.04**	31.71**
INVR	-0.72	0.55	-3.92	2.88**	-1.34	11.62	-5.39**	42.91**
PCI	-1.11	-0.39	-2.52	-2.03**	1.47	2.005	-2.60**	20.46**
EXRT	0.99	-0.33	-2.35	-1.57*	4.35	0.634	-2.54**	20.92**

*Note: ** and * indicate significant at 1% and 5 % levels respectively; IPS = Im, Pesaran & Shin; LLC = Levin, Lin & Chu.*
Source: Estimated by the Author.

In terms of the overall effects of the financial capital inflows on the capital market development systems, the study proposed the test of a long-term autoregressive pattern of relationship. The first analysis, therefore, is to examine whether a long-run relationship exists between dependent variables and independent

variables. Given that the study focuses on error correction processes, a test for a common stochastic trend is also conducted in this study. This involves testing for the existence of a cointegrating relationship between economic growth and tourism sector variables. This test also helps to confirm the application of a dynamic structure for the model estimation. The evaluation of the cointegration test results shown in Table 4.3 is based on the critical F-statistic values for the lower and upper bounds as also reported in the results. Table 4.3 shows the result of the Bounds test of long-run effects for the ARDL specifications for all the three major equations in the study.

Table 4.3: Results of Bounds Approach to Cointegration Test

Country	Equation	F-stat	I0 Bound	I1 Bound	Cointegration
Nigeria	*MCAPR*	2.90	2.17	3.21	Yes
	MVOL	18.85	2.17	3.21	Yes
Kenya	*MCAPR*	2.80	2.17	3.21	Yes
	MVOL	3.40	2.17	3.21	Yes
Egypt	*MCAPR*	6.48	2.17	3.21	Yes
	MVOL	14.65	2.17	3.21	Yes
South Africa	*MCAPR*	3.69	2.17	3.21	Yes
	MVOL	3.25	2.17	3.21	Yes

Source: Author's computation from E-view output 2021

The evaluation of the results is based on the critical F-statistic values for the lower and upper bounds as also reported in the results. The F values for the tests are all greater than both the lower and upper Bounds values at the 5 per cent levels. According to the empirical output of the F-values in both panels of Table 4.3 therefore, it can be seen that the null hypothesis of no long-run relationship between capital market development indicators and the entire determinant variables is rejected at the 5 per cent level. These results reveal that for each of the equations, the determinant variables had strong long-run relationships with the dependent variable. Apparently, both capital market development and foreign capital inflows among African economies move *interdem* in the long run.

4.3. ESTIMATION OF CAPITAL MARKET VOLATILITY

The main aim of estimating the GARCH model is to obtain data on the volatility of the capital market as a measure of capital market performance, as well as to show the pattern of the volatility. The results of estimating the GARCH model as stated in section three is presented in Table 4.4. In the mean equations for each of the countries, the coefficient of the lagged market index is positive and significant at a 1% level. This implies that previous capitalization of the market has significant stimulating impacts on current market behavior. This result confirms the correctness of adding the variable to correct for autocorrelation in the capital market development series. The result also shows that, with a coefficient of 0.337 and 0.373

for Nigeria and South Africa for the lagged dependent variable, there seems to be a short delay for the capital market to return to its long-run position after any shock in these countries. The delay period is however longer for Egypt and Kenya, where the coefficients of the lagged dependent variable are larger.

Table 4.4: The estimated GARCH results

Variable	Nigeria		Kenya		Egypt		South Africa	
	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.
Mean Equation								
C	7.189	0	1.204	0	4.965	0	15.27	0
MCAPR(-1)	0.337	0.005	0.93	0	0.708	0	0.367	0
			Variance Equation					
ω	1.579	0.279	3.353	0	2.031	0.107	-5.77	0
α	1.246	0.025	-2.4	0	0.871	0.226	-14.96	0
γ	1.108	0.036	1.255	0	1.387	0.005	-0.88	0.377
β	0.131	0.652	0.418	0	0.124	0.62	31.6	0
Adj. R-sq.	0.236		0.648		0.751		0.981	

Source: Author's computation from E-view output 2021

The characteristics of market volatility are further observed by considering the outcomes of the variance equation in the model. From the variance equation result, the mean term in the result (ω) is positive for all the countries, except South Africa, but significant for only Kenya and South Africa. This shows that generally, the position of the stock market at any given period has a weak effect on its pattern of volatility in Nigeria and Egypt. The leverage effect (γ) in the result passes the significance test at the 5 per cent level for all the countries, apart from SA. There appears to be no asymmetric effect in the South African capital market. The coefficient of the α parameter passes the significance test at the 5 per cent level for all the countries, except Egypt. This shows that there no tendency of the capital market to gain an upward movement at any given shock in Egypt. The coefficient of β is significant only for Kenya and South Africa. large at 0.66 and passes the test at the 1 per cent level. The estimated GARCH model is used to generate the data for capital market volatility for each of the countries.

4.4. RESULTS OF REGRESSION ANALYSIS

The dynamic analysis of the estimated equations is performed for the cointegrated estimates. This implies that both the short run and the long-run outcomes of the estimations are reported and analyzed.

4.4.1. SHORT RUN ESTIMATES

The results of the error correction representation (which reports both the short-run and long-run estimates) of the relationships for each of the countries are presented in Table 4.5-4.7. It should be noted that the parsimonious estimates were determined based on optimal lag structures derived from the Schwarz-Bayesian criterion. The short-run results for market capitalization rate (MCAPR) along with the ECM characteristics are reported in the upper panel of Table 4.5. In the result, the coefficient of FDI has only the current effect in Nigeria (which is not significant). The effects of FDI is however both current and delayed for the other three countries. FDI has a significant delayed impact (first lag impact) on market capitalization in Kenya and South Africa, indicating that for these countries, an increase in FDI inflows has delayed positive impacts on MCAPR.

On the other hand, the FDI coefficient is negative in the first lag and positive in the second lag in Egypt, suggesting that the initial effect of FDI on the capital market rate is negative on impact in Egypt, both after a while the effect becomes positive. Note that these effects are all considered in the short run, indicating that FDI has no significant short-run impact on the market capitalization rate in Nigeria, but effects are significant for the other countries.

Table 4.5: Results for Foreign Capital Inflow and Market Capitalization Rate

Variable	Nigeria		Kenya		Egypt		South Africa	
	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.
D(FDI)	1.340	0.078	0.016	0.980	-1.496	0.028	2.461	0.225
D(FDI(-1))			2.593	0.002	7.397	0.000	14.018	0.001
D(FPI)	-5.543	0.001			-1.333	0.000	-9.340	0.001
D(FPI(-1))	-2.039	0.001			1.091	0.001	-8.257	0.004
D(FDEV)	0.668	0.001			-0.107	0.184	2.601	0.088
D(FDEV(-1))	-2.086	0.000			-1.081	0.000	11.466	0.000
D(FOPEN)	11.21	0.019	-10.934	0.000	9.345	0.000	67.849	0.000
D(FOPEN(-1))	10.27	0.000			3.437	0.001		
D(INVR)	5.923	0.001	-0.959	0.012				
D(INVR(-1))	11.24	0.000	-0.871	0.011				
D(PCI)	0.138	0.000	0.167	0.000	-0.065	0.010	0.117	0.002
D(PCI(-1))	0.081	0.001	0.200	0.094	-0.180	0.000	-0.207	0.000
D(EXRT)	0.908	0.001					-24.205	0.000
D(EXRT(-1))	-0.469	0.001	-0.228	0.081			17.673	0.001
ECM_{t-1}	-0.396	0.000	-0.109	0.000	-0.070	0.000	-0.874	0.000

Adj. R-sq.	0.875		0.769		0.959		0.794	
D-W stat	3.012		2.223		2.922		3.192	

The coefficient of FPI has both current and delayed outcomes for Nigeria, Egypt, and South Africa, but the effect is not observable in Kenya. Apparently, the inflows of portfolio investment in Kenya is too low to determine the overall movement of the capital market. From the result, the coefficient of current FPI inflows is negative for Nigeria but positive for the other two countries. This shows that the impact effect of FPI on the Nigerian market is to lead to a decline in the market in Nigeria, but improvements in the market for Egypt and South Africa. The coefficient of the delayed effect is however negative for all the countries, which shows that increased FPI inflows lead to declines in the capital market in the short run for all the countries. The rate of financial development also has a significant positive impact on capital market development in the short run for Nigeria, and South Africa, but the effect is negative in Kenya. Thus, financial market development has a significant short-term relationship with the market capitalization rate among African countries.

The coefficient of financial openness is positive and significant for all the countries except Kenya (which is negative). This result shows that financial openness tends to improve market capitalization for Nigeria, Egypt and South Africa. The effect is however reverse for Kenya. The short-run effects of investment rate are only observable for Nigeria and Kenya. For Nigeria, the short-run impact of investment rate on market capitalization rate is positive for current and delayed effect. For Kenya, the result shows that the investment rate reduces capital market rates in the short run. Growth in per capita income generally has positive immediate impacts on MCAPR for the countries, although the delayed effect for some of the countries is negative. Finally, the exchange rate is found to generally reduce MCAPR for the countries in the short run, indicating that exchange rate deterioration is harmful to the capital market among African countries.

The error correction terms for each of the results for the countries have the correct negative sign and also pass the significance test at the 1 per cent level. This shows that any short-term deviation of MCAPR from equilibrium in the short run will be restored in the long run. The value of the error correction term is very low for Kenya and Egypt (-0.109 and -0.07 respectively), meaning that adjustment to equilibrium for these countries, in the long run, is rather slow. The adjustment is moderate for Nigeria but very rapid for South Africa where about 87 per cent of the adjustment is completed in the first period.

In Table 4.7, the result for the effects of financial capital inflows and other variables on the capital market volatility is presented. The coefficient of FDI is negative in current and delayed forms for Nigeria, suggesting that FDI reduces capital market volatility in Nigeria. For the other countries, however, the significant coefficients of FDI are positive, suggesting that FDI increases the volatility of the capital market for the other countries. The direction of the impact of FPI on capital

market volatility is unilateral for all the countries. The result shows that FP inflows have a significant positive impact on volatility in the capital market for all the countries. Increased FPI inflows, therefore, tends to result in more volatile capital markets in Africa in the short run. The short-run effect of financial development is positive in Nigeria but negative in Kenya. Financial openness also has a significant negative impact on capital market volatility in Nigeria, but positive impacts for the other countries. This shows that a more open financial sector improves the stability of the capital market in Nigeria, but not the other countries. The result also shows that other macroeconomic variables of investment rate, per capita income growth and exchange rate have the capacity to ensure declines in capital market volatility in each of the countries. Thus, a stable macroeconomic landscape is shown to also lead to stability in the capital markets in Africa.

Table 4.7: Results for Foreign Capital Inflow and Market Volatility

Variable	Nigeria		Kenya		Egypt		South Africa	
	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.
D(FDI)	-3.426	0.009	-1.388	0.497	5.252	0.000	0.002	0.021
D(FDI(-1))	-5.506	0.001	5.568	0.011	1.108	0.000	0.002	0.044
D(FPI)	8.076	0.000	0.000	0.122	3.529	0.194		
D(FPI(-1))	2.903	0.003	-1.061	0.000	1.127	0.011		
D(FDEV)	6.436	0.017	-8.378	0.000				
D(FDEV(-1))	4.234	0.000						
D(FOPEN)	-4.188	0.001	6.434	0.104	1.291	0.000	0.001	0.903
D(INVR)	6.028	0.001	-1.651	0.121	5.266	0.000	0.004	0.004
D(INVR(-1))	-2.071	0.000	-1.120	0.000	-2.417	0.000	-0.007	0.000
D(PCI)	-2.637	0.000	-0.367	0.005	-1.203	0.014		
D(PCI(-1))	-1.769	0.000	0.337	0.009				
D(EXRT)	-1.380	0.000						
ECM$_{t-1}$	-1.715	0.000	-0.324	0.000	-1.523	0.000	-0.992	0.000
Adj. R-sq.	0.973		0.958		0.934		0.736	
D-W stat	3.121		2.732		2.052		2.261	

Source: Author's computation from E-view output 2021

4.4.2. LONG RUN ANALYSIS

The more important aspects of the relationships of the study are based on the long behavior of the capital market development indicators in the study. The results of the long-run relationships are obtained from the cointegrated equations estimated from the ARDL framework. The tests of hypotheses are also based on the outcomes of the long-run relationships. In Table 4.8, the result of the effects of foreign capital inflows and other variables on the long-run behavior of market capitalization rate is

presented for each of the countries. In the result, the coefficient of FDI is positive in each of the country estimates and passes the significance test at the 5 per cent level for Nigeria, Egypt and South Africa. This shows that FDI inflows have significant positive impacts on capital market outcome in the long run for most countries. Increased FDI inflows raise the market capitalization rate by up to 8.08 per cent in Nigeria and 19.5 per cent in South Africa. Thus, sustained FDI inflows over time are seen as very strong foreign capital factors that promote capital market rates among African economies. The coefficient of FPI is also positive for all the countries, although it is only significant for Nigeria and South Africa. Thus, it is seen that sustained FPI inflows over time also promote capital market rates among the African countries.

Table 4.8: *Results for Long Run Effects of Foreign Capital Inflow and Market Capitalization Rate*

Variable	Nigeria		Kenya		Egypt		South Africa	
	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.
FDI	8.082	0.026	0.905	0.965	4.786	0.001	19.58	0.047
FPI	7.374	0.006	0.008	0.918	0.297	0.561	5.906	0.020
FDEV	-0.262	0.437	-6.791	0.519	0.217	0.343	2.588	0.533
FOPEN	4.983	0.033	-5.057	0.457	4.816	0.003	1.083	0.012
INVR	1.249	0.029	-8.638	0.559	1.578	0.104	-2.761	0.045
PCI	0.018	0.005	-0.289	0.517	0.011	0.169	0.153	0.110
EXRT	-0.017	0.700	3.310	0.499	-1.823	0.014	-1.803	0.034
Constant	-235.77	0.03	492.28	0.49	-45.03	0.12	-247.46	0.06

Source: Author's computation from E-view output 2021

The coefficient of FDEV however fails the significance test in each of the country estimates, suggesting that the level of financial development in a country does not have long-run effects on market capitalization rates among African countries. The significant effects are only short run and do not obtain when all adjustments have been taken into cognizance. The coefficient of financial development passed the significance test for Nigeria, Egypt and South Africa. The coefficient is positive and suggests that increased financial sector openness leads to improvements in market capitalization among African economies in the long run. Thus, financial openness is relevant for long-run improvements in the capital market among African countries. For the two countries where the coefficient of investment rate is significant, the signs are varied, indicating that investment has varied long-run effects on capital market rate among the selected African countries. Per capita income only had a significant positive impact on the market capitalization rate in the long run in Nigeria. On the other hand, the exchange rate is shown to significantly reduce the long-run performance of the capital market across the countries in the study.

Finally, the results for the long-run behavior of capital market volatility is presented in Table 4.9. In the result, the coefficient of FDI had a significant positive effect on capital market volatility in Nigeria, but the effect is not significant in all the other countries. This result shows that though FDI affects market volatility in the

short run, the effects are not prevalent in the long run among the African countries. The same result is shown for the effect of FPI, where only Nigeria exhibited a positive and significant coefficient. This implies that long-run market volatility is only (positively) affected by FPI inflows in Nigeria. In general, most of the variables did not significantly impact capital market volatility among the African countries.

Table 4.9: *Results for Long Run Effects of Foreign Capital Inflow on Market Volatility*

Variable	Nigeria		Kenya		Egypt		South Africa	
	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.
FDI	-0.993	0.006	-0.185	0.500	-0.859	0.597	-0.193	0.634
FPI	0.746	0.016	27.855	0.211	14.894	0.361	-0.109	0.499
FDEV	-1.819	0.767	-5.897	0.517	-2.717	0.092	0.120	0.921
FOPEN	-9.399	0.008	-6.743	0.744	-2.649	0.180	0.190	0.047
INVR	1.996	0.008	11.975	0.252	0.537	0.007	0.070	0.068
PCI	0.060	0.171	-0.236	0.307	0.316	0.011	-0.014	0.340
EXRT	0.205	0.039	1.400	0.448	-0.158	0.029	0.000	0.921
Constant	-403.9	0.008	175.8	0.687	-112.5	0.013	0.006	0.892

Source: Author's computation from E-view output 2021

4.4.3. ROBUSTNESS CHECKS: NON-LINEAR ARDL RESULTS

To improve on the estimated equation reported above, we present robustness checks by estimating non-linear ARDL equations for each of the countries in the study. This is in order to consider the influences of short-term influences on capital flows that may arise from different international financial crises over the period of the study such as the global financial crisis, the European debt crisis, the fall in oil prices, the collapse of the Chinese Stock market and so on. Note that the non-linear ARDL (NARDL) does not directly estimate non-linearity, rather it considers the left- and right-sides of a possible curve in a relationship and determines the pattern of non-linear effects. Focusing on the long run results in Table 4.10, for MCAP, the result shows that a positive shock to FDI led to significant improvement in market capitalization, while a negative shock had no effect. For FPI, the result showed that neither positive nor negative shocks produced any impact on market capitalization among the countries. Finally, the result shows that positive shock to FDI had positive impact on market volatility.

Table 4.10: *Results for the Non-linear ARDL*

Variable	MCAP		MVOL	
Short Run Coefficients				
Variable	Coeff.	Prob.	Coeff.	Prob.
D(FDI_POS)	0.895	0.823	-145.727	0.215
D(FDI_POS(-1))	-4.092	0.293	-144.273	0.202
D(FDI_NEG)	2.601	0.293	257.437	0.071
D(FDI_NEG(-1))	--	--	--	--

D(FPI_POS)	1.198	0.563	270.964	0.002
D(FPI_POS(-1))	--	--	-88.463	0.354
D(FPI_NEG)	3.226	0.125	37.049	0.594
D(FPI_NEG(-1))	--	--	90.196	0.209
D(KAOPEN)	-3.144	0.680	224.481	0.209
D(KAOPEN(-1))			529.357	0.031
CointEq(-1)	-0.642	0.004	-1.320	0.001
Long Run Coefficients				
Variable	Coeff.	Prob.	Coeff.	Prob.
FDI_POS	14.600	0.025	230.091	0.023
FDI_NEG	1.386	0.760	195.040	0.126
FPI_POS	-1.712	0.572	112.308	0.077
FPI_NEG	5.022	0.053	106.179	0.068
KAOPEN	-34.801	0.011	-240.925	0.074
C	-45.521	0.110	-415.454	0.235

Source: Author's computation from E-view output 2021

4.4.4. ROBUSTNESS CHECKS: PANEL ARDL

The second robustness checks employed in this analysis is the application of a panel data ARDL framework in order to observe any country or time-varying effects that may be generated in the relationship between capital flows and capital market development among the countries. It can be seen from the long run results in Table 4.11 that the results are generally similar to those of the time series analysis, although only the estimates for MVOL equation exhibited a significant negative cointegrating (or error correction) term. The long run results also show that FDI significantly exacerbates capital market volatility among the African countries, when taken together. This therefore necessitates the need for a more coordinated foreign capital inflow strategy among African capital markets. Moreover, the estimates show that long run performance of the capital market (in terms of debt) are only slightly improved by capital inflows among the economies.

Table 4.11: Panel ARDL Regression Results

	MCAP		MVOL	
Long Run Equation				
FDI	10.501	0.068	9.925	0.048
FPI	26.564	0.069	6.244	0.207
PCI	0.049	0.047	-0.048	0.007
EXRT	0.321	0.897	0.272	0.662
Short Run Equation				
COINTEQ01	0.019	0.728	-0.653	0.001

D(FDI)	1.769	0.006	10.775	0.245
D(FDI(-1))	2.008	0.093	--	--
D(FPI)	0.529	0.354	2.612	0.478
D(FPI(-1))	-0.179	0.774	--	--
D(PCI)	0.044	0.028	0.370	0.432
D(PCI(-1))	-0.044	0.000	--	--
D(EXRT)	-4.398	0.180	-2.518	0.396
D(EXRT(-1))	1.629	0.069	--	--
Constant	-5.231	0.697	85.182	0.001

Source: Author's computation from E-view output 2021

The main findings from this study show that the perceived benefits of foreign capital inflows are essentially realized but not in direct measures. Specifically, the following findings were made: the result shows that there is a significant positive relationship between FDI and market capitalization rate in African countries. Increases in the FDI inflows tend to lead directly to the expansion of the overall capital market among African countries both in the short run and in the long run. That a significant positive relationship exists between FPI and market capitalization rate among the countries in Africa. Sustained portfolio investment inflows enhance capital market rates among the countries in the short run and the long run. That there is FDI does not significantly affect stock market volatility among the countries in Africa. The effects were found to only last in the short run, but not widely demonstrated in the long run among the African economies. That FPI does not significantly affect capital market volatility among African countries. The effects were found to only last in the short run, but not widely demonstrated in the long run among the African economies.

5. CONCLUSION

The contribution of the capital market to resource mobilization and investment directions in modern economies has become essential. This has led to quite a lot of analysis about fostering improvement in the growth and development of the market, especially emerging ones like Nigeria. Clearly, capital market development is a complex and long-term process that requires a lot of work and policy discipline. As evident, the intensified pressures due to large and volatile capital flows in Nigeria in the recent period in an atmosphere of global uncertainties has posed new challenges for monetary and exchange rate management. The role of external capital influences in terms of generating and sustaining development and volatility in the capital market for the selected African economies has been verified in this study. Apparently, the appropriate policy dimension on the foreign capital inflows in African economies needs to be multi-functional. Both monetary and fiscal measures need to be taken to ensure sustained inflows of foreign capital in the capital markets, as well as ensure that such foreign capital does not inhibit market development in the long run. In this direction, central banks should be proactive in their monetary policy conduct by ensuring the policy actions do not directly relate to

external sector variations. On the other hand, the fiscal authorities need to encourage savings and investments in the domestic economies through further expansion of the financial markets.

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