

**IMPACT OF NIGERIAN STOCK EXCHANGE ON THE DEVELOPMENT OF
NIGERIAN ECONOMY**

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**BEING A RESEARCH PROJECT PRESENTED TO THE DEPARTMENT OF
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CERTIFICATION

This is to certify that this work was carried out and compiled by **NWABENU JANE IFEOMA** with **MAT NO. SSC2008464** of the Department of **ECONOMICS**, Faculty of Social Sciences, University of Benin, Benin City.

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DEDICATION

I dedicate this project to God Almighty my creator, who has shown me mercy and favour.

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ABSTRACT

This study examines the relationship between stock market performance and economic development in Nigeria, with GDP growth rate as a proxy for economic development. Using an Autoregressive Distributed Lag (ARDL) Model and Error Correction Mechanism (ECM), the study assesses both the short-run and long-run effects of key stock market and economic indicators, including market capitalization (MC), all-share index (ASI), inflation rate (INF), monetary policy rate (MPR), gross fixed capital formation (GFCF), and foreign direct investment (FDI). The findings reveal that the All Share Index (ASI) has a persistent positive and significant impact on GDP growth, indicating that stock market performance plays a crucial role in economic development. Conversely, inflation (INF) and market capitalization (MC) exhibit persistent negative and significant impacts, suggesting that rising stock market values do not necessarily translate into real economic growth. Gross fixed capital formation (GFCF) and foreign direct investment (FDI) have negative and insignificant effects in the short run, while FDI exhibits a positive but insignificant long-run impact. Additionally, the monetary policy rate (MPR) has a negative and insignificant short-run impact on GDP growth. The study concludes that while stock market performance is important for economic development, inflation control, efficient capital allocation, and strategic investment policies are necessary to sustain long-term growth. Policy recommendations include enhancing financial market efficiency, ensuring productive capital allocation, attracting growth-driven FDI, and implementing balanced monetary policies to support economic stability.

Keywords: Stock Market, Economic Development, ARDL, Market Capitalization, Inflation, Foreign Direct Investment, Nigeria.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Not just in Nigeria but also internationally, the Nigerian Stock Exchange (NSE) is essential to promoting economic growth and development. The NSE, a vital part of the nation's financial system, makes it easier for governments and businesses to get cash by facilitating the issuance and secondary trading of long-term financial instruments.

The NSE's history began in 1946 when the British colonial government issued an N600,000 local loan stock with a 3% interest rate to fund development initiatives in accordance with the Ten Years Plan Local Ordinance. The offering received very little local involvement, even though it was oversubscribed by more than N1 million. The federal government responded to this poor participation by establishing a number of economic initiatives, such as the Millennium Development Goals (MDGs), Vision 2010, Vision 2020, and the Structural Adjustment Programme (SAP) of 1986, with the goal of fostering financial and economic development.

Due in great part to the banking sector changes carried out in 2004 and 2005, the NSE has seen previously unheard-of growth in recent years. Governments and businesses have been able to raise long-term funding through the NSE to finance new initiatives, grow, and modernize commercial and industrial concerns, according to Nwankwo (1991).

Globally, both established and developing nations run stock exchange markets where investors can purchase and sell assets in a variety of categories. These could be equity or common shares, government stocks, or industrial loans (debenture or preference stocks).

Nigeria, a developing country in sub-Saharan Africa, is hardly an exception. The Nigerian Stock Exchange (NSE), the primary subject of this study, is owned and run by her. With branches in several of the nation's largest commercial centers, the Lagos Stock Exchange (LSE), which had been in operation since 1960, changed its name to the Nigerian Stock Exchange (NSE) in December 1977.

The Nigerian Stock Exchange is closely linked to the Nigerian economy because the majority of the listed firms have international or global links and represent a variety of industries, from manufacturing to services to agriculture. The beneficial effects of financial market development on economic growth have also been emphasized by research. According to Pedro and Erwan (2004), the growth of financial markets boosts capital utilization and ensures the best possible resource allocation, which raises output. In a similar vein, Beckaert et al. (2005) argue that the growth of the NSE would result in financial liberalization and raise real economic growth by 1% annually. The connection between globalization and the growth of the domestic stock market has been the subject of additional research. According to Laessens et al. (2006), capital account liberalization, stock market liberalization, and GDP per capita all have a beneficial impact on the growth and internationalization of domestic stock markets.

The Nigerian Stock Exchange is essential to the country's economic development and progress. To achieve sustainable economic growth and development, a country needs significant international and local investments, as noted by Ekundayo (2002). The NSE offers a vital platform for supporting these investments. The purpose of this study is to investigate how the Nigerian Stock Exchange affected economic development and growth between 1990 and 2011. Before the recent global financial crisis hit negatively on nations around the world, particularly sub-Saharan African economies like Nigeria, the Nigerian Stock Exchange undoubtedly did well in the previous decades. The global financial crisis since late last year has somewhat disrupted the NSE's previously stable and seamless operations in comparison to other sub-Saharan African economies like the Democratic Republic of Congo, Angola, Botswana, and others (March 11, 2009 Reuters). How well a country's stock market facilitates higher production and productivity is a key factor in determining its economic growth. The rate of economic expansion frequently deteriorates in economies with weak stock markets.

By participating in the capital market, the stock exchange plays a vital role in fostering economic progress (Nigerian Stock Exchange-NSE, 2006). Nonetheless, domestic participation in the Nigerian stock exchange has significantly decreased, as seen by the 85.43% drop in domestic transactions from N3.556 billion in 2007 to N634 billion in 2016 (NSE, 2017).

Between 2011 and 2016, offshore transactions routinely outperformed domestic ones, demonstrating the dominance of foreign investors on the Nigerian stock exchange (NSE, 2017). Domestic investors have been forced out of the market as a result of this tendency.

With its ambitions to become one of the next eleven ("N-11") economies, Nigeria understands how important a healthy stock market is to reaching this objective. The stock market is an essential tool for capital allocation, resource mobilization, and economic progress.

According to empirical data, industrialized economies have effectively used their stock markets as a means of fostering economic growth and expansion. On the other hand, the stock market's ability to spur economic growth is still understudied in nations like Nigeria, where the money market has traditionally received more attention.

Economists are always debating the connection between the evolution of the stock market and economic expansion. Some claim that the development of the stock market is not a crucial component of economic progress, while others maintain that it is.

According to research, stock markets are essential for encouraging investment, mobilizing savings, and fostering economic expansion. Governments, businesses, and industries can raise long-term cash through the stock market, which is crucial for funding new initiatives, growing their businesses, and updating commercial problems.

Additionally, the stock market channels capital resources to companies with strong growth potential, improving productivity and economic diversification.

The growth of the Nigerian stock market is essential to fulfilling the country's economic goals. Nigeria needs to sustain an average annual growth rate of 12.4% for the next ten years in order to achieve its goal of being one of the top economies in the world by 2020. The stock market is essential for fostering economic expansion and advancement. It is a vital part of a country's economic infrastructure because of its capacity to mobilize resources, distribute capital, and encourage investment. The growth of Nigeria's stock market must continue to be a top focus as the country works to realize its economic goals.

1.2 Problem Statement

Economists and researchers disagree over how important the financial sector is to economic development and growth. The opinions of numerous prominent economists, like Robinson (1952), Meier and Seers (1984), Lucas (1988), and Stern (1989), who felt that finance had a significant (if any) impact on a country's economic development and growth, are widely expressed in the literature.

However, another set of economists and academics holds the opposite opinion, arguing that a nation's financial sector has a significant impact on economic growth. In their studies, Schumpeter (1932), Bagehot (1962), Cameron (1967), Goldsmith (1969),

Mckinnon (1973), Shaw (1973), and Ojo (1984) were among those who exhibited this way of thinking.

Gelb (1989), Ghani (1992), King and Levine (1993a, 1993b), and De Grogorio and Guidotti (1995) expanded on this idea by showing that indicators of banking development had a substantial correlation with economic growth across a range of nations. Other academics have empirically emphasized the unique function of the Nigerian Stock Exchange (stock and bond markets) in economic growth in addition to assessing the overall significance of the financial sector in economic development.

Even though it's widely accepted that democracy encourages economic activity, which leads to economic progress, the Nigerian Stock Exchange's growth is still quite modest when compared to the size of the country's economy. According to CBN (2007), a comparison of the Nigerian Stock Exchange's equity market capitalization with that of a few nations in North and South America, Asia, Europe, and Africa reveals that the Nigerian market is comparatively tiny. Even worse are the accompanying negative effects of the collapse of the Nigerian Stock Exchange, which saw the market capitalization plummet from a peak of N13.5 trillion in early 2008 to less than N4.5 trillion in the same period in 2009. This occurrence prompted the House of Representatives to conduct an investigation into the circumstances surrounding the 2009 Nigerian stock market crash through its committee on the country's capital market. This investigation is commonly referred to as the Nigerian Stock Exchange inquiries.

But in light of these circumstances, one starts to question if the Nigerian Stock Exchange has actually done well in terms of its influence on the expansion of the Nigerian economy after the country's return to civilian rule. Let's just reiterate that no previous research has addressed this crucial time frame (starting in 1999), which is what this study aims to do. In other comparable works, eras of military and civilian administration are combined to varied degrees. Because of these divergent opinions, it is up to empirical research to ascertain whether or not the expansion of the stock market (financial system) spurs economic growth, especially in Nigeria. However, both individuals and corporate entities have expressed doubts about whether the Nigerian Stock Exchange is truly accomplishing this admirable objective of capital market-led development. According to Okpara (2010) and Osinubi & Amaghionyeodiwe (2003), despite these self-driven advancements and growth, the Nigerian stock market and foreign reserves continue to make only modest contributions to gross fixed capital formation and gross national product. Osaze (2007) observed that less than 21% of Nigeria's 400,000 registered companies are listed on the Nigerian stock exchange, which he attributes to the market's lack of appeal and absence of incentives for companies to go public.

With several research offering contradictory results, the exact significance of capital markets in economic growth is still up for question (Oyejide, 1994; Nyong, 1997; Obadan, 1998; Sule & Momoh, 2009; Ewah & Bassey, 2009). While some scholars

contend that capital markets and economic growth are positively correlated, others contend that they are negatively correlated.

However, this study adopts a neutral stance in assessing the relationship between the Nigerian stock exchange market and economic growth. It does this by using dynamic and pertinent regressors that other researchers might not have considered.

1.3 Research Questions

1. Is there any relationship between Nigerian Stock Exchange and economic growth in Nigeria?
2. Does all-share value index impact economic growth in Nigeria?
3. How does monetary policy rate impact economic growth in Nigeria?

1.4 Objectives of the study

The broad objective of the study is to determine the impact of Nigerian stock exchange on the economic growth and development of the Nigeria.

The specific objectives of study are as follows;

1. To analyze the impact of the Nigeria stock exchange on economic growth in Nigeria.
2. To determine the interrelationships between all-share index activities on economic growth in Nigeria.

3. To evaluate the effect of between monetary policy rate on economic growth in Nigeria.

1.5 Research Hypotheses

The study formulated the following null hypothesis;

1. There is no significant relationship between Nigerian Stock Exchange and economic growth in Nigeria.
2. All-share index have no significant impact on economic growth in Nigeria.
3. Monetary policy rate have no significant impact on economic growth in Nigeria.

1.6 Significance of the Study

This research study, which aims to explore the relationship between the Nigerian stock exchange (NSE) and the Nigerian economy, is extremely important since it analyzes the influence of the NSE on the growth of the Nigerian economy. This study is important because it will shed light on how the NSE contributes to economic growth, which can help guide investment decisions, regulatory decisions, and economic development plans. The results of the study will also add to the body of knowledge already available on how the stock exchange affects economic development by offering fresh perspectives and factual data that can be applied to further Nigeria's economic expansion and advancement.

Because it will offer practical policy recommendations based on its findings, this study is also very important for a variety of stakeholders, including government agencies, financial discipline experts, Nigerian Stock Exchange members, and other interested parties. In order for government and corporate entities to finance new projects, grow, and modernize industrial and commercial concerns, the stock market has been essential in promoting long-term capital development. The study's findings should advance the conceptual understanding of market capital applications in development processes within the context of project finance and make a significant contribution to the body of literature already available on project financing management in the public and private sectors. The study's conclusions may also be useful to other government agencies, and its emphasis on organizational departments and groups will offer insightful information on how these subunits might use project funding components to further their goals.

1.7 Scope of the study

This study's scope includes a thorough analysis of the operating dynamics and structure of the Nigerian capital market, with a primary focus on determining how the Nigerian Stock Exchange (NSE) affects the country's economic development. Since the fundamental ideas of the NSE are seen to be globally applicable, despite differences in developmental phases, this study will only focus on the Nigerian setting and avoid conducting comparative analysis with other nations. Time Range: From 1985 to 2021, a

total of 36 years will be covered by the study. This period was chosen because of the substantial changes the NSE has undergone, especially since the 1986 Structural Adjustment Program (SAP) and its ramifications, as well as the accessibility of the data needed for the study. The NSE, Securities and Exchange Commission (SEC), Central Bank of Nigeria (CBN), National Bureau of Statistics (NBS), and other relevant publications would be the only sources of secondary data used in this study. One of the main limitations of our inquiry is the difficulty in obtaining these materials.

1.8 How the Study Was Organized

As a result, the study is divided into five (5) chapters for the sake of simplicity and organization. The study's background, problem statement, research questions, objectives, and hypotheses, as well as the study's significance, scope, and limitations, terminology definitions, and organizational structure, are all included in the first chapter, which serves as an introduction. The literature review in Chapter Two includes conceptual, theoretical, and empirical reviews. The methodology is explained in Chapter 3, which also covers the model formulation, previous expectations, data nature and source, and data analysis technique. The data analysis and result interpretation are presented in Chapter 4. The summary, conclusion, and recommendation are included in Chapter 5.

1.9 Definitions of Terms

IMPACT

What is meant by "impact" is the influence or effect that one thing has on another. Positive or negative, it can have a powerful or noteworthy impact.

An economist would undoubtedly define impact as the monetary impact that something, particularly something novel, has on a circumstance or individual.

It also refers to how a specific event, policy, or action affects a system, outcome, or economic variable. It can be quantified by changes in economic metrics like GDP, employment, inflation, or productivity, and it can be either positive or negative.

Impact in economics can be described as follows: 1. The shift in economic activity or result brought about by a particular action, policy, or event.

2. How one economic variable or factor affects another variable or result.

3. The result of a shift in economic circumstances, including a shift in governmental regulations, advancements in technology, or an outside shock.

CHANGE OF STOCK:

A stock exchange is a marketplace for the purchase and sale of securities, including bonds, shares, and other financial products. It's a platform that makes it easier to trade already-issued securities, giving businesses a way to raise money and giving investors a way to share in its expansion and financial success.

Consider a stock exchange as a marketplace where individuals can purchase and sell shares in businesses. Prices are set by the exchanges between buyers and sellers, and it's a place where supply and demand meet.

Exchange of Nigerian Stocks

Stocks, bonds, and other securities of Nigerian corporations are purchased and sold on the Nigerian Stock Exchange (NSE), a financial marketplace. In order to generate returns on their investments, it offers a platform for businesses to raise money as well as for investors to purchase and sell shares.

FORMATION

Development is the process of improvement, growth, and advancement in the economic, social, cultural, and environmental spheres of life that results in a higher standard of living.

Development in economics is the process of raising a nation's citizens' standard of life by steady economic growth, higher productivity, and lower levels of poverty.

ECONOMIC

The system of producing, distributing, and exchanging commodities and services within a nation or region with the goal of satisfying the needs and desires of its people is referred to as its economy.

The Nigerian economy:

The economic system of Nigeria, a federal country in West Africa, is referred to as the Nigerian economy. It is a mixed economy with a high level of government regulation and a mix of private and public company ownership.

CHAPTER TWO

LITERATURE REVIEW

2.1 Conceptual Literature Review

2.1.1 Gross Domestic Product (GDP)

When an economy's productive capacity rises and output levels rise, economic growth takes place. When every production factor is fully exploited, this occurs. Simply said, economic growth is the gradual increase in a nation's output of commodities and services. The GDP, which is the annual percentage growth in the value of all goods and services produced in a nation, is a crucial gauge of economic performance. It is an important indicator of economic health since it shows how well an economy may develop and grow over time (World Bank, 2021).

2.1.2 Capitalization of the Market

The total market value of all outstanding shares of a publicly listed firm is known as market capitalization, and it is determined by multiplying the share price by the total

number of shares. It influences investment choices and economic growth by acting as a gauge of the size and health of the stock market (Brealey, Myers, & Allen, 2017). An expanding stock market, which represents investor confidence and economic health, is indicated by growth in market capitalization. Businesses have easier access to investment capital when their market capitalization is higher, which promotes economic expansion. The stock market may be more involved in financial intermediation if the market capitalization-to-GDP ratio is higher. However, market expansion may not result in sustainable growth if it is motivated by speculation rather than actual investment.

2.1.3 Index of All Shares

The performance of every company listed on the Nigerian Stock Exchange is monitored by the All Share Index (ASI), a market capitalization-weighted index. As a gauge of economic activity and the investment climate, it represents the general performance of the market and investor sentiment (Nigerian Stock Exchange, 2022). An increase in the value of the entire stock market is reflected in a rising all-share index, which signals investor optimism and economic progress. It promotes investment, enhances wealth accumulation, and accelerates the growth of businesses. Conversely, a sliding all-share index indicates falling stock values, which could be a symptom of investor pessimism or economic downturns.

2.1.4 Formation of Gross Fixed Capital

The net increase in physical assets within an economy, which reflects investments in fixed assets like buildings and machinery, is known as gross fixed capital formation, or GFCF. Because it shows how much of the economy's output is being reinvested, it is a crucial indicator of economic growth (World Bank, 2021). Because it increases an economy's potential for production, gross fixed capital formation is crucial for economic growth (IMF, 2019). Companies can acquire funds through equity financing, which can be used for GFCF, when the stock exchange market is strong. Businesses are more inclined to invest in fixed assets when they can raise money through the stock market (Brealey et al., 2019). A strong stock market increases investor confidence, which encourages more fixed asset investments. Businesses may take on new initiatives as a result of a booming stock market, which would raise GFCF (Shiller, 2015). Q As businesses grow and produce larger returns, a more active stock market may result from increasing GFCF's contribution to economic growth. This link is frequently cyclical; higher stock prices might result from rising GFCF, which can then stimulate additional investment.

2.1.5 Rate of Monetary Policy

The interest rate set by a nation's central bank to affect economic activity is known as the monetary policy rate, policy interest rate, or benchmark interest rate. In order to manage

inflation, maintain currency stability, and accomplish sustainable economic growth, monetary policy relies heavily on this rate. The central bank modifies this rate to either cool an overheating economy (by raising the rate) or to promote borrowing and expenditure (by decreasing the rate). Bank loan interest rates are directly impacted by shifts in the monetary policy rate. Lower interest rates make borrowing more affordable, which incentivizes consumers and businesses to take out loans for consumption and investment (Bernanke, 2002). Central banks try to maintain inflation within a target range by modifying the monetary policy rate. While lower rates can encourage investment and spending, higher rates can discourage spending and aid control inflation (Taylor, 1993).

One strategy for keeping the economy stable during times of economic turbulence is the monetary policy rate. In times of high growth, central banks may raise rates to avoid overheating, or they may cut rates during a recession to spur growth (Blinder, 1998). Companies' borrowing costs are lowered when the central bank lowers the monetary policy rate. Increased expansion and capital expenditures may result from this, raising company profits and stock values (Fama, 1990). Investor sentiment may be impacted by shifts in the monetary policy rate. If the rate declines, investors may become more optimistic about economic expansion and purchase equities. On the other hand, if the rate rises, investors may sell their equities due to worries about decreasing growth

(Bernanke & Kuttner, 2005). The discount rate used to value future cash flows from investments is benchmarked against the monetary policy rate. Stocks become more appealing when the rate is low because the present value of future cash flows rises. Higher rates, on the other hand, reduce the future cash flows' current value, which may result in lower stock values (Damodaran, 2012).

2.1.6 The rate of inflation

Despite being one of the most commonly used phrases in economic discourse, inflation is sometimes misunderstood. Economists appear to agree that inflation is a steady and noticeable increase in the general price level, despite the fact that there are many different schools of thought on the subject. In a nutshell, inflation represents a state of the economy where prices for goods and services are steadily rising. Inflation, according to Bryne and Zekaite (2021), is a persistent rise in the general price level. The percentage change in the consumer price index is used to calculate the inflation rate. Based on recurring surveys of consumer prices, the consumer price index calculates the cost of a sample basket of products and services that the typical customer would buy. The inflation trend in Nigeria has fluctuated over time. Over the previous forty years, the rate of inflation has varied from five percent to twenty percent. Recent years have seen a very high rate of inflation, which peaked in January 2017 at 18.3%. The rate of inflation as of 2023 was 33.88%, which was a considerable rise over the year before. Significant effects

of this high rate of inflation on the Nigerian economy have included a decline in consumer purchasing power, a decline in the value of savings, and an increase in production costs for companies.

2.1.7 The Security and Exchange Commission of Nigeria (NSEC)

The highest authority for overseeing and regulating the Nigerian stock market is the Nigerian Security and Exchange Commission (NSEC). The Security and Exchange Commission decree of 1979 created the commission, which began operations retroactively in April 1978. Before the SEC, the task of keeping an eye on Nigeria's stock market activity had been divided between two organizations. The Capital Issues Committee was the first, and it was in operation from 1962 until 1972. Even though it was involved in the coordination of stock market activity, its tasks were mostly consultative and lacked the authority to be considered the superintendent of the stock market. The Capital Market Issues Commission (CIC), which was established in March 1973, was the following organization. In contrast to its predecessor, the C.I.C. had complete authority to decide on the amount, timing, and price of securities to be issued. Because it only dealt with publicly traded corporations and excluded government securities and the stock exchange from its operations, the CIC could not be considered the apex capital market despite its greater authority.

The Securities and Exchange Commission's enabling act outlines its primary goals as investor protection and development, while its two divisions are regulatory and development. The Nigeria Securities Decree (Decree No. 29) of 1983 and the Nigerian Enterprises Promotion Decree of 1990 both provide detailed explanations of the commission's duties. The commission is tasked with the following tasks and responsibilities under Section 96) subsections (9) to (10): deciding on the price and timing of a company's stocks sale to the public, whether through an offer for sale or subscription, registering every security that is intended to be made available for public purchase or subscription, Keeping an eye on the securities market to guarantee fair, equitable, and orderly dealing in securities, defending the securities market's integrity from any misuses brought on by insider trading, Serving as the highest regulating body for the Nigerian stock market, which includes the Nigerian Stock Exchange and its affiliates, to which it has the authority to assign authority, Establishing the conditions required for the stock market's orderly expansion and development, In order to maintain appropriate standards of conduct and professionalism in the business, the Stock Exchange or its branches must review, approve, and regulate mergers, acquisitions, and all other business combinations. They also need to register investment advisers, securities dealers, and their agents and keep an eye on their operations.

2.1.8 An Overview of the Stock Market

A stock market is primarily a venue for businesses to raise capital in order to expand and improve their operations. Businesses sell stock to investors in order to raise money. Investors can also purchase these businesses on the stock market and profit from any profits they generate. Because it includes the stock exchange, its branches, and stockbrokers, a stock market can also be referred to as a capital or securities market. A securities exchange, a securities commission or equivalent regulatory body, and intermediaries like dealers, brokers, securities analysts, etc. are necessary for an organized securities market. Those who gain bear almost all of the expenses. The issuers or investors to whom the intermediaries provide a service pay them fees. Typically, investors and issuers pay fees to fund the stock market; even the securities commission's costs can be partially covered by registration fees rather than placing a significant financial strain on the government. Businesses that go public must constantly pay for informational materials, share transfers, dividend payments, and other shareholder relations expenses. The component of the financial system that mobilizes and channels long-term funds for economic expansion is the stock market. Both fresh (primary) and old (secondary) stock issues are traded on the stock market.

Debt and equity are the two (2) main categories of securities. While equity securities mostly deal with common stocks that impose greater liabilities on holders, debt

securities include federal government development stock (GDS), industrial loans, preference stocks, bonds, and so forth. Purchasing financial assets (stocks, bonds, deposits, and currencies) from one nation to another is known as portfolio investment in the capital market. It is a type of investment that aims to produce both capital growth and income. It addresses an institutional arrangement that involves investors, operators, the Nigerian Stock Exchange (NSE), and the Securities and Exchange Commission (SEC). The stock market is seen as a tool to promote saving, assist in directing money toward profitable ventures, and raise the effectiveness and productivity of investments. The necessity to draw in foreign investment in non-debt-creating ways has further reinforced the focus on the expansion of stock markets for the mobilization of domestic resources. The financial system can become more efficient and competitive with a healthy equities market. Companies must rely on internal funding sources like retained earnings in the absence of public markets. Big businesses grow larger when they are not exposed to the stock market's scrutiny. Additionally, emerging smaller businesses may find that their retained earnings and new cash infusions from controlling shareholders are insufficient to meet their needs for additional equity financing, which can only be supplied by an organized market. The needs of equity markets for the creation of generally accepted accounting standards and the regular publication of sufficient and trustworthy information would help boost the corporate sector.

One of the main cornerstones of long-term economic growth and development in any nation is the capital market. The industry caters to a wide spectrum of customers, including individuals both domestically and abroad, corporate entities, and various governmental levels. The stock market has long been one of the ways that foreign capital is introduced into most economies, making the trend toward a global economy more realistic. The growth of the securities market may contribute to the improvement of the efficient and competitive financial system as well as the corporate capital structure, or the makeup of the capital businesses. Shareholding gives people a comparatively liquid way to split the risk of investment initiatives in a well-developed stock market. Economic development is significantly influenced by the growth of the stock market. Since there is a long-term correlation between the stock market and economic growth, Shabaz (2008) contends that the stock market is a crucial engine for economic expansion. According to Gerald (2006), the growth of the stock market is significant because financial intermediation facilitates the investment process by enabling businesses to access domestic and foreign savings for investment. It makes sure that money is spent in the most economical way possible and gives businesses the liquidity they need to run their additional capacity effectively. According to Sharpe et al. (1999), the stock market is a medium for the exchange of financial assets that have a lifespan longer than a year. Financial assets can be anything from regular shares of different companies to long-term government bonds. The stock market is where shares of different companies are traded.

There are two ways that shares can be traded on the stock market. A transaction is considered to have occurred in the primary market when the issuing company sells its shares to investors; however, a secondary market transaction occurs when investors trade already issued shares of the company. As a result, it is reasonable to say that one indicator of a country's overall economic progress is the expansion of its stock market.

2.1.9 The relationship between economic development and the stock exchange market

A key venue for obtaining cash, which is necessary for both business expansion and general economic growth, is the stock exchange. Businesses can obtain capital from a wide range of investors when they list on the Nigerian Stock Exchange (NSE). This money can be invested on infrastructure, technology, and the development of human capital, among other things. Improved production capacity, the creation of jobs, and eventually faster GDP growth are all results of increased investment. According to a study by Akinlo and Akinlo (2015), Nigeria's economic growth and stock market development are positively correlated, suggesting that a healthy stock market can greatly improve economic performance. Economic growth is frequently linked to market capitalization, which represents the entire worth of all listed companies on the stock exchange. Foreign direct investment (FDI) and investor confidence are two factors that a rising stock market can convey and are both essential for GDP growth. Increases in market capitalization frequently result in increased trust among businesses and

consumers, which boosts economic activity. A strong stock market can operate as a stimulus for economic development, according to Ologunde, Elumilade, and Edegba (2006), who also point out the beneficial effects of stock market capitalization on Nigeria's economic growth.

A healthy stock market can support economic expansion, but too much volatility might backfire. Excessive volatility can hinder GDP development by discouraging investment and causing market uncertainty. Investors may become risk-averse and decrease capital inflows and slow economic activity when they perceive high risk. A stable stock market is crucial for creating an atmosphere that is favorable for investment and economic growth, according to Adebisi and Ojo (2012), who also address how stock market volatility might impact economic stability and growth in Nigeria. To affect economic circumstances, the Central Bank of Nigeria (CBN) uses a variety of monetary policy instruments, including interest rates and the money supply. Interest rate changes have a big impact on the performance of the stock market, which in turn affects GDP growth. Lower interest rates, for example, make borrowing less expensive, which encourages investment from businesses as well as consumer spending. Higher stock prices may result from this increased economic activity, generating a positive feedback loop that boosts GDP growth. Ojo (2010) investigates the connection between stock market performance and monetary policy, emphasizing the consequences for Nigeria's economic

expansion. Effective monetary policy, according to the study, can improve stock market performance and support general economic growth.

Attracting foreign investment, which is essential for economic growth, requires a robust stock market. Nigeria is one of the rising nations where foreign investors frequently look for possibilities, and a thriving stock exchange can help with this. Increased foreign investment can result in improved productivity, job creation, and technology transfer—all of which boost GDP growth. Nigeria's economic growth can be positively impacted by foreign direct investment, which is made possible by a robust stock market, according to Ayanwale and Bamire (2004). According to their research, a healthy stock market boosts the general investment climate and draws in foreign capital, which in turn boosts economic activity. Nigeria's GDP growth rate and the stock exchange market have a complex relationship that involves a number of factors, including foreign investment, market capitalization, volatility, investment flows, and monetary policy. Economic growth can result in a more robust stock market, and a healthy stock market can boost economic growth by giving businesses the financing they need. Policymakers who want to promote sustainable economic development in Nigeria must comprehend this relationship. Nigeria may use its financial markets to boost economic growth and raise the general standard of living for its people by fostering an atmosphere that is favorable to stock market activity.

2.2 Trend Analysis

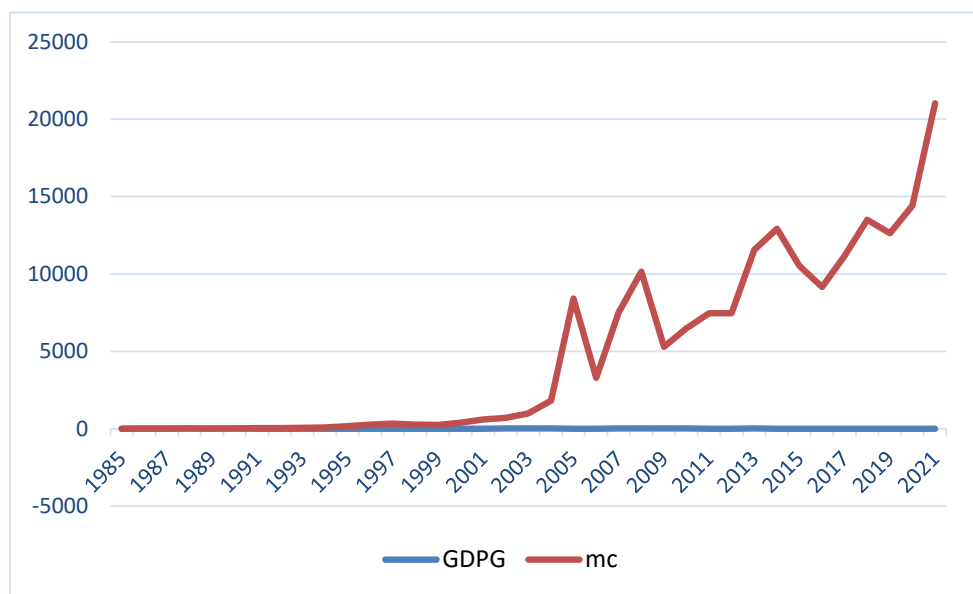


Figure 1: Market Capitalization and GDP growth trend

Source: Author using Excel -data adopted from World bank – world development indicators 1985-2021

The relationship between two economic indicators—market capitalization (MC) and gross domestic product (GDP)—is depicted in the chart. Between 1985 until around 2005, the GDP line remained comparatively flat. Almost no discernible growth is seen at this time. Overall, it doesn't surpass the 5,000 mark until subsequent years, despite minor variations. There is a discernible rise that begins around 2010 and ends around 2021.

Beginning around 2005, the Market Capitalization line exhibits notable growth, culminating in a notable surge in the years before 2021. By 2021, it peaks at nearly 20,000, demonstrating significant growth in comparison to previous years. The overall tendency is upward, notwithstanding occasional oscillations.

Given the sharp difference between the GDP's flat trend and its sharp increase, it appears that market capitalization is a metric that reacts more quickly to events or shifts in the economy. The market capitalization's sharp rise suggests expansion in other industries.

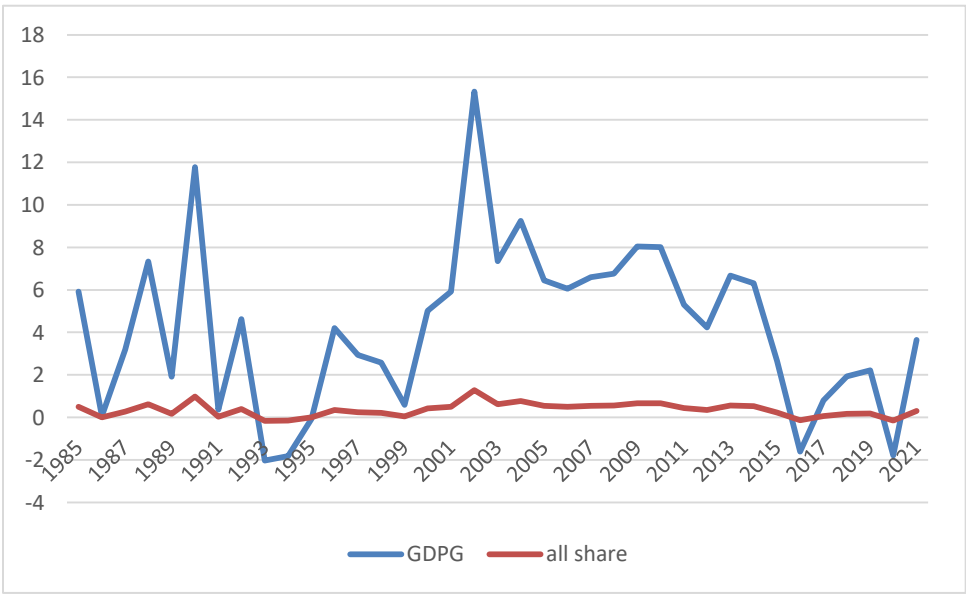


Figure 2: All share and GDP growth trend

Source: Author using Excel -data adopted from World bank – world development indicators 1985-2021

The graph shows two trends over time: a "all share" index and GDP Growth (GDPG). GDP growth exhibits notable oscillations, peaking around particular years (most notably in the late 1990s and early 2000s). It appears that the greatest peak ever recorded occurred in 2004. It exhibits an overall drop after 2008, with a little comeback noted in 2021. These show times of recession and economic expansion. When compared to GDP, the All Share Index shows a relatively stable overall share performance, indicating that although economic development is erratic, the share index has not fluctuated as much.

While the stability of the all-share index suggests consistent investor confidence despite economic swings, rising GDP growth generally indicates a healthy economy. Potential market inefficiencies and variations in investor mood are shown by the divergence between the two lines over a number of time periods.

2.3 Theoretical literature

2.3.1 Efficient Market Hypothesis (EMH)

According to Eugene Fama's 1965 Efficient Market Hypothesis (EMH), financial markets are efficient when all available information is reflected in the pricing of traded assets.

This idea holds that asset prices are objective reflections of all investors' opinions about the possibilities for the future. This suggests that since asset prices swiftly assimilate new information, it is impossible to consistently provide returns that are higher than the average market return on a risk-adjusted basis.

As noted by Lo (1991), prior EMH tests have frequently concentrated on the long-range reliance of equity returns. His research raises doubts about the validity of the EMH, especially in emerging nations, by indicating that historical data may be helpful in improving prediction accuracy. Because of their comparatively limited market structures, which result from underdeveloped institutional and regulatory frameworks, equity prices in these markets may display long memory or long-range dependency (Nagayasu, 2003; Nyong, 2003). Investors may be reluctant to commit their money in situations where there is a lot of speculation because they are afraid of losing it. A nation's economic development may suffer in such a setting since investors may avoid financial assets. This hesitation may make it more difficult for businesses to raise more money for growth, which would ultimately impede economic growth. Therefore, promoting growth and development in Nigeria depends heavily on the capital market's efficiency. This idea can be divided into three categories, such as the weak form efficiency, which holds that current stock prices reflect all historical trade information. As a result, technical analysis—which is based on past price patterns—cannot reliably produce excessive

profits. Nonetheless, recent research has demonstrated that some trends, such as momentum effects, can endure, indicating that markets might not be completely efficient in the weak form. According to the Semi-Strong Form Efficiency theory, stock prices reflect all information that is accessible to the public, such as news releases and financial statements. Consequently, there would be no benefit to using fundamental research, which assesses a company's financial health, to forecast changes in stock prices. While the Strong Form Efficiency maintains that all information, both public and private (insider information), is reflected in stock prices, events like earnings surprises can cause price movements that call into question this form of efficiency. Even if this is the strictest form, insider trading can result in substantial benefits for individuals who have access to confidential information, which is why it is sometimes regarded as unrealistic.

The January effect, value effect, and overreaction/underreaction phenomena are only a few of the market abnormalities that have been reported in spite of the EMH. These irregularities raise the possibility that markets aren't always efficient, especially in developing nations where behavioral biases and information asymmetries can result in mispricing. The emergence of behavioral finance has shed light on how psychological variables affect investor behavior and cause illogical choices. This viewpoint contradicts the EMH by arguing that social variables, emotions, and cognitive biases can all affect markets, leading to economic growth and efficiency.

Because it gives businesses access to funds for ventures and investments, the stock market's existence is essential to boosting economic growth.

2.3.2 The theory of endogenous growth

Paul Romer created the endogenous growth theory in the 1990s in response to critiques of the Neo-Classical growth model. According to this idea, policy decisions have a big impact on an economy's long-term growth rate. Endogenous growth theory proponents contend that higher investments in human capital and a quicker rate of innovation are directly related to increases in productivity. Endogenous growth theory highlights that forces within the production process are what drive economic growth, in contrast to exogenous growth models that ascribe growth to external sources like population increases. These elements could include induced technology changes, growing returns, and economies of scale. The value of human capital is a fundamental principle of endogenous growth theory. Investments in education and training raise worker productivity and skill levels, which spurs innovation and economic expansion. Growth rates are typically greater in nations that place a high priority on education and skill development. According to the endogenous growth theory, technical development is essential for long-term economic expansion. Businesses that make research and development (R&D) investments can produce new goods and procedures, which boosts output. Gaining a competitive edge in the worldwide market can result from this

innovation-driven expansion. The theory also emphasizes how ideas and innovations produced by one company can help others through knowledge spillovers. This interdependence creates a cooperative atmosphere that stimulates additional invention and development. Clusters of businesses in particular sectors can promote information exchange and stimulate local economic growth. According to the endogenous growth idea, efficiency and innovation can be stimulated by competitive marketplaces. Businesses are encouraged to develop and enhance their goods and services when they compete. Customers may benefit from reduced costs and improved quality as a result of this competition, which also encourages ownership changes without interfering with production. Stock markets also give investors the chance to diversify the risks in their portfolios. Investors who are able to purchase shares in publicly listed corporations add to the capital basis of these businesses, allowing them to invest in new technology and carry out creative projects that increase productivity. A positive feedback loop is produced by this dynamic: when businesses expand and develop, they support economic growth generally, which draws more capital to the stock market.

Furthermore, by focusing funds on the most promising projects, stock markets can help with the effective distribution of resources. In addition to increasing productivity, this process encourages rivalry among businesses, which benefits customers by producing better goods and services. Furthermore, because publicly traded companies are subject to

regulatory scrutiny and are required to comply with reporting rules, a healthy stock market can improve transparency and corporate governance. Increased market involvement and increased economic growth can result from this transparency, which can boost investor trust.

2.4 Empirical Research

Numerous studies have examined the connection between economic growth and stock market development, producing a range of conclusions and insights. Levine and Zervos (1998) found that economic growth and stock market development were positively correlated in a number of nations, highlighting the fact that healthy stock markets promote capital accumulation and economic progress. The groundwork for later research was established by this groundbreaking effort.

Building on this basis, Agarwal (2001) highlighted the potential of stock markets to support economic development in emerging economies by concentrating on African nations and proposing a positive correlation between a number of stock market performance metrics and economic growth. Mohtadi and Agarwal (2001), who looked at 21 emerging markets over 21 years, broadened this viewpoint even more. In support of the literature on financial intermediation and conventional growth theories, they came to the conclusion that there is a direct and indirect relationship between the development of the stock market and economic growth through encouraging private investment behavior.

Country-specific analysis started to appear in the middle of the 2000s. Brasoveanu et al. (2008) used regression and Vector Autoregression (VAR) models to investigate the relationship between Romania's economic growth and the development of its capital market. Their results showed a positive association with a feedback effect, indicating that the development of the capital market is driven by economic growth. The notion that a developed stock market can promote economic growth was further supported by Nowbutsing's (2009) findings, which showed that stock market development in Mauritius has a favorable impact on economic growth both in the short and long term.

Odhambo (2010) used the ARDL limits testing approach in South Africa from 1971 to 2007 and discovered a short- and long-term causal relationship between economic growth and stock market development. But Ndako (2010) offered an alternative perspective, utilizing quarterly time-series data to show a more nuanced connection between South Africa's economic growth, banking, and stock market development.

Nigeria and its economic dynamics received a lot of attention in the 2010s. Stock market capitalization has a positive impact on economic growth, according to Akinlo and Apanisile's (2014) analysis of data from 1981 to 2011. This suggests that a strong stock market improves economic performance through better capital allocation. Ogunbiyi (2013), who looked at the connection between market capitalization and GDP growth, repeated this. Regression analysis and time-series data from 1980 to 2010 were used in

the study to ascertain how market capitalization affected economic growth. A strong stock market improves economic performance, according to the findings, which also showed that higher market capitalization greatly boosts economic growth. It was determined that measures targeted at raising market capitalization might have a favorable impact on Nigeria's economic expansion. Alajekwu and Achugbu (2012) looked into the connection between Nigeria's economic growth and the effectiveness of the stock market. The study used econometric techniques, such as regression analysis, to evaluate how stock market efficiency affected economic growth indicators. It concluded that there was a positive correlation between economic growth and stock market efficiency, indicating that a more efficient stock market would result in better investment opportunities and capital allocation, and that increasing stock market efficiency is essential to boosting Nigeria's economic growth. Aliyu (2014) investigated further how Nigerian stock market performance and investor confidence are affected by regulatory frameworks. Data on investor attitudes and regulatory processes were gathered through qualitative analysis, which included questionnaires and interviews. The study concluded that bolstering regulatory frameworks is crucial for boosting investor confidence and fostering economic growth through a stable stock market. The findings showed that unethical practices and market manipulation have historically weakened investor confidence and market integrity.

Oladipo and Ojo (2015) provided additional support for this viewpoint by evaluating the effect of market capitalization on Nigeria's GDP between 1981 and 2013. They used econometric models, such as Ordinary Least Squares (OLS) regression, to examine the relationship between market capitalization and GDP and found that it significantly increased between 1981 and 2013, underscoring the significance of a thriving stock market for economic growth. In his analysis of the relationship between market capitalization and economic growth in Nigeria, Ogunleye (2016) discovered that more market capitalization stimulates investment and economic activity, which in turn accelerates GDP growth.

Nwank & Nwankwo (2016) look into the relationship between Nigeria's GDP growth and the All Share Index. The study evaluated the relationship between the All Share Index and economic growth using correlation analysis and time-series data. The study concluded that tracking the All Share Index can be a helpful indicator of economic performance and investor sentiment because it found a strong correlation between GDP growth and the All Share Index, suggesting that a rising All Share Index reflects investor confidence and contributes to economic growth.

Furthermore, a recurrent subject has been the impact of monetary conditions on economic growth. Ojo (2010) investigates how Nigeria's money supply affects the country's economic expansion. Regression analysis and other econometric methods were

used in the study to evaluate how the money supply affected GDP growth. According to the study, a strong stock market helps to boost GDP growth by expanding the money supply. The author came to the conclusion that managing liquidity and implementing sound monetary policy are essential for promoting economic expansion through stock market activity. The significance of the money supply was emphasized, and it was discovered that a strong stock market helps to boost GDP growth. Ogunleye (2012) investigated this link further and came to the conclusion that the money supply significantly boosts economic growth, indicating that economic liquidity—which is frequently impacted by stock market activity—is essential for expansion.

Ogunleye (2012) also examined how interest rates affected Nigeria's economic expansion. Regression analysis and time-series data were used in the study to evaluate the connection between interest rates and GDP growth. The study concluded that effective interest rate management is essential for encouraging stock market investment and bolstering Nigeria's overall economic growth because high interest rates have a negative impact on stock market investment, which in turn impedes economic growth, while lower interest rates may encourage investment and improve economic performance. This was supported by Ojo and Ojo (2013), who found a substantial negative association between interest rates and economic growth. They suggested that lower interest rates can encourage stock market investment and spur economic growth.

Additionally, Adeleke and Ojo (2017) investigated the connection between exchange rates and economic expansion in Nigeria. They evaluated the effect of exchange rate changes on GDP growth and stock market performance using time-series data and regression analysis. The study discovered that while a stable exchange rate was linked to better stock market performance and economic growth, exchange rate changes can have a substantial impact on GDP growth and stock market performance. The authors came to the conclusion that preserving exchange rate stability is essential for drawing in foreign capital and fostering economic expansion via a healthy stock market.

High volatility might discourage investment and have a detrimental influence on GDP development, according to Akinlo's (2012) analysis of the relationship between stock market volatility and economic growth in Nigeria. Ogunleye (2019) examines the connection between Nigeria's economic development and stock market growth. The association between economic development indicators and stock market growth was examined using time-series data and econometric methods, such as ARDL bounds testing. The study made clear that although economic progress depends on the expansion of the stock market, economic instability might result from excessive volatility. The results concluded that regulatory actions should be taken to stabilize the stock market and encourage steady economic growth, indicating that a stable stock market environment is essential for sustainable economic growth. An investigation of the connection between

Nigeria's stock market development and financial inclusion was conducted by Ojo and Ogunleye (2020). The study evaluated how financial inclusion affects stock market participation and economic growth using survey data and econometric analysis. It found that greater financial inclusion boosts stock market involvement, which in turn promotes economic growth. It also suggested that increased stock market investment may result from easier access to financial services.

CHAPTER THREE

METHODOLOGY

3.1 Theoretical Framework.

Endogenous Growth Theory

An alternative to the solow-swan idea is the endogenous growth theory. This study uses the neoclassical growth model, which explains long-term economic growth in response to external technological advancement, to demonstrate how the stock exchange market and economic growth are intertwined. According to exogenous growth theorists like Paul Romer (1986) and Robert Lucas (1988), the economy's internal factors—such as innovation, knowledge spillovers, and investments in human capital—are what propel growth.

Long-term economic growth is fueled by investments in infrastructure, innovation, and human capital, all of which are encouraged by the Nigerian stock exchange.

Romer's AK model, a popular mathematical model of endogenous growth, makes the assumption that output (Y) is dependent on capital (k) and technology (A).

$$Y = AK \dots \dots \dots (1)$$

Where;

Y= Output (GDP)

A= Productivity factor (Knowledge, technology)

K= Capital.

Growth Rate of Output.

Taking the derivative of equation 1 with respect to time;

$$\Delta Y/\Delta t = A \Delta k/\Delta t \dots\dots\dots (2)$$

We assume capital accumulation follows the standard investment equation becomes;

$$\Delta k/\Delta t = sY - \delta K \dots\dots\dots (3).$$

Where;

s = savings rate.

δ = depreciation rate of capital.

Substituting $\Delta k/\Delta t$ into $\Delta Y/\Delta t$ we have;

$$\Delta Y/\Delta t = A (sY - \delta K) \dots\dots\dots (4)$$

$$\Delta Y/\Delta t = AsY - A\delta K$$

Divide both sides by Y to express the equation in terms of growth rate

$$gY = As - A\delta \dots\dots\dots (5)$$

$gY = 1/Y \Delta Y/\Delta t$ and K/Y is constant capital-output ratio.

3.2 Model Specification

Market capitalization as a proxy for stock market performance, the all-share index as a proxy for stock market value index, the monetary policy rate, inflation rate, gross fixed capital formation, and foreign direct investment are the regressors or explanatory variables in a model that illustrates the relationship between the Nigerian stock exchange and economic development in Nigeria. The dependent variable, or regress, in the model is the gross domestic product growth rate.

The mathematical form of the model is given as;

$$GDPG = f (MC, AS, MPR, INF, GFCF, FDI)..... (1)$$

The econometric form of the model is specified as,

$$GDPG_t = \beta_0 + \beta_1 MC_t + \beta_2 AS_t + \beta_3 MPR_t + \beta_4 INF_t + \beta_5 GFCF_t + \beta_6 FDI_t + u_t..... (2)$$

The semi- log-linear relationship can be written as

$$GDPG_t = \beta_0 + \beta_1 \ln MC_t + \beta_2 AS_t + \beta_3 \ln MPR_t + \beta_4 \ln INF_t + \beta_5 \ln GFCF_t + \beta_6 \ln FDI_t + u_t..... (3)$$

Where;

GDPG – Gross domestic product growth rate

MC – Market Capitalization

AS – All Share Index

MPR – Monetary Policy Rate

INF – Inflation Rate

GFCF- Gross Fixed Capital Formation.

FDI = Foreign Direct Investment

Ln – Natural Logarithm of the variables.

t = period of time series

u_t = error term

β_0 = constant term/intercept of the regression line.

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ are Coefficients that measures the impact of each independent variable on dependent variable of the model.

A priori Expectation

Based on economic theory, the anticipated relationship between the independent variables and GDP growth rate are as follows

$$\beta_0 > 0, \beta_1 > 0, \beta_2 > 0, \beta_3 < 0, \beta_4 < 0, \beta_5 > 0$$

$$\beta_0 > 0$$

The value of the intercept in the hypothesized model is expected to be positive.

$$\beta_1 > 0$$

The slope coefficient of market capitalization is expected to be positive, indicating that an increase in market capitalization has a positive impact on economic growth, it implies that as the higher market capitalization indicates a more robust financial system promote economic activities and development.

$$\beta_2 > 0$$

The slope coefficient of all share index is expected to be positive as it implies increased investors' confidence, higher corporate profitability and economic expansion with higher GDP growth.

$$\beta_3 < 0$$

The slope coefficient of monetary policy rate is expected to be negative, increase in MPR discourages business investments and economic activities thereby reducing GDP growth.

$$\beta_4 < 0$$

The slope coefficient of inflation rate is expected to be negative, high levels of inflation reduces purchasing power, increases business cost, creates economic uncertainty and slows down economic growth.

$$\beta_5 > 0$$

The slope coefficient of gross fixed capital formation is expected to be positive, increase in investment like physical assets, machinery and construction works enhances economic growth.

$$\beta_6 > 0$$

The slope coefficient of foreign direct investment is expected to be positive, increase in investment from foreigners from abroad in the stock market enhances the growth of the economy.

3.2 METHOD OF DATA ANALYSIS

This part offers a thorough examination of the study's methodology, which looks at how Nigeria's economic progress is affected by stock exchange performance. The study design, data sources, estimating methods, diagnostic procedures, and other ethical considerations are presented. Utilizing data from 1985 to 2021, this study used a quantitative research approach to investigate the link between the dependent and independent variables. The World Bank database and the Central Bank statistical bulletin were the primary sources of the tabular data that was gathered for this study. Because of its quantitative design, the hypothesis can be empirically tested using econometric techniques and a selection of numerical data.

The validity of the proposed hypothesis will be examined using multiple regression analysis. The Autoregressive Distributed Lag estimation method would be utilized. The ARDL error correction model is a flexible model that can account for co-integration and display the short- and long-term dynamics of the variable relationship. It is typically used to factor in the lagged values of the independent variables, which helps to address the

issues of autocorrelation in the residuals and endogeneity. In addition to using high order lagged explanatory variables to assist account for the presence of autocorrelation in the model, the ARDL model expresses the lagged dependent variable as a function of the dependent variable.

Model for ARDL Error Correction

The ECM is based on the idea of co-integration, which suggests that two or more time series variables share a common stochastic trend. The error correction model captures both the short-term dynamics and the long-term relationship between the variables. Phillips (1998) was the first to adopt and apply this model, which is used to correct for any short-term disequilibrium. The ECM shows the speed at which the long-term equilibrium and short-term deviance are adjusted. The ECM is predicated on the notion that variables may temporarily diverge from their long-term relationship but will ultimately revert to their long-term equilibrium. Following a brief shock, the model returns to equilibrium when the error correction term's coefficient is statistically significant and negative. This model's ECM specification can be shown as follows:

$$\begin{aligned}
\Delta GDPG_t = & \alpha + \sum_{i=1}^{p-1} \beta_{1i} \Delta GDPG_{t-i} + \sum_{j=0}^{q-1} \beta_{2j} \Delta LNM C_{t-j} + \sum_{k=0}^{r-1} \beta_{3k} \Delta LNAS_{t-k} \\
& + \sum_{l=0}^{s-1} \beta_{4l} \Delta LNINF_{t-l} + \sum_{m=0}^{t-1} \beta_{5m} \Delta \ln INF_{t-m} + \sum_{n=0}^{U-1} \beta_{6n} \Delta \ln GFCF_{t-n} \\
& + \sum_{o=0}^{V-1} \beta_{6o} \Delta \ln FDI_{t-o} + \phi ECT_{t-1}
\end{aligned}$$

Where

ϕECT_{t-1} = this is the error correction term, which measures the deviation from long term equilibrium.

3.3 DIAGNOSTIC TESTS

Several diagnostic tests will be used to ensure the reliability of the econometric model.

These tests include the unit root test, co-integration test, and the error correction model.

In this section, the model reliability will be discussed as well as the determination of whether the estimates of the parameters are theoretically meaningful and statistically satisfactory.

3.3.1 UNIT ROOT TEST

This statistical test is used to assess whether a time series data set is non-stationary or shows trending behavior. This unit root aids in figuring out if the variance or mean of a data collection is constant. The unit root test can be used to determine whether a data

series has a trend. If the data is trending, it should be first differenced or regressed on deterministic functions of time to make the data stationary. When a data series shows a trend, it is necessary to detrend the data, which can be done by either time-trend regression or first differencing. It's critical to properly define the null and alternative hypotheses when testing for unit root. Non-stationary time series data might produce erroneous findings. The Philips-Peron test, a technique for determining the unit root, will be employed in this study to determine whether the time series data is stationary. An alternative to the ADF Test for the unit root is the Philip-Peron Test, which adjusts for serial correlation and heteroskedasticity using distinct statistical methods.

3.3.2 CO-INTEGRATION TEST

Testing for co-integration between series using the mix order of integration is the second step in the diagnostic testing process. The goal of using the co-integration test in this model is to make sure that the individual variables are non-stationary and that there is a stable, long-term relationship. It may be seen of as a logical progression of the study and testing of the unit root. To determine whether co-integration relationships between the variables actually exist, the appropriate hypothesis will be stated. Assuming that two or more time series variables have a long-term relationship—that is, that they have a similar stochastic trend—co-integration combines the time series in a way that prevents them from deviating from equilibrium over an extended period of time. The ARDL Bounds

co-integration test, which is typically preferred for multivariate studies, will be used in this investigation.

3.4 HYPOTHESIS TESTING

Making sure that the findings appropriately reflect the relationship between the variables is another benefit of evaluating estimates. To determine whether the parameter estimations are both statistically and conceptually acceptable, specific criteria must be used. It is necessary to evaluate the different statistics, including the coefficient of determination, F-ratio, and T-statistics. Regarding the assessment of the estimations, all of them would be used. Both the statistical and economic a priori criteria must be taken into account; the former has been specifically mentioned in the parts that follow. Regarding the statistical criterion, the T-test will be used to ascertain whether the coefficients of each independent variable are statistically significant, the coefficient of determination will be used to determine the goodness of fit, the R^2 and adjusted R^2 will be used to ascertain the explanatory power of the model, and the F-statistics will be employed to assess the overall significance of the model.

3.5 SOURCES OF DATA

This study's primary goal is to determine how stock market performance affects economic development. To this end, secondary data is used in its analysis.

Since the information was gathered from credible and publically available sources, it can be trusted. Market capitalization, the all-share index, the inflation rate, the monetary policy rate, and gross fixed capital formation are the data that were gathered. These factors were picked due to their applicability and practical importance in determining how Nigeria's economic development is impacted by stock market performance. The World Bank statistical database and the Central Bank of Nigeria statistical bulletin were the primary sources of all of these data. The study period covered by this research project is 1985–2021.

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF EMPIRICAL RESULTS

4.1 Descriptive Statistics

The several factors used in this study are tested, their parameters are calculated, the results are reported, and the interpretation of the results is based on economic theory and its implications for policy. Descriptive statistics are shown first, then the unit root test, the ARDL bounds co-integration test, the models' short-term regression estimates, and the long-term estimates of the ARDL Error Correction Term. The chapter concludes with a synopsis of the findings and their implications for policy.

Below is a presentation and discussion of the summary data for every series used in this investigation. In particular, we have measures of variability and central tendencies. Each series' mean serves as a guide to the corresponding variable's mean. How dispersed the variable is from the mean is shown by the standard deviation. The minimum value displays the lowest value for the whole study period, while the maximum value displays the highest value for each variable.

4.1 Descriptive Statistics

	GDPG	LOGAS	LOGMC	LOGGFCF	LOGFDI	LOGINF	LOGMPR
Mean	4.166662	8.766366	6.542297	24.75796	-0.151297	2.685012	2.570370
Median	4.212993	9.506978	6.720216	24.75076	-0.180031	2.542080	2.602690
Maximum	15.32916	10.82824	9.953234	25.09515	1.064797	4.288204	3.258097
Minimum	-2.035119	4.764593	1.624410	24.39251	-1.986651	1.684176	1.791759
Std. Dev.	3.893868	1.918152	2.733085	0.181600	0.856071	0.700754	0.286989
Skewness	0.506330	-0.862142	-0.420199	-0.109515	-0.452138	0.909988	-0.511537
Kurtosis	3.411204	2.338845	1.763738	2.263858	2.229863	2.911498	4.395937
Jarque-Bera	1.791852	5.115418	3.351920	0.884817	2.116240	4.980214	4.492979
Probability	0.408229	0.077482	0.187128	0.642487	0.347108	0.082901	0.105770
Sum	149.9998	315.5892	235.5227	891.2865	-5.446697	96.66045	92.53332
Sum Sq. Dev.	530.6772	128.7758	261.4415	1.154247	25.64999	17.18698	2.882694
Observations	36	36	36	36	36	36	36

Table 4.1 DESCRIPTIVE STATISTICS

Source: Author's computation (2025) using E-views (2025)

The descriptive statistics that give an overview of the data's central tendency, dispersion, skewness, kurtosis, and normalcy for each variable are displayed in table 4.1 above. The data's normality is checked using the Jarque-bera test. The variable LOGGFCF has the highest mean value of 24.76152, followed by LOGAS with a value of 8.813140, LOGMC with a value of 6.542297, and LOGFDI with a value of -0.151297, according to the table above, which uses 36 observations for each variable.

The variable with the highest median value, LOGGFCG, has a value of 24.75767, followed by LOGAS, which has a value of 9.506978. The variable with the lowest

median value, LOGFDI, has a value of -0.180031. The table indicates that the variable with the highest standard deviation, GDPG, has a value of 3.893868, while the variable with the lowest standard deviation is LOGGFCF, which has a value of 0.180365. The variable GDPG has maximum and minimum values of 15.32916 and -2.035119, while LOGAS has maximum and minimum values of 10.82824 and 4.764593, LOGMC has maximum and minimum values of 9.953234 and 1.624410, LOGMPR has maximum and minimum values of 3.258097 and 1.791759, LOGGFCF has maximum and minimum values of 25.09515 and 24.39251, and LOGFDI has maximum and minimum values of 3.258097 and 1.791759, respectively.

The corresponding negative skews for LOGAS, LOGMC, LOGFDI, LOGMPR, and LOGGFCF are -0.862142, -0.420199, -0.452138, -0.511537, and -0.109515. With values of 0.909988 and 0.506330, respectively, the variables LOGINF and GDPG exhibit positive skewness. With a value of 4.395937, the variable LOGMPR has the highest kurtosis, whereas LOGMC has the lowest, at 1.763738.

4.2 Co-Variance Analysis

	GPDG	LOGAS	LOGGFC	LOGINF	LOGMC	LOGMPR	LOGFDI
GPDG	1	0.1211	-0.1095	-0.2683	0.0698	-0.1813	0.0542
LOGAS	0.1211	1	0.81497	-0.2569	0.9726	-0.2868	-0.02099
LOGGFCF	-0.1095	0.81497	1	-0.2827	0.8375	-0.2069	-0.0803
LOGINF	-0.2683	-0.2569	-0.2827	1	-0.2711	0.3591	-0.0145
LOGMC	0.0698	0.9726	0.8375	-0.2711	1	-0.3547	-0.1724
LOGMPR	-0.1813	-0.2868	-0.2069	0.3591	-0.3547	1	0.4244
LOGFDI	0.0542	-0.02099	-0.0803	-0.0145	-0.1724	0.4244	1

Table 4.2 COVARIANCE ANALYSIS

Source: Author's computation (2025) using E-views (2025)

Table 4.2 above illustrates the direction and strength of the link between the variables employed in the study. With a coefficient of correlation value of 0.1211, the dependent variable (GPDG) and LOGAS have a weak but positive association, suggesting that LOGAS marginally declines as GPDG rises.

With a coefficient of correlation value of -0.1095, the dependent variable (GPDG) and LOGGFCF have a weak and negative association, suggesting that LOGGFCF marginally declines as GPDG rises.

With a coefficient of correlation value of -0.2683, the dependent variable (GPDG) and LOGINF have a weak and negative association, suggesting that LOGINF marginally declines as GPDG rises.

With a coefficient of correlation value of 0.0698, the dependent variable (GPDG) and LOGMC have a weak but positive association, suggesting that LOGMC marginally increases as GPDG does.

With a coefficient of correlation value of -0.1813, the dependent variable (GPDG) and LOGMPR have a weak and negative association, suggesting that LOGMPR marginally declines as GPDG rises.

With a coefficient of correlation of 0.0542, the dependent variable (GPDG) and LOGFDI have a weak but positive association, suggesting that LOGFDI rises somewhat as GPDG rises.

With a correlation coefficient value of -0.2827, the table also sheds light on the relationship between the explanatory variables. LOGINF and LOGGFCF have a weak and negative relationship; as LOGINF declines, LOGGFCF also marginally declines.

With a correlation coefficient of -0.2569, LOGINF and LOGAS have a weak and negative relationship; when LOGINF declines, LOGAS also marginally declines. Likewise, the table shows how the variables relate to one another.

4.3 Unit Root Test

Philips-Peron test will be used to check for stationarity in the time series data, the Philips-Peron is method

Of testing for unit root. The Philip-Peron is an alternative test for unit root in the place of ADF Test but

Uses different statistical techniques to correct for serial correlation and heteroskedasticity.

4.3.1 Philip-Peron Unit Root Test

Variables	Test Statistics Probability value	ADF Critical Value (Probability Value)			Order of Integration	Remarks
		1% level	5% level	10% level		
GDPG	0.0027	0.01	0.05	0.1	I(0)	stationary
LOGAS	0.0433	0.01	0.05	0.1	I(0)	stationary
LOGMC	0.3857	0.01	0.05	0.1	I(0)	Non-stationary
LOGINF	0.0412	0.01	0.05	0.1	I(0)	stationary
LOGMPR	0.0625	0.01	0.05	0.1	I(0)	Non-stationary
LOGGFCF	0.3234	0.01	0.05	0.1	I(0)	Non-stationary
LOGFDI	0.0277	0.01	0.05	0.1	I(0)	stationary

Table 4.3 Unit Root Test at Levels

Source: Author's computation (2025) using E-views (2025)

Test hypothesis:

H_0 : the series has unit root

H_1 : the series does not has unit root

Decision rule: if the test p-value is less than the critical p-value, reject the null hypothesis, otherwise fail to reject the null hypothesis.

Conclusion: The table shows the summarized unit root results at levels using the Philips-Peron test, from the results LOGFDI, LOGINF and LOGAS are stationary at the 5% and 10% critical levels with probability values of 0.027, 0.0412 and 0.0433 respectively, they are therefore time invariant with a constant mean and variance. We therefore reject the null hypothesis of the presence of unit root at levels. The variables LOGMC and LOGMPR are non-stationary are all critical levels while GDPG is stationary at all levels.

4.3.2 Philip-Peron Unit Root Test

Variables	Test Statistics Probability value	ADF Critical Value (Probability Value)			Order of Integration	Remarks
		1% level	5% level	10% level		
GDPG	0.0000	0.01	0.05	0.1	I(1)	stationary
LOGAS	0.0026	0.01	0.05	0.1	I(1)	stationary
LOGMC	0.0000	0.01	0.05	0.1	I(1)	stationary
LOGINF	0.0000	0.01	0.05	0.1	I(1)	stationary
LOGMPR	0.0000	0.01	0.05	0.1	I(1)	stationary
LOGGFCF	0.0000	0.01	0.05	0.1	I(1)	stationary
LOGFDI	0.0000	0.01	0.05	0.1	I(1)	stationary

Table 4.4 Unit Root Test at First Difference

Source: Author's computation (2025) using E-views (2025)

Test hypothesis:

H_0 : the series has unit root

H_1 : the series does not has unit root

Decision rule: if the test p-value is less than the critical p-value, reject the null hypothesis, otherwise fail to reject the null hypothesis.

Conclusion: The table shows the summarized unit root results after first difference using the Philips- Peron test, from the results GDPG, LOGGFCF, LOGAS, LOGMPR, LOGFDI, LOGINF and LOGMC are stationary at the 1%, 5% and 10% critical levels. They are therefore time invariant with a constant mean and variance. We therefore reject the null hypothesis of the presence of unit root in the series.

4.4 Co-integration Test

This test is used to determine the existence of a long-run equilibrium relationship among the variables in a multivariate model. The ARDL bounds test is used in determining the long equilibrium in an auto regressive lag model.

Test Hypothesis:

H_0 : the series has no long-run equilibrium relationship.

H_1 : the series has a long run-run equilibrium relationship.

Decision rule of the bounds test states that when the f-statistic is greater than the upper bound reject the null hypothesis of no co-integrating relationship, co-integration therefore exists amongst the variables.

<u>Test Statistic</u>		<u>value</u>
F-statistic	5.692115	
K	6	
<u>Critical bounds value</u>		
Significance	I (o)	I (1)
10%	2.53	3.59
5%	2.87	4
1%	3.6	4.9

Table 4.5 ARDL Bounds Test.

Source: Author's computation using E-views (2025).

From the analysis in table 4.3, the computed f-statistic (5.692115) is greater than the 5% critical upper bound value (4).

Conclusion: There is therefore the existence of co-integration relationship amongst the variables in the long run, the conclusion made is that co-integration exists among the variables in the long-run.

4.5 Short-Run ARDL Error Correction Estimates

Table 4.6 ARDL ECM Short-run Results

ARDL Error Correction Regression

Dependent Variable: D(GDPG)

Selected Model: ARDL(2, 2, 1, 1, 1, 2, 0)

Case 5: Unrestricted Constant and Unrestricted Trend

Date: 03/13/25 Time: 16:28

Sample: 1985 2021

Included observations: 33

ECM Regression				
Case 5: Unrestricted Constant and Unrestricted Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	526.8958	71.40271	7.379213	0.0000
@TREND	0.852468	0.120855	7.053659	0.0000
D(GDPG(-1))	-0.241418	0.101517	-2.378108	0.0302
D(LOGAS)	7.520867	1.941186	3.874368	0.0013
D(LOGAS(-1))	4.621810	1.763685	2.620541	0.0185
D(LOGMC)	-3.423358	1.384233	-2.473107	0.0250
D(LOGGFCF)	-1.047930	4.159614	-0.251930	0.8043
D(LOGFDI)	0.966889	0.759514	1.273036	0.2212
D(LOGINF)	-2.147686	0.749859	-2.864120	0.0112
D(LOGINF(-1))	2.550876	0.637075	4.004043	0.0010
CointEq(-1)*	-0.591097	0.079859	-7.401797	0.0000
R-squared	0.842937	Mean dependent var	0.045654	
Adjusted R-squared	0.771544	S.D. dependent var	4.516181	
S.E. of regression	2.158601	Akaike info criterion	4.637999	
Sum squared resid	102.5103	Schwarz criterion	5.136835	
Log likelihood	-65.52699	Hannan-Quinn criter.	4.805842	
F-statistic	11.80709	Durbin-Watson stat	2.393114	
Prob(F-statistic)	0.000001			

* p-value incompatible with t-Bounds distribution.

The statistically significant error correction term (ECM), which is -0.591097 with a p-value of 0.0000, accurately describes the short-term dynamics of the relationship between the regressors and the regressand and indicates the rate of adjustment required to return

the dynamic model to equilibrium following a disturbance. This implies that a shock to the current period's gross domestic product growth rate will be recovered at a rate of adjustment of roughly 59.11% in the subsequent period. This attests to the model's sufficiency and statistical effectiveness. According to the autoregressive distributed lag model error correction model short run dynamics results, the R-squared value is 0.842937. The R-squared, also known as the coefficient of determination, is the model's explanatory power and indicates the extent to which the regressors in the model account for variations in the dependent variable (GDPG).

This model's regressors explain 84.2937% of variations in the GDP growth rate; however, the adjusted coefficient of determination, which takes into account degrees of freedom, is also employed as a better statistical criterion and a gauge of the model's explanatory ability. With an adjusted coefficient of determination of 0.771544, the explanatory factors or regressors account for 77.15% of variations in the dependent variable. The model's error term accounts for the 22.84% discrepancy.

With a statistically significant f-statistic of 11.80709 and a p-value of 0.000001, the entire set of model coefficients is statistically significant. The Durbin-Watson statistics is 2.39, indicating that there is no autocorrelation in the error terms.

Short- Run ECM Regression Coefficients.

LOGMC (LOG of Market Capitalization)

The coefficient of LOGMC is -3.4233 with a p-value of 0.0250, the coefficient is negative and statistically significant at the 5% and 10% critical p-values, which implies that LOGMC impacts the model. The coefficient with the value of -3.4233 represents the absolute change in gross domestic product growth for a 1% increase in market capitalization in Nigeria in the short-run.

LOGAS (LOG of All-share Index)

The coefficient of LOGAS is 7.5208 with a p-value of 0.0013, the coefficient is positive and statistically significant at the 1%, 5% and 10% critical p-values, which implies that LOGAS impacts the model. The coefficient with the value of 7.5208 represents the absolute change in gross domestic product growth for a 1% increase in all-share index in Nigeria in the short-run.

LOGMC (LOG of Gross Fixed Capital Formation)

The coefficient of LOGGFCF is -1.0479 with a p-value of 0.8043, the coefficient is negative and statistically insignificant at the 1%, 5% and 10% critical p-values, which implies that LOGGFCF does not impact the model. The coefficient with the value of -1.0479 represents the absolute change in gross domestic product growth for a 1% increase in Gross Fixed Capital Formation in Nigeria in the short-run, however it is statistically insignificant.

LOGINF (LOG of Inflation Rate)

The coefficient of LOGINF is -2.1477 with a p-value of 0.0112, the coefficient is negative and statistically significant at the 5% and 10% critical p-values, which implies that LOGINF impacts the model. The coefficient with the value of -2.1477 represents the absolute change in gross domestic product growth for a 1% increase in inflation rate, a 1% increase in inflation rate leads to a decrease of 2.1477units in Nigeria in the short-run.

LOGFDI (LOG of Foreign Direct Investment)

The coefficient of LOGFDI is 0.9669 with a p-value of 0.2212, the coefficient is positive and statistically insignificant at the 1%, 5% and 10% critical p-values, which implies that LOGFDI does not impact the model. The coefficient with the value of 0.9669 represents the absolute change in gross domestic product growth for a 1% increase in Foreign direct investment, a 1% increase in Foreign Direct Investment leads to an increase of 0.9669units in Nigeria in the short-run, the coefficient however is statistically insignificant.

4.6 Long-Run ARDL Error Correction Estimates

ARDL Long Run Form and Bounds Test

Dependent Variable: D(GDPG)

Selected Model: ARDL(2, 2, 1, 1, 1, 2, 0)

Case 5: Unrestricted Constant and Unrestricted Trend

Date: 03/13/25 Time: 16:31

Sample: 1985 2021

Included observations: 33

Conditional Error Correction Regression				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	526.8958	256.5714	2.053603	0.0567
@TREND	0.852468	0.387152	2.201895	0.0427
GDPG(-1)*	-0.591097	0.188920	-3.128826	0.0065
LOGAS(-1)	7.490889	3.079249	2.432700	0.0271
LOGMC(-1)	-7.363303	2.774253	-2.654157	0.0173
LOGGFCF(-1)	-21.64650	10.46535	-2.068397	0.0552
LOGFDI(-1)	-1.287352	1.731116	-0.743654	0.4679
LOGINF(-1)	-3.649153	1.408527	-2.590758	0.0197
LOGMPR**	-5.232230	3.553262	-1.472515	0.1603
D(GDPG(-1))	-0.241418	0.145406	-1.660294	0.1163
D(LOGAS)	7.520867	2.686187	2.799830	0.0128
D(LOGAS(-1))	4.621810	2.521615	1.832877	0.0855
D(LOGMC)	-3.423358	2.158292	-1.586142	0.1323
D(LOGGFCF)	-1.047930	8.269678	-0.126720	0.9007
D(LOGFDI)	0.966889	1.123367	0.860706	0.4021
D(LOGINF)	-2.147686	1.426476	-1.505588	0.1517
D(LOGINF(-1))	2.550876	1.386191	1.840205	0.0844

* p-value incompatible with t-Bounds distribution.

** Variable interpreted as $Z = Z(-1) + D(Z)$.

Levels Equation				
Case 5: Unrestricted Constant and Unrestricted Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGAS	12.67285	6.234347	2.032747	0.0590
LOGMC	-12.45701	6.703405	-1.858310	0.0816
LOGGFCF	-36.62088	21.66294	-1.690485	0.1103
LOGFDI	-2.177902	2.773874	-0.785148	0.4438
LOGINF	-6.173523	2.863922	-2.155618	0.0467
LOGMPR	-8.851724	7.517801	-1.177435	0.2562

EC = GDPG - (12.6729*LOGAS -12.4570*LOGMC -36.6209*LOGGFCF
-2.1779*LOGFDI -6.1735*LOGINF -8.8517*LOGMPR)

Table 4.7 ARDL ECM Long-run Results

Long- Run ECM Regression Coefficients.

LOGAS (LOG of All-share Index)

The coefficient of LOGAS is 12.67285 with a p-value of 0.0590, the coefficient is positive and statistically significant at the 1% and 10% critical p-values, which implies that LOGAS impacts the model in the long-run. The coefficient with the value of 12.67285 represents the absolute change in gross domestic product growth for a 1% increase in all-share index, a 1% increase in all-share index leads to an increase of 12.67285 in gross domestic product growth in Nigeria in the long-run.

.LOGMC (LOG of Market Capitalization)

The coefficient of LOGMC is -12.45701 with a p-value of 0.0816, the coefficient is negative and statistically significant at the 1%, 5% and 10% critical p-values, which implies that LOGMC impacts the model in the long-run. The coefficient with the value of -12.45701 represents the absolute change in gross domestic product growth for a 1% increase in market capitalization in Nigeria, a 1% increase in market capitalization leads to a decrease of 12.45701units in gross domestic product growth in Nigeria in the long-run.

LOGGFCF (LOG of Gross Fixed Capital Formation)

The coefficient of LOGGFCF is -36.62088 with a p-value of 0.1103, the coefficient is negative and statistically insignificant at the 1%, 5% and 10% critical p-values, which implies that LOGGFCF does not impact the model. The coefficient with the value of -36.62088 represents the absolute change in gross domestic product growth for a 1% increase in Gross Fixed Capital Formation in Nigeria, a 1% increase in Gross Fixed Capital Formation leads to an decrease of 36.62088units in gross domestic product growth in Nigeria in the long-run.

LOGFDI (LOG of Foreign Direct Investment)

The coefficient of LOGFDI is -2.1779 with a p-value of 0.4438, the coefficient is negative and statistically insignificant at the 1%, 5% and 10% critical p-values, which implies that LOGFDI does not impact the model. The coefficient with the value of -2.1779 represents the absolute change in gross domestic product growth for a 1% increase in foreign direct investment in Nigeria, a 1% increase in foreign direct investment leads to an decrease of 2.1779units in gross domestic product growth in Nigeria in the long-run.

LOGMPR (LOG of Monetary Policy Rate)

The coefficient of LOGMPR is -8.8517 with a p-value of 0.2562, the coefficient is negative and statistically insignificant at the 1%, 5% and 10% critical p-values, which

implies that LOGMPR does not impact the model. The coefficient with the value of -8.8517 represents the absolute change in gross domestic product growth for a 1% increase in monetary policy rate, a 1% increase in monetary rate leads to a decrease of 8.8517 units in gross domestic product growth in Nigeria in the long-run.

LOGINF (LOG of Inflation Rate)

The coefficient of LOGINF is -6.173523 with a p-value of 0.0467, the coefficient is negative and statistically significant at the 5% and 10% critical p-values, which implies that LOGINF impacts the model. The coefficient with the value of -6.173523 represents the absolute change in gross domestic product growth for a 1% increase in inflation rate, a 1% increase in inflation rate leads to a decrease of 6.173523 units in gross domestic product growth in Nigeria in the long-run.

4.7 Diagnostics Test

This test is used to check the validity, reliability and robustness of the estimated model, they help in identifying whether of the econometric model holds usually the assumptions made about the residuals in the model, they include the following;

- 1) Test for model specification error – Ramsey Reset test.
- 2) Test for heteroskedasticity- Breusch – Pagan test
- 3) Test for serial auto correlation- Breusch- Godfrey test.

- 4) Test for Normality of the Residuals – Jarque-Bera test
- 5) Cumulative sum and sun of squares test.

This test is used to check if the residuals of the model have a constant variance.

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

F-statistic	1.078271	Prob. F(16,16)	0.4410
Obs*R-squared	17.12142	Prob. Chi-Square(16)	0.3778
Scaled explained SS	3.533143	Prob. Chi-Square(16)	0.9995

Table 4.8 Breusch-Pagan Heteroskedasticity Test

Test Hypothesis:

H_0 : There is homoscedasticity

H_1 : There is no homoscedasticity

Decision rule:

If the probability value is less than critical probability value of 5% (0.05), reject H_0 , otherwise fail to reject H_0 .

From the result the p- value is 0.4410 and is greater than the critical value p-value of 0.05, this gives us enough reason to fail to reject H_0 .

Conclusion: There is homoscedasticity among the variance of the error terms.

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

F-statistic	1.009113	Prob. F(2,14)	0.3896
Obs*R-squared	4.157856	Prob. Chi-Square(2)	0.1251

Table 4.9 Breusch-Godfrey Auto-Correlation Test

This is used to check if there is a relationship or correlation amongst the residuals in the model.

Test Hypothesis:

H_0 : There is no serial auto-correlation among the error terms

H_1 : There is serial auto-correlation among the error terms

Decision rule:

If the p-value is less than critical p-value of 5% (0.05), reject H_0 , otherwise fail to reject H_0 .

From the result the p-value is 0.3896 and is greater than the critical value of 0.05, this gives us enough reason to fail to reject H_0 .

Conclusion: There is no serial auto-correlation among the error terms or residuals of the model.

4.7.1 Normality Test

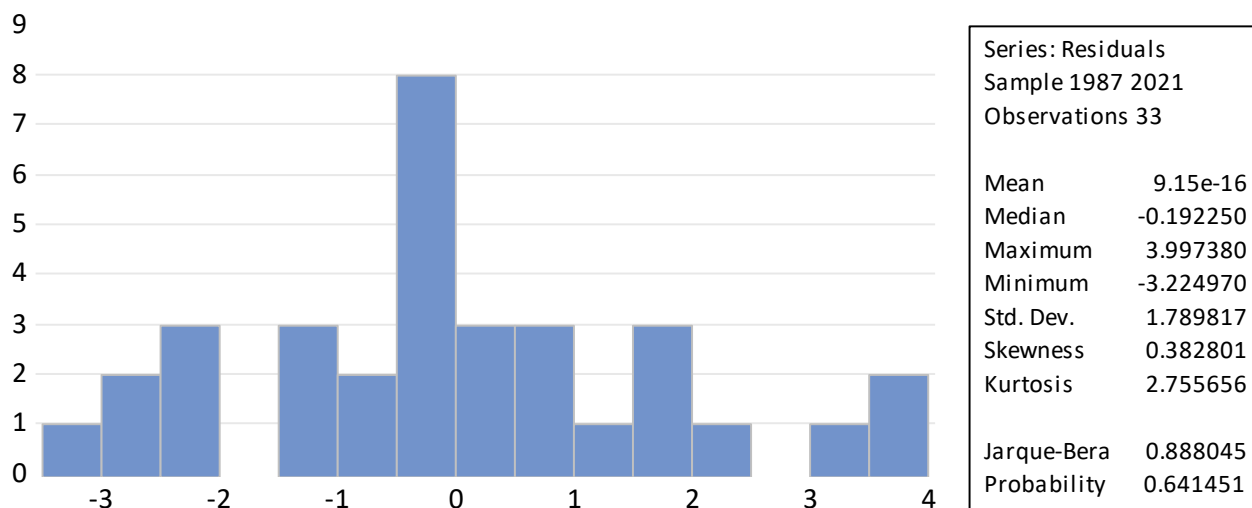


Fig. 4.1 Histogram Plot of the Residuals

Test Hypothesis:

H_0 : The residuals are normally distributed

H_1 : The residuals are not normally distributed

Decision rule:

If the p-value of the Jarque-Bera is less than critical probability value of 5% (0.05), reject H_0 , otherwise fail to reject H_0 .

From the result the p- value of Jarque-Bera is 0.641451 and is greater than the critical value of 0.05, this gives us enough reason to fail to reject H_0 .

Conclusion: The residuals are normally distributed.

4.7.2 Ramsey Reset Test

	Value	df	Probability
t-statistic	0.798584	15	0.4370
F-statistic	0.637736	(1, 15)	0.4370
Likelihood ratio	1.374013	1	0.2411

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	4.180560	1	4.180560
Restricted SSR	102.5103	16	6.406893
Unrestricted SSR	98.32972	15	6.555315

This test evaluates if there is a mis-specification of the variables or regressors used in the analysis, the Ramsey Reset test will be used to conduct this check.

Test Hypothesis

H_0 : The model is not mis-specified.

H_1 : The model is mis-specified.

Decision rule: if the research p-value is less than the critical p-value at 5% level reject the Null hypothesis, otherwise fail to reject the null hypothesis

Conclusion: From the result the p-value of the f-statistics is 0.4370 and it's greater than the critical p-value at 5%, we therefore fail to reject the Null hypothesis, which implies that the model is correctly specified.

4.7.3 Cumulative of Squares Test

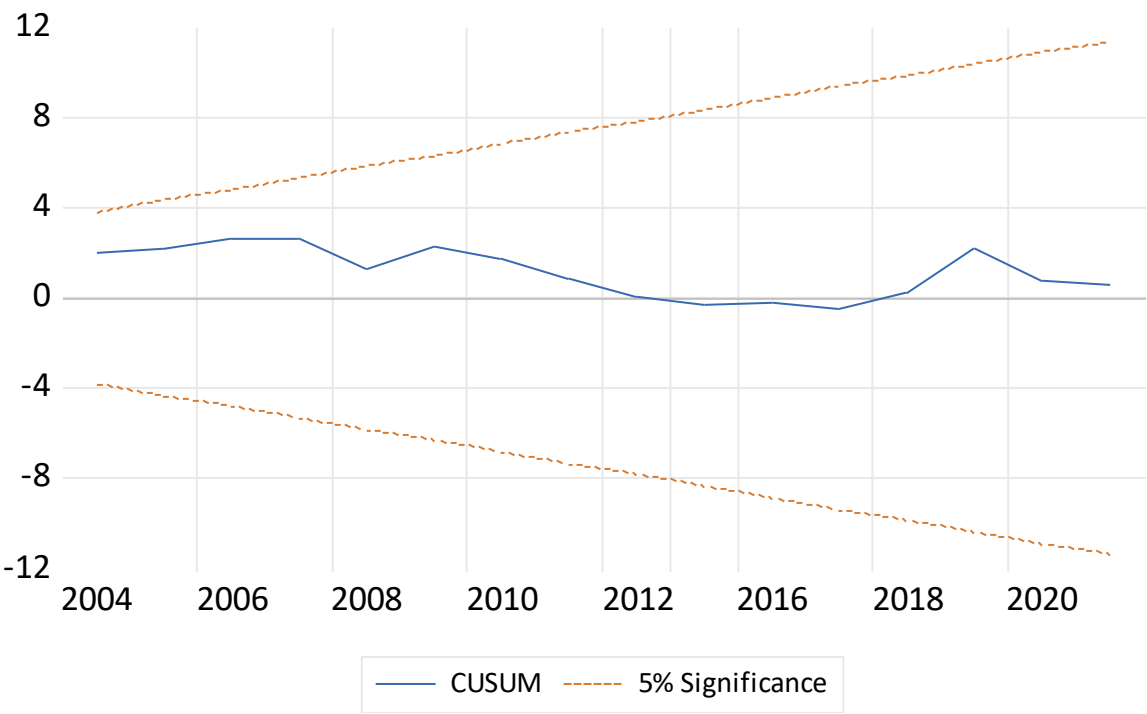


Fig. 4.2 Cumulative Sum of Squares

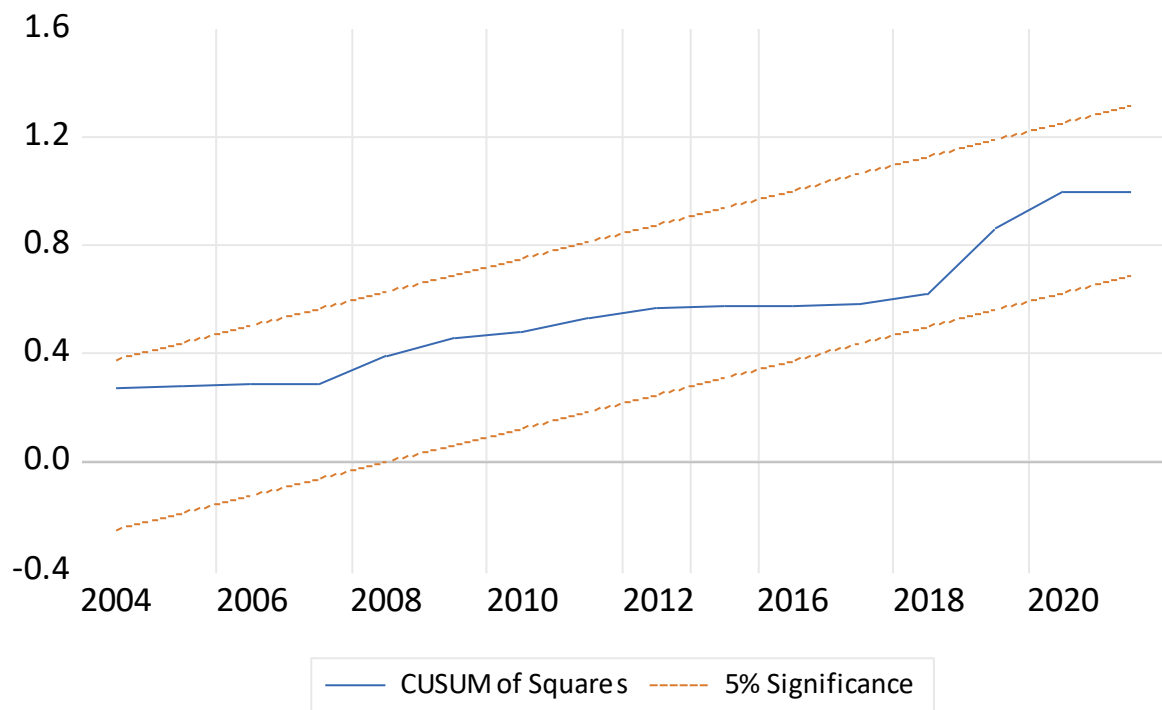


Fig. 4.3 Cumulative Sum and Sum of Squares of the Residuals

The cumulative sum and sum of squares test is a statistical method used to the stability of the parameters overtime in a regression model over time. The test is based on the cumulative sum of square of the recursive residuals, which are obtained by the estimating the regression model repeatedly, adding one observation at a time.

Decision rule: if the Cumulative sum and sum of square plot remains within the confidence band, the model is stable, otherwise it indicates structural instability.

Conclusion: The model is stable and no significant change because the model remains with the 5% critical confidence band.

4.8 Evaluation of the Research Hypotheses

The research put forward the following hypothesis;

1. There is no significant relationship between Nigerian Stock Exchange and economic growth in Nigeria.
2. All-share index have no significant impact on economic growth in Nigeria.
3. Monetary policy rate have no significant impact on economic growth in Nigeria.

Evaluation based on Empirical Findings;

- 1.) Persistent significant impact of market Capitalization: market capitalization which was used as a proxy for stock market performance has a persistent significant impact on economic growth (proxy gross domestic product growth rate), market capitalization has a persistent negative impact irrespective of time dynamics. We therefore reject the null hypothesis that the Nigerian stock exchange market has no significant impact on economic growth in the country.
- 2.) Persistent positive significant impact of all-share index: this index which tracks the movement of all listed stocks, activities of the market and generally the performance of the market has a positive impact which continues to be significant in the short and long- run. We therefore reject the null hypothesis that the

activities of the Nigerian stock exchange market has no significant impact on economic growth in the country.

- 3.) Insignificant negative impact of monetary policy rate: monetary policy rate influences investment decisions in the stock exchange market and has negative and insignificant impact in the short run. We therefore fail to reject the null hypothesis that Monetary policy rate has no significant impact on economic growth and development
- 4.) Persistent negative impact of inflation rate: inflation rate influences investment decisions in the stock exchange market through a reduction in the value of investments and remains negative and significant in both the short and long-run
- 5.) Persistent negative insignificant impact of gross fixed capital formation: this variable was utilized by the study as a control variable and remains negative and insignificant in both the short and long-run respectively.
- 6.) Persistent negative insignificant impact of foreign direct investment: this variable was utilized by the study as a control variable and remains negative and insignificant in both the short and long-run respectively.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Summary

This study examined how Nigeria's economic progress was impacted by stock exchange performance between 1985 and 2021. The study employed a number of monetary instruments, including the monetary policy rate, the inflation rate, and the addition of gross fixed capital formation as a control variable. It also used stock exchange indices, such as market capitalization and the all-share index, as proxies for economic growth and development, as well as the gross domestic product growth rate.

The study began with examining chapter one, which is the introduction. In this chapter, the study's background, problem statement, aims, research questions, research hypothesis, importance, scope, and limitations were all evaluated. The theoretical framework of the study, concepts, and empirical literatures were among the many literatures evaluated in chapter two. The theoretical basis was covered in Chapter 3. In chapter four, the data was analyzed using the multiple regression model (MRM) and the auto distributed lag error correction model (ARDL-ECM) to determine whether there was a long-term or short-term relationship between stock exchange performance and economic development in Nigeria. It also included the research design, data sources, data analysis process, and mode estimation technique.

The non-stationary series or variables in Nigeria have a long-term relationship, according to the results of the ARDL-Bounds co-integration test.

The following results are a summary of the empirical findings from a study that used the ARDL-ECM to illustrate the short- and long-term dynamics:

The market capitalization and inflation rate have a persistently negative and major short-term impact on the dependent variable that is negative and significant in the long-term, but the all-share index has a persistently positive and significant impact on the dependent variable. In the short term, the monetary policy rate has a negative but negligible effect.

Regardless of time dynamics, gross fixed capital formation and foreign direct investment consistently have a negative and negligible impact on Nigeria's economic development.

5.2 Conclusion

An effective stock system that easily makes available the funding required for the development and growth of these crucial sectors in the economy allows capital investments in health, food production through agriculture, and education—all of which account for human capital investments—to be adequately realized. The study provides enough evidence to validate the critical role the Nigerian stock market plays in accelerating growth and development in the nation.

Therefore, it is necessary to accelerate the growth of the stock exchange through improved government policy, financial intermediary efficiency, and capital and money market efficiency.

5.3 Suggestions

The study's conclusions and policy recommendations are as follows:

1. Boosting the stock market (AS: favorable and noteworthy effect)

Regardless of temporal dynamics, the all-share index, which monitors the entire price movement of all listed stocks on a stock exchange and indicates whether the stock exchange is increasing in value over time, has a consistent positive impact on economic growth.

2. Policymakers should concentrate on deepening the stock market since actions like raising investor confidence, improving market liquidity, and raising financial literacy will encourage greater investments in stocks and so boost economic growth.

Second, addressing inflationary pressures (inflation's detrimental and substantial effects)

Inflation (INF) has a considerable and ongoing negative impact on GDP growth, which implies that high inflation is bad for economic growth. In order to contain inflation without impeding growth, the Central Bank of Nigeria (CBN) ought to

implement a balanced monetary policy. Sustainable inflation control can be achieved through structural measures like raising agricultural productivity, balancing exchange rates, and lowering reliance on imports.

3. The unexpected negative and significant impact of market capitalization (MC) on GDP growth raises questions about whether an expanding stock market is actually contributing to economic growth. MC is a measure of the total monetary value of all outstanding shares in a stock market or a single company. This could be a sign of problems like speculative investments, inefficient use of capital, or poor corporate governance. The main goal of policy should be to make sure that solid economic fundamentals, not speculative activity, are what propel market capitalization expansion. The effectiveness of capital allocation can be increased by promoting more listings of profitable businesses and ensuring financial reporting openness.

4. Modifying Investment Plans (GFCF: Adverse & Minimal Effect)

GDP growth is negatively but negligibly impacted by Gross Fixed Capital Formation (GFCF), which is a measure of investments in physical infrastructure. This could be due to corruption in project funding, inefficient capital projects, or poorly executed infrastructure. It is imperative for policymakers to guarantee that capital investments are directed towards productive industries like manufacturing,

technology, and energy. The efficacy of GFCF can be increased by fortifying public-private partnerships (PPPs) and enhancing capital expenditure governance.

5. Strengthening Foreign Direct Investment's Role (FDI: Mixed Effects)

Foreign investments may not instantly contribute to economic growth since they have a negative and negligible short-term impact but a positive and negligible long-term impact. This might be the result of foreign companies repatriating their profits or FDI inflows that focus on unproductive industries. Instead than concentrating on consumption-based industries, policies should aim to draw foreign direct investment (FDI) into important growth areas like manufacturing, technology, and agriculture. Maximizing the long-term advantages of foreign direct investment can be achieved by offering incentives for reinvesting revenues within Nigeria.

6. Controlling Interest Rates to Encourage Growth (MPR-Disastrous & Negative Effect)

Frequent rate hikes may not be an effective short-term boost to GDP growth, as seen by the short-term negative and negligible impact of the Monetary Policy Rate (MPR). Policymakers should adopt complementary measures like infrastructure finance and targeted lending support for SMEs rather than depending just on interest rate changes. Economic productivity and capital

accessibility can be increased by ensuring that commercial banks transfer the advantages of reduced interest rates to the private sector.

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APPENDIX

Descriptive statistics

	GDPG	LOGAS	LOGMC	LOGGFCF	LOGFDI	LOGINF	LOGMPR
Mean	4.166662	8.766366	6.542297	24.75796	-0.151297	2.685012	2.570370
Median	4.212993	9.506978	6.720216	24.75076	-0.180031	2.542080	2.602690
Maximum	15.32916	10.82824	9.953234	25.09515	1.064797	4.288204	3.258097
Minimum	-2.035119	4.764593	1.624410	24.39251	-1.986651	1.684176	1.791759
Std. Dev.	3.893868	1.918152	2.733085	0.181600	0.856071	0.700754	0.286989
Skewness	0.506330	-0.862142	-0.420199	-0.109515	-0.452138	0.909988	-0.511537
Kurtosis	3.411204	2.338845	1.763738	2.263858	2.229863	2.911498	4.395937
Jarque-Bera	1.791852	5.115418	3.351920	0.884817	2.116240	4.980214	4.492979
Probability	0.408229	0.077482	0.187128	0.642487	0.347108	0.082901	0.105770
Sum	149.9998	315.5892	235.5227	891.2865	-5.446697	96.66045	92.53332
Sum Sq. Dev.	530.6772	128.7758	261.4415	1.154247	25.64999	17.18698	2.882694
Observations	36	36	36	36	36	36	36

Covariance analysis

	GDPG	LOGAS	LOGMC	LOGGFCF	LOGFDI	LOGINF	LOGMPR
GDPG	1	0.12109730...	0.06979110...	-0.1095248...	0.05418575...	-0.2682603...	-0.1812634...
LOGAS	0.12109730...	1	0.97260789...	0.81497736...	-0.0209936...	-0.2568724...	-0.2868265...
LOGMC	0.06979110...	0.97260789...	1	0.83750831...	-0.1723730...	-0.2710611...	-0.3546647...
LOGG...	-0.1095248...	0.81497736...	0.83750831...	1	-0.0803421...	-0.2826941...	-0.2068580...
LOGFDI	0.05418575...	-0.0209936...	-0.1723730...	-0.0803421...	1	-0.0145418...	0.42444085...
LOGINF	-0.2682603...	-0.2568724...	-0.2710611...	-0.2826941...	-0.0145418...	1	0.35905294...
LOGMPR	-0.1812634...	-0.2868265...	-0.3546647...	-0.2068580...	0.42444085...	0.35905294...	1

ECM Short Run Estimate

ARDL Error Correction Regression

Dependent Variable: D(GDPG)

Selected Model: ARDL(2, 2, 1, 1, 1, 2, 0)

Case 5: Unrestricted Constant and Unrestricted Trend

Date: 03/13/25 Time: 16:28

Sample: 1985 2021

Included observations: 33

ECM Regression				
Case 5: Unrestricted Constant and Unrestricted Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	526.8958	71.40271	7.379213	0.0000
@TREND	0.852468	0.120855	7.053659	0.0000
D(GDPG(-1))	-0.241418	0.101517	-2.378108	0.0302
D(LOGAS)	7.520867	1.941186	3.874368	0.0013
D(LOGAS(-1))	4.621810	1.763685	2.620541	0.0185
D(LOGMC)	-3.423358	1.384233	-2.473107	0.0250
D(LOGGFCF)	-1.047930	4.159614	-0.251930	0.8043
D(LOGFDI)	0.966889	0.759514	1.273036	0.2212
D(LOGINF)	-2.147686	0.749859	-2.864120	0.0112
D(LOGINF(-1))	2.550876	0.637075	4.004043	0.0010
CointEq(-1)*	-0.591097	0.079859	-7.401797	0.0000
R-squared	0.842937	Mean dependent var		0.045654
Adjusted R-squared	0.771544	S.D. dependent var		4.516181
S.E. of regression	2.158601	Akaike info criterion		4.637999
Sum squared resid	102.5103	Schwarz criterion		5.136835
Log likelihood	-65.52699	Hannan-Quinn criter.		4.805842
F-statistic	11.80709	Durbin-Watson stat		2.393114
Prob(F-statistic)	0.000001			

* p-value incompatible with t-Bounds distribution.

ECM Long run

ARDL Long Run Form and Bounds Test

Dependent Variable: D(GDPG)

Selected Model: ARDL(2, 2, 1, 1, 1, 2, 0)

Case 5: Unrestricted Constant and Unrestricted Trend

Date: 03/13/25 Time: 16:31

Sample: 1985 2021

Included observations: 33

Conditional Error Correction Regression				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	526.8958	256.5714	2.053603	0.0567
@TREND	0.852468	0.387152	2.201895	0.0427
GDPG(-1)*	-0.591097	0.188920	-3.128826	0.0065
LOGAS(-1)	7.490889	3.079249	2.432700	0.0271
LOGMC(-1)	-7.363303	2.774253	-2.654157	0.0173
LOGGFCF(-1)	-21.64650	10.46535	-2.068397	0.0552
LOGFDI(-1)	-1.287352	1.731116	-0.743654	0.4679
LOGINF(-1)	-3.649153	1.408527	-2.590758	0.0197
LOGMPR**	-5.232230	3.553262	-1.472515	0.1603
D(GDPG(-1))	-0.241418	0.145406	-1.660294	0.1163
D(LOGAS)	7.520867	2.686187	2.799830	0.0128
D(LOGAS(-1))	4.621810	2.521615	1.832877	0.0855
D(LOGMC)	-3.423358	2.158292	-1.586142	0.1323
D(LOGGFCF)	-1.047930	8.269678	-0.126720	0.9007
D(LOGFDI)	0.966889	1.123367	0.860706	0.4021
D(LOGINF)	-2.147686	1.426476	-1.505588	0.1517
D(LOGINF(-1))	2.550876	1.386191	1.840205	0.0844

* p-value incompatible with t-Bounds distribution.

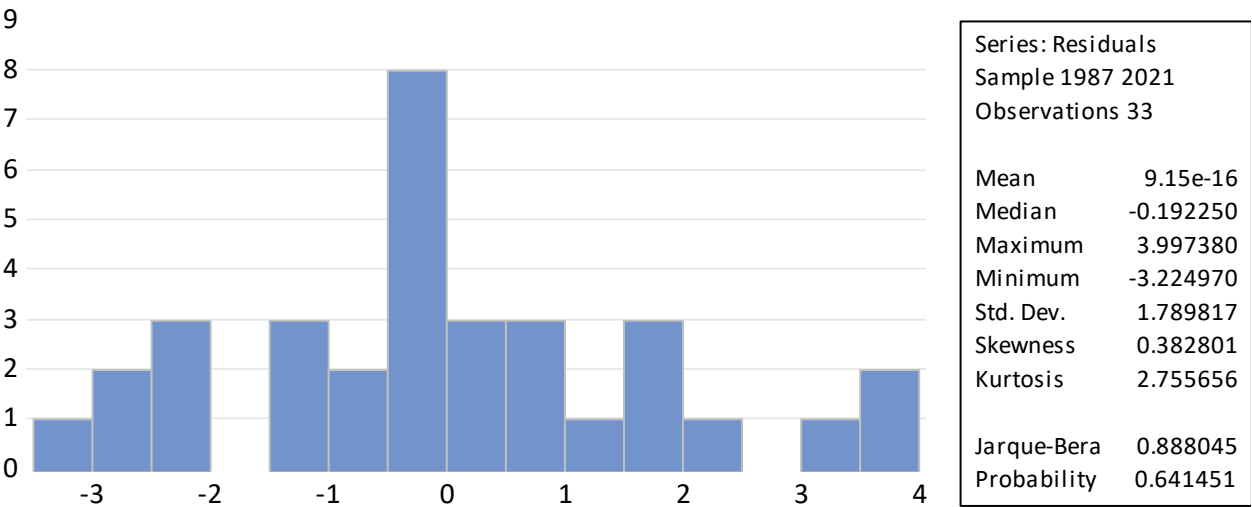
** Variable interpreted as $Z = Z(-1) + D(Z)$.

Levels Equation				
Case 5: Unrestricted Constant and Unrestricted Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGAS	12.67285	6.234347	2.032747	0.0590
LOGMC	-12.45701	6.703405	-1.858310	0.0816
LOGGFCF	-36.62088	21.66294	-1.690485	0.1103
LOGFDI	-2.177902	2.773874	-0.785148	0.4438
LOGINF	-6.173523	2.863922	-2.155618	0.0467
LOGMPR	-8.851724	7.517801	-1.177435	0.2562

EC = GDPG - (12.6729*LOGAS -12.4570*LOGMC -36.6209*LOGGFCF -2.1779*LOGFDI -6.1735*LOGINF -8.8517*LOGMPR)

Diagnostics test

Normality test



Heteroskedasticity

Heteroskedasticity Test: Breusch-Pagan-Godfrey

Null hypothesis: Homoskedasticity

F-statistic	1.078271	Prob. F(16,16)	0.4410
Obs*R-squared	17.12142	Prob. Chi-Square(16)	0.3778
Scaled explained SS	3.533143	Prob. Chi-Square(16)	0.9995

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 03/13/25 Time: 16:35

Sample: 1987 2021

Included observations: 33

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	49.86637	415.6268	0.119979	0.9060
GDPG(-1)	-0.130876	0.258110	-0.507053	0.6190
GDPG(-2)	-0.293743	0.235548	-1.247065	0.2303
LOGAS	3.511161	4.351425	0.806899	0.4316
LOGAS(-1)	3.587380	5.920174	0.605959	0.5530
LOGAS(-2)	0.454398	4.084832	0.111240	0.9128
LOGMC	-3.942218	3.496275	-1.127548	0.2761
LOGMC(-1)	-1.241928	3.434092	-0.361647	0.7223
LOGGFCF	-4.955946	13.39627	-0.369950	0.7163
LOGGFCF(-1)	0.918079	11.19599	0.082001	0.9357
LOGFDI	-2.195450	1.819772	-1.206443	0.2452
LOGFDI(-1)	-3.924005	2.421936	-1.620193	0.1247
LOGINF	-0.215136	2.310787	-0.093101	0.9270
LOGINF(-1)	-2.332535	2.632774	-0.885961	0.3888
LOGINF(-2)	0.567623	2.245528	0.252779	0.8037
LOGMPR	10.29105	5.756024	1.787875	0.0927
@TREND	0.039287	0.627158	0.062643	0.9508

R-squared	0.518831	Mean dependent var	3.106372
Adjusted R-squared	0.037662	S.D. dependent var	4.179797
S.E. of regression	4.100332	Akaike info criterion	5.966397
Sum squared resid	269.0036	Schwarz criterion	6.737325
Log likelihood	-81.44555	Hannan-Quinn criter.	6.225791
F-statistic	1.078271	Durbin-Watson stat	2.441251
Prob(F-statistic)	0.441027		

Auto correlation

Breusch-Godfrey Serial Correlation LM Test:

Null hypothesis: No serial correlation at up to 2 lags

F-statistic	1.009113	Prob. F(2,14)	0.3896
Obs*R-squared	4.157856	Prob. Chi-Square(2)	0.1251

Test Equation:

Dependent Variable: RESID

Method: ARDL

Date: 03/13/25 Time: 16:34

Sample: 1987 2021

Included observations: 33

Presample and interior missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDPG(-1)	0.173395	0.203462	0.852222	0.4084
GDPG(-2)	0.051982	0.188697	0.275478	0.7870
LOGAS	0.392829	2.818828	0.139359	0.8912
LOGAS(-1)	0.106018	3.677587	0.028828	0.9774
LOGAS(-2)	-0.864630	2.700661	-0.320155	0.7536
LOGMC	-1.213192	2.374381	-0.510951	0.6173
LOGMC(-1)	0.689988	2.234266	0.308821	0.7620
LOGGFCF	-3.337353	8.757978	-0.381064	0.7089
LOGGFCF(-1)	-0.783999	7.438687	-0.105395	0.9176
LOGFDI	0.973725	1.333901	0.729983	0.4774
LOGFDI(-1)	-0.090081	1.496596	-0.060191	0.9529
LOGINF	0.076990	1.427318	0.053940	0.9577
LOGINF(-1)	0.353793	1.643382	0.215283	0.8327
LOGINF(-2)	-0.178757	1.394788	-0.128160	0.8998
LOGMPR	-0.523984	3.684021	-0.142232	0.8889
C	103.5261	267.8434	0.386517	0.7049
@TREND	0.277137	0.477288	0.580649	0.5707
RESID(-1)	-0.510687	0.368427	-1.386128	0.1874
RESID(-2)	-0.354602	0.438844	-0.808037	0.4326

R-squared	0.125996	Mean dependent var	9.15E-16
Adjusted R-squared	-0.997724	S.D. dependent var	1.789817
S.E. of regression	2.529744	Akaike info criterion	4.988178
Sum squared resid	89.59443	Schwarz criterion	5.849803
Log likelihood	-63.30493	Hannan-Quinn criter.	5.278089
F-statistic	0.112124	Durbin-Watson stat	2.099704
Prob(F-statistic)	0.999980		

RAMSEY RESET TEST

Ramsey RESET Test

Equation: UNTITLED

Omitted Variables: Squares of fitted values

Specification: GDPG GDPG(-1) GDPG(-2) LOGAS LOGAS(-1) LOGAS(-2)

LOGMC LOGMC(-1) LOGGFCF LOGGFCF(-1) LOGFDI LOGFDI(-1)

LOGINF LOGINF(-1) LOGINF(-2) LOGMPR C @TREND

	Value	df	Probability
t-statistic	0.798584	15	0.4370
F-statistic	0.637736	(1, 15)	0.4370
Likelihood ratio	1.374013	1	0.2411

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	4.180560	1	4.180560
Restricted SSR	102.5103	16	6.406893
Unrestricted SSR	98.32972	15	6.555315

LR test summary:

	Value
Restricted LogL	-65.52699
Unrestricted LogL	-64.83998

Unrestricted Test Equation:

Dependent Variable: GDPG

Method: Least Squares

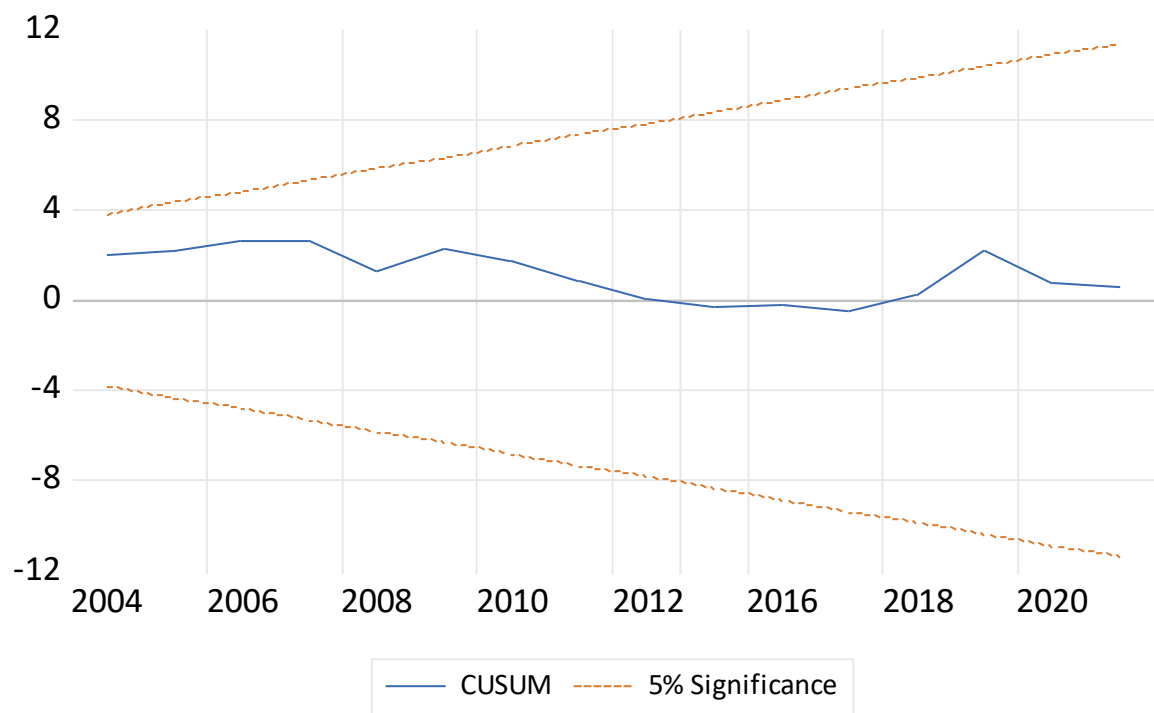
Date: 03/13/25 Time: 16:38

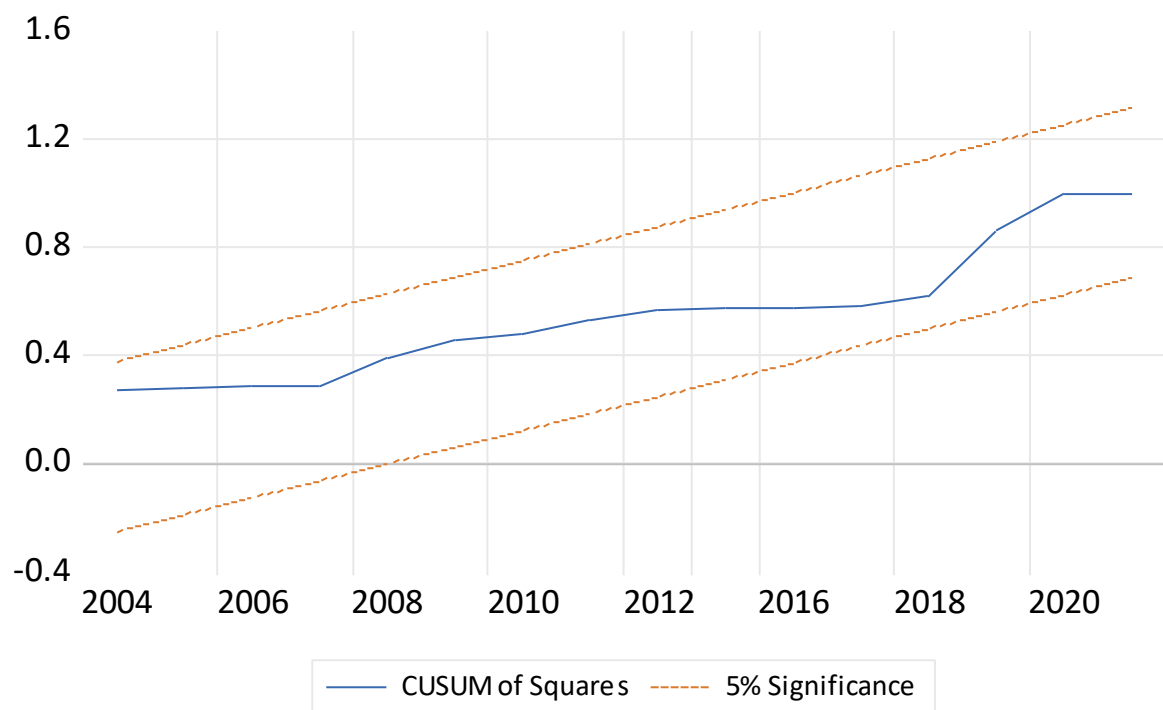
Sample: 1987 2021

Included observations: 33

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDPG(-1)	0.102999	0.180267	0.571372	0.5762
GDPG(-2)	0.165839	0.174899	0.948197	0.3581
LOGAS	5.403213	3.796655	1.423151	0.1752
LOGAS(-1)	2.747926	4.358533	0.630470	0.5379
LOGAS(-2)	-3.067345	3.208553	-0.955990	0.3542
LOGMC	-2.034300	2.791353	-0.728786	0.4774
LOGMC(-1)	-2.782891	2.587928	-1.075336	0.2992
LOGGFCF	-0.398805	8.404318	-0.047452	0.9628
LOGGFCF(-1)	-15.09203	9.819404	-1.536959	0.1451
LOGFDI	0.662001	1.198727	0.552254	0.5889
LOGFDI(-1)	-1.684508	1.672142	-1.007395	0.3297
LOGINF	-1.740946	1.530159	-1.137755	0.2731
LOGINF(-1)	0.682169	1.707068	0.399614	0.6951
LOGINF(-2)	-1.896669	1.623928	-1.167951	0.2611
LOGMPR	-3.952488	3.935252	-1.004380	0.3311
C	379.9188	318.1622	1.194104	0.2510
@TREND	0.530386	0.562160	0.943480	0.3604
FITTED^2	0.026358	0.033007	0.798584	0.4370
R-squared	0.805740	Mean dependent var	4.173216	
Adjusted R-squared	0.585579	S.D. dependent var	3.977187	
S.E. of regression	2.560335	Akaike info criterion	5.020605	
Sum squared resid	98.32972	Schwarz criterion	5.836882	
Log likelihood	-64.83998	Hannan-Quinn criter.	5.295257	
F-statistic	3.659776	Durbin-Watson stat	2.391905	
Prob(F-statistic)	0.007573			

CUSUM TEST





Unit root test

Null Hypothesis: GDPG has a unit root

Exogenous: Constant

Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-4.131268	0.0027
Test critical values:		
1% level	-3.626784	
5% level	-2.945842	
10% level	-2.611531	

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

Null Hypothesis: D(GDPG) has a unit root
Exogenous: Constant
Bandwidth: 13 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-14.93622	0.0000
Test critical values: 1% level	-3.632900	
5% level	-2.948404	
10% level	-2.612874	

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

Null Hypothesis: LOGFDI has a unit root
Exogenous: Constant
Bandwidth: 4 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-3.215421	0.0277
Test critical values: 1% level	-3.639407	
5% level	-2.951125	
10% level	-2.614300	

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

Null Hypothesis: D(LOGFDI) has a unit root
Exogenous: Constant
Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-8.649294	0.0000
Test critical values: 1% level	-3.653730	
5% level	-2.957110	
10% level	-2.617434	

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

Null Hypothesis: LOGGFCF has a unit root
Exogenous: Constant
Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-1.911818	0.3234
Test critical values: 1% level	-3.626784	
5% level	-2.945842	
10% level	-2.611531	

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

Null Hypothesis: D(LOGGFCF) has a unit root
Exogenous: Constant
Bandwidth: 4 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-10.31152	0.0000
Test critical values: 1% level	-3.632900	
5% level	-2.948404	
10% level	-2.612874	

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

Null Hypothesis: LOGINF has a unit root
Exogenous: Constant
Bandwidth: 4 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-3.033617	0.0412
Test critical values: 1% level	-3.626784	
5% level	-2.945842	
10% level	-2.611531	

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

Null Hypothesis: D(LOGINF) has a unit root
 Exogenous: Constant
 Bandwidth: 21 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-6.718269	0.0000
Test critical values: 1% level	-3.632900	
5% level	-2.948404	
10% level	-2.612874	

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

Null Hypothesis: LOGMPR has a unit root
 Exogenous: Constant
 Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-2.841822	0.0625
Test critical values: 1% level	-3.626784	
5% level	-2.945842	
10% level	-2.611531	

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

Null Hypothesis: D(LOGMPR) has a unit root
 Exogenous: Constant
 Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-7.277805	0.0000
Test critical values: 1% level	-3.632900	
5% level	-2.948404	
10% level	-2.612874	

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

Null Hypothesis: LOGMC has a unit root
 Exogenous: Constant
 Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-1.776579	0.3857
Test critical values: 1% level	-3.626784	
5% level	-2.945842	
10% level	-2.611531	

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

Null Hypothesis: D(LOGMC) has a unit root
 Exogenous: Constant
 Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-6.952824	0.0000
Test critical values: 1% level	-3.632900	
5% level	-2.948404	
10% level	-2.612874	

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

Null Hypothesis: LOGAS has a unit root
 Exogenous: Constant
 Bandwidth: 5 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-3.011166	0.0433
Test critical values: 1% level	-3.626784	
5% level	-2.945842	
10% level	-2.611531	

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

Null Hypothesis: D(LOGAS) has a unit root
Exogenous: Constant
Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-4.146234	0.0026
Test critical values:		
1% level	-3.632900	
5% level	-2.948404	
10% level	-2.612874	

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

Co-integration test

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	5.692115	10%	2.53	3.59
k	6	5%	2.87	4
		2.5%	3.19	4.38
		1%	3.6	4.9

Year	AS	GFCF	mc	GDPG	MPR	INF	FDI
1985	165.4167	4.17E+10	5.075425	5.91	10.00	7.44	2.44
1986	165.5	4.18E+10	6.483303	0.06	10.00	5.72	0.24
1987	165.5833	3.92E+10	7.656053	3.20	12.75	11.29	0.27
1988	165.6667	4.18E+10	9.122711	7.33	12.75	54.51	0.23
1989	165.75	4.46E+10	11.85165	1.92	18.50	50.47	0.14
1990	165.8333	5.07E+10	18.33378	11.78	18.50	7.36	1.70
1991	165.9167	5.01E+10	29.06415	0.36	15.50	13.01	1.65
1992	166	5.04E+10	40.28966	4.63	17.50	44.59	1.62
1993	166.0833	5.41E+10	53.18594	-2.04	26.00	57.17	1.97
1994	166.1667	5.28E+10	82.79464	-1.81	13.50	57.03	1.91
1995	166.25	4.93E+10	165.0988	-0.07	13.50	72.84	1.38

1996	166.3333	5.27E+10	257.7082	4.20	13.50	29.27	2.84
1997	166.4167	5.57E+10	330.5594	2.94	13.50	8.53	2.04
1998	166.5	5.65E+10	261.2167	2.58	13.50	10.00	2.17
1999	166.5833	5.8E+10	250.325	0.58	18.00	6.62	2.41
2000	166.6667	6.22E+10	379.7132	5.02	14.00	6.93	2.90
2001	166.75	4.75E+10	601.0541	5.92	20.50	18.87	1.64
2002	166.8333	5.23E+10	701.9417	15.33	16.50	12.88	2.13
2003	166.9167	6.35E+10	979.0498	7.35	15.00	14.03	1.52
2004	167	5.08E+10	1808.483	9.25	15.00	15.00	1.07
2005	167.0833	5.2E+10	8411.505	6.44	13.00	17.86	0.82
2006	167.1667	7.3E+10	3275.042	6.06	10.00	8.23	0.62
2007	167.25	5.71E+10	7492.047	6.59	9.50	5.39	0.85
2008	167.3333	5.56E+10	10150.19	6.76	9.75	11.58	0.64
2009	167.4167	6.11E+10	5296.368	8.04	6.00	12.54	0.18
2010	167.5	6.35E+10	6493.303	8.01	6.25	13.74	0.49
2011	167.5833	5.83E+10	7469.508	5.31	12.00	10.83	0.55
2012	167.6667	5.98E+10	7457.113	4.23	12.00	12.22	0.75
2013	167.75	6.45E+10	11546.16	6.67	12.00	8.50	-0.04
2014	167.8333	7.31E+10	12924.39	6.31	13.00	8.05	0.51
2015	167.9167	7.22E+10	10521.63	2.65	11.00	9.01	0.82
2016	168	6.87E+10	9151.608	-1.62	14.00	15.70	0.62
2017	168.0833	6.66E+10	11150.79	0.81	14.00	16.50	0.85
2018	168.1667	7.31E+10	13499.62	1.92	14.00	12.10	0.64
2019	168.25	7.92E+10	12631.03	2.21	13.50	11.40	0.18
2020	168.3333	6.75E+10	14416.22	-1.79	11.50	13.25	0.49
2021	168.4167	7.07E+10	21020.08	3.65	11.50	16.95	0.55