

FINANCIAL MARKET FRICTIONS, FOREIGN PORTFOLIO INVESTMENT AND NIGERIAN STOCK MARKET DEVELOPMENT

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Abstract: The study examines the effect of financial market frictions and foreign portfolio investment on stock market development in Nigeria from 1981 to 2023 is examined. The time series data of the variables of interest were sourced from the Central Bank of Nigeria Statistical Bulletin (2024). The error correction model and the multivariate ordinary least squares regression methods were utilized in the evaluation of the two models (Market Size and Total Value Traded) specified in the study, and the data were estimated with the aid of Eviews econometric statistical package. The study finds that transaction costs and foreign portfolio investment inflows significantly impacted stock market development in Model 1 in the short-run, whereas capital gain tax rate, dividend tax rate, foreign portfolio investment, lagged transaction cost, lagged capital gain tax, and lagged foreign portfolio investment significantly impacted stock market development in Model 2 in the short-run. In addition, capital gain tax rate significantly impacted stock market development irrespective of the measure of stock market development used in the long-run, whereas inflation rate (control variable) significantly impacted stock market development when market capitalization is used as a proxy for stock market development. Furthermore, regulation (monetary policy rate) has no significant effect on Nigeria's stock market development in both the short-run, irrespective of the stock market development measure used. This study concludes that financial market frictions and foreign portfolio investment variables considered in the model are significant determinants of stock market development in Nigeria. We recommend that operators and investors in the stock market should use FinTech to reduce market transaction costs, reduce the present 10% capital gain tax rate and dividend tax rate to 5%, and implement policies that encourage foreign portfolio investment inflow into Nigeria.

Keywords: Financial market frictions, foreign portfolio investment, inflation rate, market capitalization

JEL classification codes: G1, G11, G14, and G18.

INTRODUCTION

The financial market provides a mechanism through which funds are mobilized, transferred, and allocated for productivity. Nigeria's financial sector has undergone significant structural changes since 1986 in the different

segments that make up its financial system - the money market, capital market, foreign exchange market- in view of the importance of financial sector reform to boost financial development, which in turn stimulates economic growth (Adeleye, Osabuohien, Bowale, Matthew & Oduntan, 2018). The stock market, which is a subset of the capital market, is the economic face of any country. It is a platform where securities such as common shares, preference shares, and bonds, are bought and sold. It is also a source of corporate entities' raising equity financing from the public. Therefore, stock markets play a key role in the development of the economy (Aigbovo & Omoruyi-Aigbovo, 2015). Stock market development is influenced by many factors. These factors may be classified into domestic and foreign factors.

Financial markets in developing economies, such as Nigeria, face many constraints that investors consider for optimal investment yield. Assets that investors or participants in the financial markets hold are constrained by different forms of market frictions in most financial markets around the world, which affect the development of the market (Ogbeide & Osamwonyi, 2021). Frictions in the financial markets make trading expensive and deter investment in financial assets. Financial market friction is anything that prevents the efficient execution of deals. It could be used to describe any element that influences the investor's decision. It could be anything from a lack of or misinformation about a product or the process to gain exposure to it, to the various legislative and legal hurdles and/or taxes imposed on transactions, to tedious activities such as waiting in line to conduct a transaction, all of which could influence an investor's decision (DeGennaro & Robotti, 2007).

Foreign investors are now significant players in developing stock markets. It is maintained that foreign portfolio investment inflows boost investor engagement and have a longer-term effect on stock market development than the early benefits. Because foreign portfolio investment flows are associated with institutional and regulatory reforms, adequate disclosure and listing requirements, and fair-trading practices, this increase in information and operational efficiency is often expected to inspire greater confidence in the domestic stock market (Miller, 1991). Foreign portfolio investment involves foreign investors owning financial assets or companies' securities in a country other than their own country (Akinmulegun, 2011; Akinmulegun, 2018).

In general, it is anticipated that inflows of foreign portfolio investment will boost the stock market's efficiency and liquidity, leading to its expansion and advancement. As the stock market becomes more liquid and developed, a wide range of investment portfolios can be financed, and new enterprises have a greater chance of receiving start-up capital. This provides avenues for raising the long-term financing needs of businesses through equity and long-term debt by attracting investors with a long-term investment horizon. Consequently, this enhances domestic investment and fills the gap (deficit) between current aggregate savings and the level of savings required to provide funds for business investment (Damkor, & Akighir, 2024).

Previous studies have also focused on the effect of frictions on different economic aggregates. For instance, Amihud and Mendelson, (1986) and Hou and Moskowitz, (2002) focused on the effect of frictions on stock returns; Abudu (2018) focused on the effect of financial market frictions on portfolio investment decisions and individual firms' performance. Idolor, Oshadare and Izedonmi, (2020) focused on the effect of frictions on stock market performance. Ikponmwosa and Edo-Osagie, (2021) focused on the effect of frictions on stock market efficiency, while Aigbovo and Isibor, (2023) focused on the effect of frictions on stock market trading. To the best of the researcher's knowledge, the impact of frictions on stock market development has not been considered in any of the earlier studies conducted in Nigeria.

To measure the size and liquidity of stock market development, this study also uses two indicators of stock market development: stock market capitalization and total exchanged stock market value. The use of these two stock market development measures would in no doubt give clearer and robust results and provide strong basis for comparative analysis between the two measures, which will greatly improve on past studies that utilized one indicator of stock market development. Considering this, the goal of this study is to close the literature gaps by examining how financial market frictions affect the Nigerian stock market's development.

The following research questions were addressed in this study:

- i. How do transaction cost impact Nigerian stock market development?
- ii. What impact does Nigeria's capital gains tax have on stock market development?
- iii. How much does Nigeria's stock market development depend on dividend tax?
- iv. How has the Monetary Policy Rate regulation affected Nigerian stock market development?
- v. What impact does an influx of foreign portfolio investments have on Nigeria's stock market development?

The main goal of this study is to examining how foreign portfolio investment and financial market frictions affect Nigeria's stock market development. The specific objectives are as follows:

- i. Assess the impact of transaction costs on Nigeria's stock market development;
- ii. Investigate the impact of the capital gains tax rate on stock market development in Nigeria;
- iii. Ascertain the impact of the dividend tax rate on Nigeria's stock market development;
- iv. Ascertain the impact of the MPR on stock market development in Nigeria; and
- v. Assess the impact of foreign portfolio investment inflows on stock market development in Nigeria.

LITERATURE REVIEW

Conceptual Review

This section presents various topics that are relevant to this study. Key concepts are defined of Stock market concept and stock market development.

Stock markets are a component of capital markets. Capital markets specialize in transactions with medium- and long-term financial assets, unlike the money market, which provides solutions for refinancing through short- and medium-term capital (Mihajlovic, 2016). The stock market, which serves as the focal point for all capital market activity, falls within the broad category of the capital market. According to Alile and Anao (1984), the stock market serves as the center of gravity for all capital market activities. Therefore, without the stock market's facilities, it is doubtful that the capital market can efficiently perform its expected role of resource mobilization (Ologunde, Elumilade & Asaolu, 2006). The stock market is considered a vital element in the mobilization and allocation of resources in any modern economy.

The stock market can be defined as a collection of exchanges and other venues where publicly traded companies' shares are bought, sold, and issued (Shah, Isha, & Zulkernine, 2019). Such financial activities are conducted through institutionalized formal exchanges, which could be physical, electronic, or OTC marketplaces that follow the rules (Shah, et, *al.*, 2019). Wagner and Ramalli (2020) posit that the terms 'stock market' and 'stock exchange' are frequently used interchangeably, with the stock exchange being considered a subset of the stock market. The stock market allows buyers and sellers of securities to interact and transact. Wagner and Ramalli (2020) further posits, that the stock markets serve as a platform for price discovery and an overall economy barometer. In a nutshell, stock markets offer a safe and controlled environment in which

market participants can confidently transact in shares and other adequate financial instruments with zero to low operational risk (Fufa & Kim, 2018). The stock markets function as primary and secondary markets. The primary market enables firms to issue and sell their shares for the first time through an initial public offering (IPO). Investors buy and sell existing securities in the secondary market (Fufa & Kim, 2018).

Financial Market Frictions

According to Stoll (2000), financial market frictions, are elements that gauge the difficulty of trading an item on a financial market, as measured by a fee or a period of time. In addition, he said that taxes and transaction fees are evident examples of market frictions because they indisputably influence almost every transaction. DeGennaro and Robotti (2007) defined financial markets frictions through the prism of the capital asset pricing model (CAPM) as anything that interferes with trade. Taxes, capital gain tax and transaction costs interfere with trade. Hall (2010) posits that financial friction is a gap between the returns received by financial capital suppliers, who are ultimately consumers, and firm's consumers' cost of capital. Poyry (2014) describes market imperfections as market characteristics that run counter to the hypothesis of efficient market. He compares them to frictions. According to Andler (2014), friction is any barrier, obstruction, or restriction that hinders the efficient operation of markets and the economy. In this study, our focus is on how friction occurs in stock. Financial specialists develop an interest in Market frictions because they predispose traders to unwanted or unbearable risk. Olbrys and Majewska (2014) see financial frictions as several disorders in the buying and selling processes. Akinlo, (2019) viewed frictions as barriers, hindrances, or constraints that prevent efficient functioning, of markets and economies. Azam and Raza (2020) posit that frictions include regulations, funding constraints, asymmetric information, and transaction costs. Azam, and Raza (2020) identified other variants of financial market frictions, including funding illiquidity, market illiquidity and trading structure. Market structure is the market's composition in terms of when it opens and closes, market type, price discovery, and order forms.

The three main reasons why financial markets frictions matters according to DeGennaro and Robotti (2007) are: they generate real costs for investors, produce business opportunities, and can change and do vary with time. The preference to receive or postpone capital gains or losses has great value on transaction costs. In addition, the option's precise value, including the equivalent optimal buy and sell strategy, depends on factors such as transaction costs, capital gains tax rate, and asset volatility (Constantinides, 1984). One of the costs of financial market friction is that it affects asset prices through financial market dislocation, either positively or negatively, depending on who is on the gaining or losing end of the financial market. Financial market dislocation occurs when markets that are working under stressful conditions show increasing asset mispricing. These markets cease to price assets appropriately on an exact basis and in relation to other assets (Paolo, 2014). Financial market frictions pressure market participants to take unbearable risk because it generates costs that can influence the stock market's development. Financial market frictions have reduced market depth, increased transaction costs, and reduced investor confidence (Uhunmwangho & Ogieva, 2021).

Foreign Portfolio Investment (FPI)

In 1993, the International Monetary Fund defined foreign portfolio investment (FPI) as equity and debt securities, including country funds, depository receipts, and direct purchases by foreign investors with less than 10% control. Additionally, FPI is a cross-border investment in securities with the goal of making money rather than management or legal control. The composition of investments in a portfolio depends on several factors, including the investor's investment horizon, liquidity preference, risk tolerance, and selection of an efficient

portfolio. Edo (2011) defined foreign portfolio investment (FPI) as money invested by foreigners in the local stock market (i.e; investment by foreigners in financial securities). This type of investment mostly enters the stock market and increases the overall amount of capital available there. However, this type of investment is more volatile than FDI. Onyeisi, Odo, and Anoke (2016) defined portfolio investment as a wide range of asset classes, such as stocks, government bonds, corporate bonds, treasurer bills, real estate investment trusts, exchange- traded funds, mutual funds, and certificates of deposit. It also includes options, warrants and other derivatives, such as futures, and physical investments, such as commodities, real estate, land and timber. Foreign Portfolio Investment (FPI) is a passive investment in the securities of another country, such as stocks or bonds or equity and debt transactions, which do not offer the investor optimum control over the enterprise's operation (Ajayi, Adejayan & Obalade, 2017). They also emphasized that foreign portfolio investment is the exchange of financial assets by residential individuals, businesses, and institutions of one country with securities in another, either directly in the companies' assets or indirectly through financial markets.

Acquisition of assets in a domestic stock/market by a foreign national or company is known as FPI. Foreign people holding transferrable securities (issued or guaranteed by the importing country's government) and, money market products, such as bonds, promissory notes, debentures, and equity shares, issued on a local market. Treasury bills, commercial papers, bankers' acceptances, and negotiable certificates of deposits are examples of money market instruments (Obadan, 2017). FPI inflows and outflows are two significant difficulties in FPI. Inflows comprise purchases made on the Nation's Stock Exchange, whereas outflows include sales or liquidation of portfolio investments through the stock market.

Theoretical Review

Trading cost theory

This theory, as originated by Amihud and Mendelson (1986), looks at the trading costs that result from trading a stock. Real markets experience frictions that affect trading and asset prices; hence, these frictions should be incorporated when determining asset prices. In their study on how transaction costs affect stock prices, the researchers concluded that stocks with larger bid-ask spreads had higher returns. In addition, they established that trade-associated costs can either increase or decrease because of variations in transactional cost time. Transaction costs cause the market to be segmented, as short-term investors hold more liquid stocks than long-term investors. However, although most investors have the option to avoid stocks with higher transaction costs, Amihud and Mendelson (1986) found that the expected stock return has a positive concave relationship with transaction costs. Additionally, investors who hold their stocks for longer periods can get a premium as a result of illiquidity that exceeds the expected transaction costs through holdings tocks with higher spreads (Amihud, Mendelson, & Pedersen, 2005). In Comparison to investors who hold stocks for a long period, investors who hold stocks for shorter periods are, more vulnerable to costs because of transacting more frequently. For long-term investors, transaction costs can be depreciated over the total holding period.

Agency theory

According to the agency theory, if the contract is not complete, then there will be conflicts and agency costs. However, when the interests of managers and shareholders diverge, an agency problem occurs. This may arise because the manager is not acting in the shareholders' interests. Agency theory assumes that the relationship between shareholders and management is agency (Jensen & Meckling, 1976; Easterbrook, 1984; La Porta, Lopez-de-Silanes, Shleifer & Vishny, 2000a). A conflict of interest exists between management and stockholders. While the former tries to maximize their wealth, the latter tries maximizing their compensation.

To minimize the conflict between them, management tends to take steps to assure shareholders. A manager who owns 100% of a firm has different behaviors from manager who owns less than 100% of the firm (Jensen & Meckling, 1976). When managers own less than one hundred percent, they exhibit selfish behavior: they may make decisions to satisfy themselves instead of satisfying shareholder's wealth. Jensen and Meckling (1976) labeled the loss from this agency problem as "residual loss". They also defined "agency cost" as the expenditure and costs that has to be incurred to monitor the operation of their agent. The separation of ownership and control creates incentive problems that financial contracts cannot handle at zero cost, which leads to market friction. The manager's interest may differ from the owners' (principals') interest, but they must act in the principal's interest. Measures such as profit sharing, 13 months, and sacking have been implemented to align the manager's interest with the owners to prevent empire building.

Capital asset pricing model

Sharpe (1964), Lintner (1965), and Mossin (1966) developed the CAPM, which links the expected return on an asset to its risk (Beta) and the return from the riskless asset. CAPM assumes that the financial market is frictionless. That is, no transaction cost exists, lending and borrowing are not restricted, and investor's expectation is based on the mean-variance criterion, among others. If investors have the same risk-return expectations, information should be uniform such that one trader would not outperform the others on the basis of superior information. Indeed, Fama's (1970) efficient market hypothesis stipulates that stock prices reflect all available information in an efficient market; therefore, there is no room for abnormal returns by taking advantage of the information set. Grossman and Stiglitz (1980) submitted that informed market traders outperform ill-informed investors and are therefore motivated to obtain information even at a very high cost. In the real world, the government imposes taxes and regulates lending and borrowing. Information irregularities exist, and investors incur cost in the form of interest rate on lending, losses resulting from buying and selling of illiquid asset's or volatility of asset returns. These constitute frictions that may affect financial security returns.

Modern Portfolio Theory (MPT)

Modern portfolio theory (MPT) is a theory on how risk-averse investors can build portfolios to optimize or maximize the anticipated return based on a given level of market risk, emphasizing that risk is an inherent part of higher reward. Harry Markowitz pioneered this theory in his 1952 paper "Portfolio Selection," published by the Journal of Finance. The theory states that a "efficient frontier" of optimal portfolios offering the maximum possible expected return for a given level of risk can be constructed. MPT argues that an investment's risk and return characteristics should not be viewed alone, but should be evaluated by how the investment affects the overall portfolio's risk and return. MPT shows that an investor can construct a portfolio of multiple assets that will maximize returns for a given level of risk. Similarly, given a desired level of expected return, an investor can construct a portfolio with the lowest possible risk. Based on statistical measures such as variance and correlation, an individual investment's return is less important than how the investment behaves in the context of the entire portfolio. MPT assumes that investors are risk-averse, meaning that they prefer a less risky portfolio to a riskier one for a given level of return. This implies that an investor will take on more risk only if he or she expects more reward. The portfolios expected return is calculated as a weighted sum of the individual assets' returns (Markowitz, 1952; Jaiyeoba & Akintoye, 2021).

Empirical Review

Transaction cost and development of the stock market

This section reviews the body of research on the impact of financial market frictions on stock market growth. However, arising from limited studies on this topic, this section mostly reviews related studies, that is, the effect of financial market frictions on other economic aggregates. For instance, Amihud and Mendelson (1986) conducted a study to determine whether stock returns reflect the effect of market frictions on the United States from 1961 - 1980. Utilizing the Fama and MacBeth (1973) procedure of forming portfolios and using bid/ask spread as a natural measure of liquidity (friction), they found that assets that are not liquid could be owned by investors with longer periods as returns and transaction costs formed an increasing and concave function. They also found that increases in liquidity led to decreases in RAR. Barclay, Kandel, and Marx (1998) investigated the impact of trading cost (friction) on stock price in the New York exchange from the period January 1, 1990, to May 31, 1994, and revealed that transaction cost have no significant effect on stock price.

Dividend Tax Rate and Stock Market Development

Bougheas and Falvey (2010) studied the impact of financial market frictions on trade flows, capital flows, and economic development, from 2000 to 2009. According to the ARDL and Granger Causality test, the study finds that underdeveloped financial markets are replete with agency costs and weak institutions that prohibit economic specialization in sectors where finance is important. Conversely, capital tends to flow easily to countries with more robust financial institutions, allowing their economies to develop financially dependent sectors.

Regulation (Monetary Policy Rate) and Stock Market Development

Aladejare, Danjuma, and Nyiputen (2018) examined the effect of monetary policy variables on stock market development in Nigeria for the period 1986–2015 using the error correction model (ECM). They discovered a long-term correlation between stock market development and monetary policy variables, but the short-term results indicate that monetary policy variables, including the monetary policy rate, lending rate, deposit rate, and treasury bill rate, have no discernible impact on Nigerian stock market development.

Capital Gain Tax Rate and Stock Market Development

Nnadi and Emenuga (2019) used a vector error correction model to examine the impact of transaction costs, taxes, and regulations on the Nigerian stock market from 2008 to 2017. They discovered that while rules have a positive effect on the stock market, transaction costs and taxes have a negative effect. Anwar, Ahmed, and Ashraf (2019) investigated how tax policy affects Pakistan's stock market performance using an event research technique from 2010 to 2017. They discovered that announcements of tax policy changes, significantly impact stock market returns, meaning that tax policy is a substantial factor influencing stock market performance.

Foreign Portfolio Investment and Stock Market Development.

This section reviews the body of existing research that examined how foreign portfolio investments affected the stock market evolution. For example, Ekeocha, Ekeocha, Malaolu, and Oduh (2012) investigated the factors that influence foreign portfolio investment in Nigeria between 1981 and 2010. They incorporated market capitalization, real interest rates, trade openness, real exchange rates, and real gross domestic product into their model of the long-term factors influencing FPI to determine the degree to which each of these factors affects the flow of FPI into Nigeria. The study used a finite distributed lag model using time series data, and the findings indicated that foreign portfolio investment positively correlate with Nigeria's market capitalization and trade openness.

METHODOLOGY

To conduct this investigation, we employed a secondary dataset. This information was sourced from the Statistical Bulletin of the Central Bank of Nigeria's (2024). Data from the CBN can be relied upon for drawing conclusions. CBN data are highly reliable because CBN is a reputable apex monetary authority in data gathering. The research used annual time series data spanning the years 1981 through 2023, making it a 43-year study. This study is based on the trading cost theory developed by Amihud and Mendelson (1986) and the corollary theory of capital flow (Eichengreen, 2007). Trading cost theory states that trading- associated costs such as transaction taxes, fees paid to process orders, and brokerage fees, also affect stock market development. In a perfect market, all market participants are present for all periods.

Model Specification

This study built a trading cost theory-based model. The study used two models because it uses both size and liquidity-based stock market development indicators. We also employed four proxies for financial market frictions (transaction cost, capital gain tax rate, dividend tax rate, and regulation) and one proxy for FPI (FPI inflows). The theoretical framework is anchored on trading cost theory. To empirically examine this theoretical linkage, the study draws on the models developed by Aigbovo and Omoruyi-Aigbovo (2022) and Abdulkadir, Raji, and Badru (2018) who analyzed how trading on the Nigerian Exchange Limited was affected by financial market frictions between 1983 and 2021 and the impact of foreign portfolio investment (FPI) on stock market performance in Nigeria using monthly data from 2006 to 2015, respectively, were adapted and modified in terms of variables included to proxy financial market frictions, FPI and stock market development. Their models incorporate key stock market indicators such as the following:

$$\text{TRAD} = \beta_0 + \beta_1\text{TRACOST} + \beta_2\text{CGTAXR} + \beta_3\text{DTAXR} + \varepsilon_t \quad (3.1)$$

Where: TRAD represents trading in the stock market, which is the dependent variable, TRACOST represents transaction cost, CGTAXR stands for capital gain tax rate, which are the independent variables; ε_t the error term that accounts for other possible factors that could influence TRAD that are not captured in the model.

$$\text{MP} = \beta_0 + \beta_1\text{FPI} + \beta_2\text{CR} + \beta_3\text{FPI*CR} + \beta_4\text{LEXC} + \beta_5\text{EXV} + \beta_6\text{INT} + \beta_7\text{LMS} + \varepsilon_t \quad (3.2)$$

The dependent variable MP represents stock market performance and is measured by the natural logarithm of the monthly stock index (LSI) and stock returns volatility (SRV) in model (2). The main explanatory variable is FPI, which represents FPI. They interact FPI with the period of the global financial crisis represented by the dummy variable CR. The dummy is assigned one for the crisis period and zero otherwise. Thus, FPI*CR is included in the model to determine whether any change is recorded in the explanatory role of FPI (if any) during a crisis. In addition, other explanatory variables (LEXC, EXV, INT, and LMS) were included in the model. The nominal exchange rate is in the natural logarithmic form represented by LEXC and is measured as the relative price of the Nigerian currency (Naira) to the US dollar. EXV is the return on the exchange rate, defined as the series of first differences in the natural logarithm of the nominal exchange rate. INT represents the interest rate measured as the monetary policy rate. LMS denotes the natural logarithm of the money supply and the broad money supply is taken as its measure. This study employed regulation as a proxy for financial market friction, which is not in the model of Aigbovo and Omoruyi-Aigbovo (2022) and Abdulkadir et al. (2018). In terms of the dependent variable, this study focuses on stock market development as opposed to trading in the stock market which was the focus of Aigbovo and Omoruyi-Aigbovo (2022). Thus, this study incorporates a size-based stock market development measure (market capitalization ratio to GDP) in addition to the total volume of stock traded indicator used to proxy stock market trading in the study of Aigbovo and Omoruyi-Aigbovo (2022).

The functional forms of the models are as follows:

$$MKT = f(TC, CGT, DTR, MPR, FPI, INF) \quad (3.3)$$

$$TVT = f(TC, CGT, DTR, MPR, FPI, INF) \quad (3.4)$$

Equations (3 and 4) in their econometric version can be expressed as follows:

$$MKT = \beta_0 + \beta_1TC + \beta_2CGT + \beta_3DTR + \beta_4MPR + \beta_5FPI + \beta_6INF + \mu \quad (3.5)$$

$$TVT = \beta_0 + \beta_1TC + \beta_2CGT + \beta_3DTR + \beta_4MPR + \beta_5FPI + \beta_6INF + \mu \quad (3.6)$$

Where;

MKT- Ratio of Market capitalization to GDP

TVT- Ratio of stock market total value traded to GDP

TC - Mean transaction Cost

CGT - Mean capital gain tax rate

DTR – Mean dividend tax rate

MPR – Stands for monetary policy rate (Regulation)

FPI- Foreign Portfolio Investment

INF- Means the inflation rate (is a control variable, reason been that inflation rate affects transaction costs)

$\beta_0 \dots \beta_6$ are coefficients of the parameters.

μ = the stochastic (error) term.

The *a priori* expectation derived from the theoretical literature is expressed as; $\beta_0 > 0$ and $\beta_1, \beta_2, \beta_3, \beta_4, \beta_6 < 0$; $\beta_5 > 0$. This meaning that, all the explanatory variables (except FPI) are anticipated to negatively influence stock market development (MKT and TVT), whereas FPI will positively influence stock market development (MKT and TVT).

Equation (3.7 and 3.8) state the model by stating the error correction model (ECM) from equations (3.5 and 3.6) as follows:

$$MKT_t = \beta_0 + \beta_1 \sum TC_{t-i} + \beta_2 \sum CGT_{t-i} + \beta_3 \sum DTR_{t-i} + \beta_4 \sum MPR_{t-i} + \beta_5 \sum FPI_{t-i} + \beta_6 \sum INF_{t-i} + \beta_7 ECM_{t-1} + \Sigma t_n \quad (3.7)$$

$$TVT_t = \beta_0 + \beta_1 \sum TC_{t-i} + \beta_2 \sum CGT_{t-i} + \beta_3 \sum DTR_{t-i} + \beta_4 \sum REG_{t-i} + \beta_5 \sum FPI_{t-i} + \beta_6 \sum INF_{t-i} + \beta_7 ECM_{t-1} + \Sigma t_n \quad (3.8)$$

Where, ECM stands for error correction, $t - 1$ for a variable that has been lag by one period, and t for the residual white noise. According to Engle and Granger's (1987) representation theorem, the ECM elements are incorporated into equations 6 and 7 of the model specification to create the ECM representation of the model. To capture the potential departure effects of the model's variables from the long-run equilibrium, we apply error correction terms to the model. The size and importance of each error correction term in each equation suggest that each variable tends to return to equilibrium.

Data Estimation

The study adopted both statistical and econometric methods. The study uses empirical analysis to provide a robust inquiry and analysis of the subject matter. The initial characterization and relationship between the variables of interest, were analyzed using, both descriptive statistics and correlation analysis.

DATA PRESENTATION, ANALYSIS, AND INTERPRETATION

4.1 Data Presentation

The data from 1981 to 2023 are presented in Appendix A.

4.2 Data Analysis

4.2.1 Descriptive Statistics

To ascertain the basic characteristics of the dataset used in this study, descriptive statistics were conducted. Table 4.1 presents the analyzed descriptive summary statistics for all variables in the research from 1981 to 2023.

Table 4.1: Descriptive Statistics for the Study

	MKT	TVT	TRC	CGTR	DTR	MPR	FPI	INF
Mean	10113.72	475.2374	41.92130	0.147619	0.114762	12.91071	49025.63	11.10024
Median	1062.100	89.90500	42.40890	0.100000	0.100000	13.25000	15772.22	11.50000
Maximum	75202.90	2350.880	81.37260	0.200000	0.150000	20.50000	560498.5	28.92000
Minimum	5.000000	0.220000	0.000000	0.100000	0.050000	6.000000	0.000000	0.170000
Std. Dev.	16240.56	591.2281	30.54600	0.050549	0.028986	3.502535	99260.79	6.781277
Skewness	2.229754	1.099546	-0.594446	0.095346	-0.306774	-0.016541	3.667209	0.424653
Kurtosis	8.196675	3.614710	1.509709	1.009091	2.621864	2.690517	18.17805	2.908022
Jarque-Bera	82.06213	9.124278	0.360253	7.000145	0.908997	0.169529	497.2919	1.277113
Probability	0.000000	0.010440	0.091580	0.030195	0.634766	0.918728	0.000000	0.528054
Sum	424776.3	19959.97	1760.695	6.200000	4.820000	542.2500	2059077.	466.2100
Sum Sq. Dev.	1.08E+10	14331576	38255.38	0.104762	0.034448	502.9777	4.04E+11	1885.415
Observations	42	42	42	42	42	42	42	42

Source: Researcher's Estimation (2025) Using *E-views 9.0*

Table 4.1 shows that the mean to median ratio for most variables is almost one (except for MKT, TVT, and FPI). This means that these variables exhibit more of symmetrical distribution properties. There is a significant difference and changes between the smallest and highest values the variables, as shown by their corresponding Minimum and Maximum values, during the study period. The standard deviations of the variables are relatively low (except for MKT, TVT, TRC, and FPI). This implies that the variables were relatively stable in wondering away from their mean during the period under focus, indicating a small degree of risk in these variables. Most variables have a large tail to the right of their mean, as evidenced by their associated positive skewness values. This shows that the mean value of these variables is greater than their mode. The negative skewness value of the other variables (TRC, DTR, and MPR) indicates a lengthy tail to the left of their mean. This indicates that their median value is greater than their mean value. While MKT, TVT, and FPI have a peak distribution that is normal, as indicated by the corresponding Kurtosis value of approximately > 3.0 , TRC and CGTR demonstrated a flat distribution feature, as indicated by their Kurtosis value of < 3.0 and related to normal. However, DTR, MPR, and INF have value of approximately 3.0 and are perceived as normal. The J-B statistics for MKT, TVT, CGTR, and FPI are significant at the 1% and confidence level compared to their probability values. This means that these variables are not normally distributed. However, the J-B statistics for TRC, DTR, MPR, and INF fail the significance test at the 5% level, as demonstrated by the probability value greater than 5%, which indicates that these variables are normally distributed.

4.2.2 Correlation Analysis

Correlation analysis was used to further analyze the background behavioral patterns in terms of the strength and direction of the relationship between the variables in the study. Table 4.2 displays the correlation analysis results.

Table 4.2: Correlation matrix

Correlation Probability	MKT	TVT	TRC	CGTR	DTR	MPR	FPI	INF
MKT	1.000000 -----							
TVT	0.690646* (0.0000)	1.000000 -----						
TRC	0.436948* (0.0038)	0.550766* (0.0002)	1.000000 -----					
CGTR	-0.593094* (0.0000)	-0.764401* (0.0000)	-0.740144* (0.0000)	1.000000 -----				
DTR	-0.325481** (0.0354)	-0.423751* (0.0052)	-0.699326* (0.0000)	0.540610* (0.0002)	1.000000 -----			
MPR	0.141972 (0.3698)	-0.133979 (0.3976)	0.046014 (0.7723)	0.127920 (0.4195)	-0.124839 (0.4309)	1.000000 -----		
FPI	0.044178 (0.7812)	0.396529* (0.0093)	0.332148** (0.0316)	-0.372265* (0.0152)	-0.289261 (0.0632)	-0.253726 (0.1049)	1.000000 -----	
INF	0.518312* (0.0004)	0.280130 (0.0724)	0.332438** (0.0315)	-0.387392* (0.0113)	-0.473375* (0.0015)	0.001464 (0.9927)	0.104734 (0.5092)	1.000000 -----

Source: Researcher's Computation (2025) Using E-views 9.0 Software. Note * and ** = Significance at the 1% and 5% Levels, respectively.

Table 4.2 shows the degree and direction of correlation between the two (2) measures of stock market development (market capitalization (MKT) and total value of shares traded (TVT)) and the explanatory variables in the model. The findings demonstrated that CGTR and DTR have a substantial moderate inverse connection with MKT at 1% and 5% confidence levels. This means that a considerable decrease in stock market development, as measured by MKT, occurs when these variables are increased. However, the positive correlation coefficient, which is significant at the 1% confidence level, shows that TRC and INF have a weak but substantial direct link with MKT.

This means that an increase in these factors considerably boosts stock market development as determined by MKT. Similarly, a negligible direct correlation exists between MKT, MPR, and FPI. This supports the finding that, an increase in these variables did not substantially boost stock market development as evaluated by MKT during the study period.

At a 1% confidence level, CGTR and DTR have a significant moderate inverse association with TVT based on the TVT stock market development metric. This means that a rise in these factors considerably slows the stock market's growth as determined by TVT.

Similarly, MPR has an insignificant weak inverse association with TVT, as indicated by the negative correlation coefficient, which is not significant at the 5% confidence level. However, TRC and FPI have a

significant direct association with TVT at the 1% confidence level. This means that an increase in these variables significantly increases the TVT’s stock market development proxy during the study period. INF has a weak positive, insignificant relationship with TVT. This implies that an increase in INF did not significantly increase stock market development as measured by TVT during the study period. Table 4.2 shows that financial market frictions and foreign portfolio investment variables significantly increased or reduced stock market development more via TVT measurement during the study period.

In terms of the correlation between the explanatory variables, CGTR and DTR are negatively and significantly associated with TRC, whereas FPI and INF are positively associated with TRC. MPR is insignificantly and directly associated with TRC. Furthermore, DTR is directly and significantly associated with CGTR, whereas MPR is directly and insignificantly associated with CGTR. Furthermore, FPI and INF are negatively and significantly associated with CGTR. FPI and INF are inversely and significantly associated with DTR, whereas MPR and DTR are inversely and insignificantly associated. FPI and INF are insignificantly associated with MPR with negative and positive sign, respectively. Finally, INF is insignificantly and directly associated with FPI. Furthermore, none of the correlation coefficients among the explanatory variables are ≥ 0.80 . This means that there is no multi-collinearity among the explanatory variables of the model.

4.3 Unit root test

The unit root test determines whether a series is stationary. The goal of the unit root test is to examining the fundamental characteristics of the process that produces the time series data for this study. A stationarity test is performed to ensure that the data utilized in this study are relevant and trustworthy for the regression estimation. The fact that a non-stationary time series cannot be generalized to time periods other than the present underscores the significance of stationarity in regression. Because of this, forecasting using such time series is not very useful.

Furthermore, a non-stationary time series may yield erroneous results when it is regressed on another non-stationary time series. This study uses the ADF unit root test. The outcomes are reported in terms of levels and first difference. This enables us to obtain more reliable results and determine the unit root in relative terms among the time series. Table 4.3 displays the ADF test results in levels and first difference.

Table 4.3: Unit Root Tests for Level Variables and First Difference

@ Levels				@ First Diff.			
Variable	ADF test Statistic	95% Critical ADF value	Remark	Variable	ADF test statistic	95% Critical ADF value	Remark
MKT	6.2685	-2.9331	Stationary	MKT	-7.6967	-2.9350	Stationary
TVT	-1.9782	-2.9331	Non-Stationary	TVT	-6.6140	-2.9350	Stationary
TRC	-1.4432	-2.9331	Non-Stationary	TRC	-6.8215	-2.9350	Stationary
CGTR	-1.0000	-2.9331	Non-Stationary	CGTR	-6.4031	-2.9350	Stationary
DTR	-1.9940	-2.9331	Non-Stationary	DTR	-6.2556	-2.9350	Stationary

MPR	-3.2605	-2.9331	Stationary	MPR	-8.5871	-2.9350	Stationary
FPI	-3.3745	-2.9331	Stationary	FPI	-9.5191	-2.9350	Stationary
INF	-1.3976	-2.9331	Non-Stationary	INF	-9.9512	-2.9350	Stationary

Source: Researcher’s Computation (2025) Using E-views 9.0 Software.

According to the unit root test results in Table 4.3, the variables have three ADF values (MKT, MPR, and FPI) that are below the 95% critical ADF value (in absolute values). This implies that the time series levels are not stationary. However, the ADF test statistic for each variable is, higher than the 95% critical ADF value (in absolute values) for the initial differences. These variables are determined to be stationary based on the above findings.

This means that the variables are stationary after taking their first difference; therefore, we would accept the hypothesis that the variables have unit roots as they are integrated of order one [1]. This means that the fluctuation attribute of these variables does not change during the study period. The variables can be used for further estimation without generating a spurious result.

4.3.4 Cointegration test results

It is necessary to investigate whether the series in the analysis are co-integrated after proving that they are integrated of order I (I) and characterized by unit roots. The two-stage co-integration test developed by Engle and Granger (1987) is employed for this analysis. The procedure for using the Engle and Granger test is to perform an OLS regression at the level for MKT and TVT regressors, keep the residuals, and then test whether the residuals are stationary using the ADF test for unit roots. The test statistic from the computer output is compared with appropriate Engle-Granger critical value. Tables 4.4a and 4.4b present the results of the unit root tests on the OLS residuals.

Table 4.4a: Test of the Unit Root for the ECM Result (MKT Model)

			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-5.783618	0.0000
Critical test values:	1% level		-3.615588	
	5% level		-2.941145	
	10% level		-2.609066	

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

Source: Researcher’s Computation (2025) Using E-views 9.0 Software.

Table 4.4b: Test of Unit Root for ECM Result (TVT Model)

			t-Statistic	Prob.*
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Augmented Dickey-Fuller test statistic			-3.451948	0.0148
Critical test values:	1% level		-3.605593	
	5% level		-2.936942	
	10% level		-2.606857	

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

Source: Researcher’s Computation (2025) Using E-views 9.0 Software.

Since the absolute ADF test statistics, which are -5.78 (MKT) and -3.45 (TVT), are higher than the absolute critical ADF values of -2.94 and -2.93 at the 5% level of significance, the results demonstrate that the residual is stable. This leads us to the conclusion that, the explanatory variables (TRC, CGTR, DTR, MPR, FPI, and INF) and the dependent variables (MKT and TVT) are co-integrated at the 5% test levels. Therefore, a long-run equilibrium relationship is confirmed between the dependent variables (MKT and TVT) and the regressors. Variable variances due to short-run shock are adjusted to equilibrium eventually.

4.3.5 The parsimonious error correction model or short-run analysis

Table 4.5 presents the results of the estimation of the ECM on the impact of financial market frictions and foreign portfolio investment on stock market development. The ECM is the channel through which the short-run dynamic model is connected with the long-run counterpart. The error correction term indicates the rate of adjustment of the short-run disequilibrium to the long-run equilibrium.

Table 4.5: Parsimonious Result of the Error Correction Model and Short-Run OLS

Model 1				Model 2			
Dependent variable = MKT				Dependent variable = TVT			
Variables	Coeff.	t-stat	Prob.	Variables	Coeff.	t-stat	Prob.
C	0.373197	2.473685	0.0205	C	68.82436	1.642451	0.1154
DMKT(-2)	-1.002145	-50.67842	0.0000*	DTVT(-3)	-0.254203	-2.392439	0.0262**
DTRC	-0.015708	-3.003375	0.0060*	DTRC(-3)	-29.25777	-2.993865	0.0069*

DCGTR	-0.412396	-0.102483	0.9192	DTRC	0.816548	0.260019	0.7974
DDTR	5.216982	1.461919	0.1562	DCGTR(-4)	6782.930	2.516521	0.0200**
DMPR(-3)	-0.001979	-0.106808	0.9158	DCGTR	-11903.97	-2.571241	0.0178*
DMPR	0.024662	0.955151	0.3486	DDTR	-21150.62	-2.928016	0.0080*
DFPI(-1)	4.96E-07	0.767115	0.4502	DMPR(-1)	7.138654	0.542515	0.5932
DFPI	2.61E-06	3.908056	0.0006*	DMPR	21.25297	1.349062	0.1917
DINF	-0.005103	-0.423924	0.6752	DFPI(-4)	0.003387	6.470339	0.0000*
ECM1(-1)	-0.20E-05	-2.776135	0.0539	DFPI	0.001119	2.530293	0.0195*
				DINF	-2.401405	-0.292083	0.7731
				ECM2(-1)	-0.511398	-4.867064	0.0001
R ²	0.891115			R ²	0.830606		
Adjusted R ²	0.887561			Adjusted R ²	0.733809		
F-stat	278.8746			F-stat.	8.580944		
Prob.	0.000000			Prob.	0.000013		
D.W Stat.	1.634842			D.W Stat.	1.961832		

Source: Researcher’s Computation (2025) Using E-views 9.0 Software. Note * and ** = Significance at the 1% and 5% levels respectively.

Using market capitalization (MKT) as a stand-in for stock market development, the least-square error correction model (ECM) result for model 1 (MKT) revealed a coefficient of determination (R²) value of 0.891115. This means that the transaction cost (TRC) explanatory variables accounted for almost 89% of the systematic variations in the dependent variable, which is stock market development (market capitalization, MKT).

The capital gain tax rate (CGTR), dividend tax rate (DTR), monetary policy rate (MPR), foreign portfolio investment (FPI), and inflation rate (INF) were unaccounted for at approximately 11%, and hence captured by the error terms. After adjusting the degree of freedom, the adjusted coefficient of determination (adjusted R-square or bar R²), which indicates 0.887561 with MKT, showed that approximately 88% of the changes in stock market development, which was proxy with MKT, were explained by the independent variables of financial market frictions and foreign portfolio investment (transaction cost [TRC], capital gain tax rate [CGTR], dividend tax rate [DTR], monetary policy rate [MPR], foreign portfolio investment [FPI] and inflation rate (INF)), while 12% of the variations were unexplained. Thus, stochastic disturbance captures it. The dependent variable and all explanatory factors show a contemporaneous linear relationship, as indicated by the F-Stat (Prob.) of 0.000000. This shows that the joint impacts of all the included variables in the model are substantial in explaining stock market development (MKT) in Nigeria. Curiously, even at the 1 percent, the whole model has a high goodness of fit and is extremely significant even at 1%. The D-W statistic values for the equation of 1.634842 are sufficient and nearly equal to 2. Consequently, the model does not have a first-order position autocorrelation.

The ECM is statistically significant at the 5% level and appropriately signed. The ECM coefficient showed a negative value of -0.20E-05 based on the results. According to this, the rate of adjustment is roughly 20%, meaning that when transitory disequilibrium exist in the long term in the long term, the rate of adjustment would also be roughly 20%.

The relevance of each variable in the MKT model is determined by considering the individual coefficients of the variables in terms of significance and signs. A close examination of the individual coefficients in the model based on their t-statistics or probability values reveals that in the short-run the coefficient of 2 period lagged market capitalization [DMKT (-2)] and transaction cost [DTRC] is negative and statistically significant. Similarly, the coefficient of current-year DFPI and previous-year DFPI was positive and passed the significance test at the 1% level of significance. However, the coefficients of capital gain tax rate (DCGTR), dividend tax rate (DDTR), 3 years lagged monetary policy rate [DMPR (-3)], current period monetary policy rate (DMPR), and inflation rate (DINF) failed the significance test because their t-values were less than 2. In terms of their sign, the capital gain tax rate (DCGTR), 3 years lagged monetary policy rate [DMPR (-3)] and inflation rate are negatively signed, whereas the dividend tax rate (DDTR) and current period monetary policy rate (DMPR) are positively signed.

Similarly, the second model (TVT) reported a reported a coefficient of determination (R^2 or R^2) value of 0.830606 with the total value of shares traded (TVT) being the proxy for stock market development. This suggests that the explanatory variables of transaction cost (TRC), capital gain tax rate (CGTR), dividend tax rate (DTR), monetary policy rate (MPR), foreign portfolio investment (FPI), and inflation rate (INF) were responsible for approximately 83% of the systematic variations in the dependent variable, which is stock market development (TVT). However, roughly 17% were not included; therefore, the error terms included them. The adjusted coefficient of determination (adjusted R-square or \bar{R}^2), which shows 0.733809 with TVT after adjusting for degree of freedom, indicated that the independent variables of foreign portfolio investment and financial market frictions accounted for roughly 73% of the changes in stock market development, which served as a proxy for total value of shares traded (TVT) [transaction cost (TRC), capital gain tax rate (CGTR), dividend tax rate (DTR), monetary policy rate (MPR), foreign portfolio investment (FPI) and inflation rate (INF)], while 27% of the variations were unexplained, hence captured by stochastic disturbance. A simultaneous linear relationship between the dependent variable and all of the explanatory factors combined is indicated by the F-Stat (Prob.) of 0.000013. This implies that the combined impacts of every variable in the model are important for explaining Nigeria's stock market development (TVT). Interestingly, even at the 1% level, the entire model exhibits a high goodness of fit and is very significant. For Equation 1.961832, the D-W statistic values are sufficient and roughly equal to 2. Consequently, the model does not have a first-order position autocorrelation. The ECM coefficient is appropriately signed and statistically significant at the 1% level.

From the result, the ECM coefficient indicated a negative value of -0.511398. This means that the adjustment speed is about 50%, which implies that the adjustment speed in the long- run when there is a temporary disequilibrium would be about 50%.

On the basis of the individual statistical significance of model 2 (TVT), as shown by the t-statistics or probability values, the result showed that in the short run, 3 years lagged total value of shares traded [DTV(-3)], 3 years lagged transaction cost [DTRC (-3)], 4 years lagged capital gain tax rate [DCGTR(-4)], current period capital gain tax rate (DCGTR), dividend tax rate (DDTR), 4 years lagged foreign portfolio investment [DFPI (-4)], and current period foreign portfolio investment (DFPI) have a significant impact on the total value of shares traded as a proxy for stock market development since their t-values were greater than the critical t-values at the 5% level of significance; meaning that these variables exert a significant impact on stock market development in Nigeria in the short run. The results also revealed that 3 years lagged total value of shares

traded [DTVT (-3)], 3 years lagged transaction cost [DTRC (-3)], current period capital gain tax rate (DCGTR) and dividend tax rate (DDTR) were negatively signed while 4 years lagged capital gain tax rate [DCGTR (-4)], 4 years lagged foreign portfolio investment [DFPI (-4)], and current year foreign portfolio investment were positively signed. However, the coefficients of transaction cost (DTRC), previous year monetary policy rate [DMPR (-1)], current period monetary policy rate, and inflation rate (DINF) were not statistically significant because their t-values were less than 2, meaning that these variables had no significant impact on Nigeria's stock market development in the short-run. Transaction cost (DTRC), previous year monetary policy rate [DMPR (-1)], and current period monetary policy rate, (DMPR) were positively signed, while inflation rate (DINF) displayed a negative sign. Thus, model 2, that is, the total value of shares traded (TVT) model, seems to perform better than model 1 (MKT model) in the short-run in terms of the t-ratio values, while both models seem to perform in similarly in terms of R-square and adjusted R-square in the short-run. Thus, the TVT model seems to be more effective in determining the overall development of the stock market in Nigeria in the short-run

4.3.6 Long-Run Analysis

To identify whether financial market frictions and foreign portfolio investment variables have a long-term impact on stock market development, we first analyze the empirical result of the short-run dynamic model before moving on to the long-run result. Table 4.6 displays the outcome of the estimated long-run model for the two models (MKT and TVT).

Table 4.6: Ordinary Least Squares regression or Long-run result

Model 1 Dependent variable = MKT				Model 2 Dependent variable = TVT			
Variables	Coeff.	t-stat	Prob.	Variables	Coeff.	t-stat	Prob.
C	3711.831	0.171981	0.8644	C	1921.491	2.661725	0.0117
TRC	17.82409	0.161977	0.8723	TRC	-1.361796	-0.369992	0.7136
CGTR	-191604.1	-3.225192	0.0027*	CGTR	-8834.276	-4.445848	0.0001*
DTR	107075.0	1.074756	0.2898	DTR	-775.2734	-0.232654	0.8174
MPR	971.5041	1.665958	0.1046	MPR	-1.061551	-0.054424	0.9569
FPI	0.019667	0.915025	0.3664	FPI	0.000764	1.062803	0.2951
INF	-907.4011	-2.787870	0.0085*	INF	-1.787324	-0.164176	0.8705
<i>R</i> ²	0.526966			<i>R</i> ²	0.600682		
<i>Adj R</i> ²	0.445874			<i>Adj R</i> ²	0.532228		
F-stat	6.498404			F-stat	8.774920		
Prob.	0.000113			Prob.	0.000007		
D.W Stat	1.492271			D.W Stat	1.524146		

Source: Researcher's Computation (2025) Using E-views 9.0 Software. Note * = significance at 1%.

The OLS result for model 1 (MKT model) displays an R2 value of 0.526966, indicating that the explanatory variables transaction cost (TRC), capital gain tax rate (CGTR), dividend tax rate (DTR), monetary policy rate (MPR), foreign portfolio investment (FPI), and inflation rate (INF) account for roughly 53% of the total variation in the dependent variable (MKT).

This result was not very robust after adjusting for the degrees of freedom (df), as indicated by the value of adjusted R^2 , which is 0.445874 (i.e., $\approx 45\%$). Thus, the regression fit was below average. The F-statistic, which is a test of the model's explanatory power, is 6.498404 with a corresponding probability value of 0.000113, which is statistically significant at 1%. Using market capitalization (MKT) as a proxy, the explanatory variables transaction cost (TRC), capital gain tax rate (CGTR), dividend tax rate (DTR), monetary policy rate (MPR), foreign portfolio investment (FPI), and inflation rate (INF) have a combined, significant impact on the development of the Nigerian stock market. With a Durbin-Watson value of 1.5, autocorrelation can be entirely ruled out.

A detailed analysis of the long-term individual statistical significance of the variables in model 1 (MKT) shows that the inflation rate (INF) and the capital gain tax rate (CGTR) both pass the significant test at the 1% level, with CGTR having the correct sign (negative). This indicates that both variables have a significant inverse effect on the long-term growth of the Nigerian stock market. Additionally, the following variables failed the significant test at the five percent level when MKT was used as a proxy for stock market development: transaction cost (TRC), dividend tax rate (DTR), monetary policy rate (MPR), and foreign portfolio investment (FPI). However, they were positively signed, indicating that these variables had no effect on the long-term growth of the Nigerian stock market.

Similarly, model 2 (TVT model) in Table 4.6 displays an R^2 value of 0.600682, meaning that the explanatory variables transaction cost (TRC), capital gain tax rate (CGTR), dividend tax rate (DTR), monetary policy rate (MPR), foreign portfolio investment (FPI), and inflation rate (INF) account for roughly 60% of the total variation in the TVT. Even after accounting for the degrees of freedom (df), this result is still above average, as shown by the corrected R^2 value of 0.532228 (i.e., $\approx 53\%$). The regression fits well. At the 1% level, the model's explanatory capacity is tested using the F-statistic, which is 8.774920 with a corresponding probability value of 0.000007 that indicates statistical significance.

Using TVT as a stand-in, this means that all explanatory factors have a combined, noteworthy impact on the Nigerian stock market's long-term growth. With a Durbin-Watson value of 1.524146, autocorrelation can be entirely ruled out.

Additionally, the capital gain tax rate (CGTR) passed the significance test at the 1% level and was correctly signed (negative) in the case of the individual statistical significance of variables in model 2 (TVT); this indicates that CGTR has a significant inverse effect on the Nigerian stock market long-term development. However, when TVT is used as a proxy for stock market development, all other explanatory variables (except CGTR) in model 2 (TVT) failed the significance test at the 5% level, indicating that they have no effect on the Nigerian stock market's long-term development. Model 1 (MKT) and Model 2 (TVT) appear to function similarly over the long term in terms of the t-ratio values, whereas model 2 (TVT) seems to perform better in terms of R-square and adjusted R-square. Thus, model 2 (TVT) appears to be more effective in determining the overall development of the stock market in Nigeria in the long run.

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This study examined how foreign portfolio investments and financial market frictions affected Nigeria's stock market's growth between 1981 and 2023. The Central Bank of Nigeria Statistical Bulletin (2024) provided time series data on the variables of interest. The two models (MKT and TVT) mentioned in this study were evaluated using the error correction model and the multivariate OLS regression technique.

The results demonstrate that foreign portfolio investment inflows, financial market friction variables, and inflation rate (control variable) have varying substantial effects on the Nigerian stock market development.

5.1 Conclusion

Stock market development is central to modern economic development because it is a major channel for deepening inclusive and sustainable development. Harnessing economic resources for national development is a major goal of governments; the stock market provides the medium through which funds could be mobilized and allocated for development investments. Therefore, proper focus on the factors that drive or inhibit stock market development is a critical area for both academic and policy discussion, especially in developing countries where financial capital is still evolving.

5.2 Recommendations

From the findings of this study, the following recommendations are made:

1. Market operators and investors should incorporate Fin Tech in their operations to lower market transaction costs. The physical strain of visiting the bank to create accounts for clients and open Central Securities Clearing System (CSCS) accounts will be eliminated by the using Fin Tech. In addition, it will reduce the amount of paperwork associated with the costs of securities transactions and the settlement cycle. Investors who wish to participate in the stock market can do so while relaxing in their own home. This will encourage more trading and investment in the market, which will ultimately enhance market development.
2. To mitigate the negative effects of the capital gain tax rate on the development of Nigeria's stock market, the government should ensure that capital gains are taxed at an appropriate rate. As a result, this 10% capital gain tax rate should be reduced to 5%, since it has shown a negative impact on the development of the stock market.
3. Investors should pay less attention to regulatory frictions, which were proxied by the monetary policy rate, because of its insignificant effects on Nigeria's stock market development. Regulatory authorities should reduce their monetary policy to stabilize the inflation rate at low levels to reverse the negative effect of the inflation rate on Nigeria's stock market development.
4. The study recommends that policymakers should implement measures to enhance transparency and regulation within the stock market to promote investor confidence and attract foreign portfolio investment inflows. This may include strengthening regulatory frameworks, improving reporting standards, and ensuring effective oversight mechanisms. The study implies that the government must formulate regulation which encourages macroeconomic stability and appropriate policies to attract more foreign investors to participate in Nigeria and contribute to the development of the stock market.

5.3 Contributions to Knowledge

The major contributions of this study to knowledge are in the areas of general literature, policy orientation, and policy directions. These include:

- i. This study contributes to existing knowledge on the macroeconomic determinants of stock market development by using country specific time series data. This type of dataset provides better precision in terms of obtaining concise manifestations of individual country-specific characteristics. Previously, similar studies have focused on cross-country studies. Such cross-country research needs to be handled with great care as they are plagued with some shortcomings: a common related production technology over different nations that might not be precise in reality.

- ii. To measuring the development of the stock market, the study used two measures. This further improves on previous studies that used one measure of SMD.

5.4 Suggestions for future studies

Although the current study examined the effect of financial market frictions and foreign portfolio investment on the development of the Nigerian stock market, there are other areas that future studies could provide a variety of implications for the current study. The following areas for future studies are suggested:

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