FINANCIAL MARKET FRICTIONS AND TRADE IN THE NIGERIAN BOURSE

Aigbovo, O.¹ and OMORUYI-AIGBOVO, O.²

¹,²Department of Banking and Finance, University of Benin, Edo State, Nigeria
¹omoruyi.aigbovo@uniben.edu, ²irabor.osariemen@uniben.edu

ABSTRACT

Using data from 1982 to 2021, this study looked at how financial market frictions affected trade on the Nigerian bourse. For the study, a longitudinal research approach was chosen. The study's specified model was estimated using the Error Correction Mechanism (ECM) and multivariate ordinary least square (OLS) techniques. Findings revealed that only the capital gains tax rate hindered trading activities in the Nigerian stock market in the long run during the period studied. However, in the short run, transaction costs, capital gain tax rates, and dividend tax rates all have a negative impact on trading activity on the Nigerian stock exchange, but they fail the significant test. As a result, the study concludes that the capital gains tax rate is the only financial market friction that impedes trade on the Nigerian stock exchange during the study period. To mitigate the negative impact on trading activity on the Nigerian bourse, the government should ensure that capital gains are taxed at a reasonable rate. Accordingly, the present capital gains tax rate of 10% should be cut to 5%.

Keywords: Financial Market Frictions, Nigerian Stock Market, Volume of Stock Traded, Transaction Cost, Capital Gain Tax Rate

1. INTRODUCTION

In most financial markets around the world, assets that investors or participants in the financial markets choose (or hold) are constrained by different forms of market friction. Frictions can exist in an efficient market. Hence, friction and efficiency are not the same. In layman's terms, financial market friction is anything that hinders trades from being done effectively. It might refer to any factor that impacts the investor's decision-making process. 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. From the perspective of the capital asset pricing model (CAPM), financial market friction connotes anything that impedes trade (DeGennaro & Robotti, 2007). According to Lippman and McCall (1986), a friction is any factor that affects how long it takes to trade a specific quantity of an item (at the best price).

Poyry (2014) compares market imperfections to frictions and describes them as market characteristics that go against the fundamental tenets of efficient market theories. According to Stoll (2000), friction, a universal transaction cost for all participants in the market, is what is responsible for the excessive volatility. Financial market frictions cause a participant to sell their market portfolio. As a result of these frictions, investors may be at greater or lesser risk than they would like. This is due
to the fact that financial market friction impacts almost every transaction in some manner. To put it another way, financial market frictions generate expenses that stymie the deals of reasonable investors (or would if market frictions did not exist). As a result, financial market frictions might reduce the number of investment possibilities available to market participants, reduce their utility, and cause them to trade less (DeGennaro & Robotti, 2007).

Prior researchers have studied the effect of frictions on specific aggregate economies (see Amihud and Mendelson, 1986; Balduzzi and Lynch, 1999; Hou and Moskowitz, 2000; Deng, Zeng, and Zhu, 2019), but very few from Nigeria (Idolor, Oshadare, and Izedomi, 2020) have studied the effect of financial market frictions on trade in the Nigerian stock market. This study attempts to address this gap by contributing to the few current studies in Nigeria that use data from a relatively recent period, 1982–2021. Thus, the primary goal of this research is to see if financial market friction influences stock market trading in Nigeria. The study's precise objectives are to: evaluate the influence of total transaction costs on equity market trading in Nigeria; identify the impact of capital gain tax rates on equity market trading in Nigeria; and determine the impact of dividend tax rates on equity market trading in Nigeria. This study contributes to the conversation on stock market trading and financial market friction because there are not many studies of this kind that deal with Nigeria. The study will further update this body of literature. Policy makers and investors may greatly benefit from this study's results by using them to more fully comprehend how financial industry friction affects trade on the Nigerian stock exchange and develop better trading-enhancing policies. The remaining section of this research is structured in this manner: The literature review is carried out in Section 2, while Section 3 provides an explanation of the study's methodology. The presentation of results and discussion of findings are the main topics of Section 4, and the work is concluded in Section 5.

2. LITERATURE REVIEW

2.1 Conceptual Literature

2.1.1 Stock Exchange and Stock Volume Traded

Stockbrokers and traders can exchange stocks and other assets by using "trading" services provided by a company known as a stock exchange. Stock markets enable the issuance and redemption of securities, the trading of other financial instruments, and capital events like income and dividend payments. Bonds, unit trusts, derivatives, pooled investment products, and shares issued by companies are securities that are traded on stock markets (Pandey, 2000).

Trading volume, as described by Abbondante (2010), is the total number of shares that are traded each day and is used to calculate the value of an increase or decrease in stock price. According to Raphael (2012), trading volume, also known as the volume of a stock exchange, is a gauge of the number of shares that the owner of a certain stock exchange has. Depending on how much fresh information is available about the firm on any given day, the amount of daily volume on a security may
Corresponding Author: omoruyi.aigbovo@uniben.edu
ORCID: https://orcid.org/0000-0002-3865-6705

change. Thus, in order to signify strong liquidity, the values of volume-related indicators should be greater (Brennan & Subrahmanyam, 1996).

2.1.2 Classification of financial market friction

According to DeGennaro & Robotti (2007), regulations and taxes, transaction costs, agency and information problems, non-traded assets, and the indivisibility of assets make up the five major classes of financial market friction.

**Transaction Costs:** The transaction cost is the cost in money (the cost of trade) and time (the opportunity cost) of making a transaction. They are generally relatively low, and new technology is bringing down those costs even further. In other words, a transaction cost is partitioned into two groups: the opportunity cost of time and the cost of trade. The financial markets' cost of trade includes postage charges, email charges, telephone charges, computer power charges, and other charges. Transaction taxes, fees for order facilitation, and brokerage fees are examples of transaction expenses associated with trading that have an impact on stock market trading. Transaction costs include taxes on transactions, while other sorts of transaction costs result from market failures (Atkins & Dyl, 2007).

**Taxes and Regulations:** Regulation encompasses laws enacted by the legislature, rules enacted by agencies of the government, and rules imposed by industries. Rules that are privately imposed (for example, trading rules imposed by the stock exchange) serve as regulations. Taxes and regulatory costs may be either explicit or implicit. Taxes such as capital gains taxes might discourage an investor from selling an asset in a given year to avoid having to pay them. Miller and Schole (1978) present a good example of a non-pecuniary tax. They show how investors can use deductions to balance received dividends and avoid the dividend tax. In actuality, this offset could be expensive. Taxpayers may and do take actions to reduce their tax obligations, and the costs of these actions are added to the overall tax burden.

**Asset Indivisibility:** The financial friction arising from asset indivisibility arises because some assets simply cannot be divided into portions small enough for every investor to own one. Thus, while an optimal investment strategy would dictate that investors own such an asset, the latter’s indivisibility makes that difficult or impossible. Mutual funds and other collective schemes, such as real estate investment trusts (REITs), can overcome this friction since, by pooling investors’ money, they can buy a large, indivisible asset and then distribute returns on a pro-rata basis. Mutual funds are one example of a financial market product that alleviates wealth restrictions and asset indivisibility (DeGennaro & Sangphill, 1986).

**Non-traded Assets:** Non-traded assets are those assets that simply cannot be traded or cannot be traded easily. For example, a person who invests tens of thousands of naira in gaining education and skills cannot sell it. However, constant financial market innovation is expanding what can and cannot be traded. The explosion of securitization, whereby people invest in the revenue streams arising from mortgages or credit card debts, shows the ingenuity of financial institutions and their employees in overcoming the friction inherent in non-traded assets.
Problems with Agencies and Information: Agency and information problems deal with the issue of incentives. It is a long-held truism in the financial markets and in life itself that when it comes to other people's money, people are more inclined to make good decisions. Despite any logical arguments for doing so, investors may be hesitant to do so since doing so would mean giving up control of their money, or they may be concerned that the seller understands more about the risks associated with a certain item and could be hesitant to invest in it (DeGennaro & Robotti, 2007).

2.2 Theoretical Literature

Agency Theory: The agency theory states that conflicts will occur if the contract is incomplete, followed by agency costs. However, agency issues arise when managers’ and stockholders’ interests differ. This may arise since the manager is not acting in the interest of the stockholders. The agency hypothesis posits that there is an agency relationship between stockholders and management (Easterbrook, 1984; La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000a; Jensen & Meckling, 1976). There is always a conflict of interest between investors and management. While the former is concerned with increasing their riches, the latter is concerned with increasing their remuneration. Management tries to take measures to reassure investors in order to prevent disagreement amongst them. A manager who owns 100 percent of a company behaves differently from one who owns less than 100 percent of the company (Jensen & Meckling, 1976). When managers control less than 100% of a company, they may act selfishly, making decisions to benefit themselves rather than the shareholders' wealth.

Jensen and Meckling used the term "residual loss" to describe the loss brought on by this agency cost (1976). Additionally, they defined "agency cost" as the expense and fees required to oversee the performance of their agent. The interest of the manager might be different from that of the owners (principals), but they must act in the interest of the principal. Actions like profit sharing, the 13-month rule, and sacking have been put in place to align the interests of managers and owners and avoid empire building. Splitting up ownership and control brings problems of incentive that zero-cost financial contracts cannot take care of, thus bringing about market friction.

2.3 Empirical Literature

Amihud and Mendelson (1986) carry out a study to find out if stock returns reflect the effect of market frictions. Market friction was measured by the bid-ask spread. Their regression result indicates that the bid-ask spread influences stock returns. The result further reveals that the mean returns on shares with higher bid-ask spreads seem to be greater. Vayanos (1998) discovered that realistically low transaction costs primarily impact the frequency of portfolio rebalancing and have insignificant impacts on asset returns. Balduzzi and Lynch (1999) found in their study on transaction cost and predictability that low transaction costs tend to reduce investors' portfolios. They also found that disregarding the cost of transactions and rebalancing more regularly can make stockholders lose up to 0.8%–16.9% of their wealth.

Hou and Moskowitz (2002) examine the influence of market frictions and delays in price on the cross-section of anticipated returns. Findings show that small, volatile,
and neglected stocks exhibit significant delays. After controlling for microstructure and liquidity effects, the result showed that delayed firms exhibit a strong return premium in the cross-section that subsumes that of firm size. They conclude that accounting for firms facing significant friction is important for understanding the cross-section of returns. Hu (2006) used a return decomposition technique to reach the conclusion that when frictional noises are at their lowest throughout the day, particular transaction costs lead the market to be the most volatile.

To determine whether trading activity, especially during periods of high trading volume, stimulates or reduces specific market friction, Lin, Sun, and Tsai (2010) looked at intraday order book data. The researchers chose a trade concentration metric that is best suited for high-frequency data. The measure is created both on a daily basis and at certain times during the day. The outcome shows that concentrated trading creates market noise or friction.

The researchers discovered that the price of a risk-free bond is rising in the stock market's trading fee because increased consumption volatility encourages prudent saving, which lowers interest rates.

Deng, Zeng, and Zhu (2019) investigate the link between political ties and market frictions in China. Their findings show that Chinese companies work hard to establish political ties in order to reduce the costs of market frictions. Their findings also show that firms experiencing significant market frictions are not as financially hampered as previously thought. However, they discover that market frictions can have a significant impact on financial restrictions in Chinese enterprises, but only for those with little political clout.

Idolor, Oshadare, and Izedomi (2020) examine the influence of market frictions on equity market performance in Nigeria, and the period of study was from 1981–2018. The outcome of the ARDL regression reveals that all the financial market friction variables utilised in the study exert a direct impact on stock market growth. The findings also show that transaction costs, as well as agency and information issues, have a significant impact on capital market growth, whereas the effects of tax and regulation, market indivisibility, and non-traded assets have no effect.

Prior researchers have either studied the effect of frictions on certain aggregate economies (see Amihud & Mendelson, 1986; Balduzzi & Lynch, 1999; Hou & Moskowitz, 2000; Deng, Zeng & Zhu, 2019), but very few from Nigeria (Idolor, Oshadare, and Izedomi, 2020) have investigated the effect of financial market frictions on trade in the Nigerian stock market.

3. METHODOLOGY

This study utilized longitudinal research designs. The goal of the longitudinal study approach is to learn more about a phenomenon over time by using historical data. The Central Bank of Nigeria (CBN) Statistical Bulletin and the World Bank Financial Indicator Database provided the study with annual time series data for the years 1982 to 2021. This time period was chosen because it encompasses both the global financial crisis's early and late phases. The estimation approach makes use of...
econometric tools including multivariate regression, Engel and Granger cointegration testing, and the Augmented Dickey-Fuller (ADF) unit root test. As a result, we employ the Engle and Granger cointegration test to assess cointegration, the Augmented Dickey-Fuller (ADF) unit root test to assess stationarity, and the Error Correction Mechanism (ECM) and multivariate regression to calculate short-run and long-run relationships. The features of the variables were described with descriptive statistics prior to the econometric analysis. The model was estimated using the EVIEWS 9.0 econometric software tool.

3.1 Theoretical Framework

The work of Degennaro and Robotti (2007) served as the foundation for the study's theoretical framework. It is assumed that there are financial market frictions, which include factors other than transaction costs that have an impact on capital market transactions. The theoretical framework also originates from Idolor, Oshadare, and Izedomi's (2020) work, which focuses on financial market friction and trading in the stock market using additional variables.

3.2 Model Specification

The model is based on a modified version of Idolor, Oshadare, and Izedomi's (2020) empirical model. Based on data availability, the models of Idolor, Oshadare, and Izedomi (2020) were adopted and adjusted in terms of variables incorporated to proxy financial market frictions. The model of Idolor, Oshadare, and Izedomi (2020) is therefore specified as follows:

\[ L_{\text{TRANSAC}} = \beta_0 + \beta_1 \text{TC} + \beta_2 \text{TRBT} + \beta_3 L\_AIP + \beta_4 L\_MKTID + \beta_5 L\_NTA + \mu \]  

Where \( L_{\text{TRANSAC}} \) stands for the total market transaction value, TC for total transaction cost, and TRBT for the rate on Treasury Bills; The error term accounts for additional potential factors that might affect \( L_{\text{TRANSAC}} \) but are not included in the model, such as \( L\_AIP \), which stands for agency and information problem, \( L\_MKTID \), which stands for indivisibility of assets, \( L\_NTA \), which stands for non-traded asset, and \( L\_NTA \), which stands for non-traded asset. The above model is consequently modified to ascertain the nexus between financial market frictions and trading on the Nigerian bourse because the study used different financial market frictions, such as capital gain tax rate and dividend tax rate, and we did not include treasury bill rate, the total value of equity sold, the total value of mutual funds transactions, and value of bonds in our model. The model for this study specifies the endogenous variable (Trading in Nigeria stock market) as a function of transaction cost, capital gain tax rate and dividend tax rate representing the explanatory variables. The model is stated as:

\[ TRAD = f(\text{TRACOST}, \text{CGTAXR}, \text{DTAXR}) \]  

Where;

\[ TRAD = \text{Trading (proxy by total volume of stock traded)} \]
TRACOST = Transaction Cost (proxy by total value of transaction cost)
CGTAXR = Capital gain Tax Rate (proxy for tax)
DTAXR = Dividend Tax Rate (proxy for tax)
f = functional link

Equation (2) is stated in econometric form as:
\[ TRAD = \beta_0 + \beta_1 TRACOST + \beta_2 CGTAXR + \beta_3 DTAXR + \epsilon_t \] .......................... (3)
Where;
\( \beta_0 \) = Intercept/constant
\( \beta_1 - \beta_3 \) = Coefficients of each explanatory variables
\( \epsilon_t \) = Stochastic term

The error correction model (ECM) is specified from equation (3) as:
\[ \Delta TRAD = \beta_0 + \beta_1 \Delta TRACOST_{t-1} + \beta_2 \Delta CGTAXR_{t-1} + \beta_3 \Delta DTAXR_{t-1} + \beta_4 ECM_{t-1} + \epsilon_t \] .......................... (4)
Where;
ECM(-1) = Lagged error correction term
\( t-1 \) = Variable lagged by one period
\( \epsilon_t \) = White noise residual

The ‘a priori’ expectations emanating from theoretical literature are stated as;
\( \beta_0 > 0 \) and \( \beta_1, \beta_2, \beta_3 < 0 \).

4. ANALYSIS OF RESULTS

The goal of the study is to determine how financial market frictions affect trade on the Nigerian bourse. Inferential analysis and statistical analysis are both used in the analysis. The inferential analysis will be conducted using the Augmented Dickey-Fuller (ADF) Unit Root test, Engel and Granger Cointegration test, the Error Correction Mechanism (ECM), and multivariate regression, while the statistical analysis will be conducted using summary statistics and a correlation matrix. Since the unit root test is a necessary condition for co-integration, the dependability of the empirical results is guaranteed.

4.1 Statistical Analysis

Summary Statistics

The descriptive statistics for the time series data utilised in the inquiry are displayed in Table 1.
Table 1: Result of the Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>TRAD</th>
<th>TRACOST</th>
<th>CGTAXR</th>
<th>DTAXR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>736822.7</td>
<td>38.33886</td>
<td>0.107692</td>
<td>0.117179</td>
</tr>
<tr>
<td>Median</td>
<td>256523.0</td>
<td>55.68620</td>
<td>0.200000</td>
<td>0.100000</td>
</tr>
<tr>
<td>Maximum</td>
<td>353563.1</td>
<td>81.37260</td>
<td>0.200000</td>
<td>0.150000</td>
</tr>
<tr>
<td>Minimum</td>
<td>10014.00</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.050000</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>928755.1</td>
<td>31.27734</td>
<td>0.101007</td>
<td>0.030170</td>
</tr>
<tr>
<td>Skewness</td>
<td>1.414055</td>
<td>-0.361791</td>
<td>-0.154303</td>
<td>-0.482897</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>4.423970</td>
<td>1.283481</td>
<td>1.023810</td>
<td>2.575910</td>
</tr>
<tr>
<td>Jarque-Bera</td>
<td>16.29207</td>
<td>5.638766</td>
<td>6.500921</td>
<td>1.807989</td>
</tr>
<tr>
<td>Probability</td>
<td>0.000290</td>
<td>0.059643</td>
<td>0.038756</td>
<td>0.404949</td>
</tr>
<tr>
<td>Sum</td>
<td>28736085</td>
<td>1495.216</td>
<td>4.200000</td>
<td>4.570000</td>
</tr>
<tr>
<td>Sum Sq. Dev.</td>
<td>3.28E+13</td>
<td>37174.34</td>
<td>0.387692</td>
<td>0.034590</td>
</tr>
<tr>
<td>Observations</td>
<td>39</td>
<td>39</td>
<td>39</td>
<td>39</td>
</tr>
</tbody>
</table>

Source: Researcher’s Calculation (2022) using E-views 9.0

Table 1 shows the descriptive statistics of the variables used in the analysis and the motive for this is to show the level of disparity among the variables. Table 4.1 showed that between 1982 – 2020, the average volume of stock traded (TRAD), total value of the transaction (TRACOST), Capital gain Tax Rate (CGTAXR), and Dividend Tax Rate (DTAXR) variables are 736822.7, 38.33, 0.10 and 0.11 respectively. This implies that the variables show major distinction in terms of magnitude, signifying that estimation in levels may present some bias in the result. The result shows that volume of stock traded (TRAD) was positively skewed while the total value of the transaction (TRACOST), Capital gain Tax Rate (CGTAXR), and Dividend Tax Rate (DTAXR) were negatively skewed. The Jarque-Bera statistics revealed that Dividend Tax Rate (DTAXR) was not normally distributed because its probability is not significant at the 5% level.

Correlation Analysis: The Pearson product-moment correlation is carried out to ascertain the direction and strength of the nexus between the dependent variable (volume of stock traded - TRAD) and explanatory variables. Table 4.2 presents the results.

Table 2: Result of the Correlation Matrix

<table>
<thead>
<tr>
<th></th>
<th>TRAD</th>
<th>TRACOST</th>
<th>CGTAXR</th>
<th>DTAXR</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRAD</td>
<td>1.000000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRACOST</td>
<td>0.609834</td>
<td>1.000000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CGTAXR</td>
<td>-0.786355</td>
<td>-0.725108</td>
<td>1.000000</td>
<td></td>
</tr>
<tr>
<td>DTAXR</td>
<td>-0.471846</td>
<td>-0.699480</td>
<td>0.534067</td>
<td>1.000000</td>
</tr>
</tbody>
</table>

Source: Researcher’s Calculation (2022) using E-views 9.0

According to Table 2, a variable's coefficient of correlation to itself is 1.000. This demonstrates the existence of a perfect correlation between a variable and itself. The following justifies the correlation coefficient between variables. The result showed that there is a direct link between the total value of the transaction (TRACOST) and
volume of stock traded (TRAD) with a coefficient of 0.60. The implication of a positive correlation or relationship between two variables is that both of them move in the same direction. This means when one of the variables moves upward, the other also would be found to move upward. On the other hand, the Capital gain Tax Rate (CGTAXR) and Dividend Tax Rate (DTAXR) had a negative relationship with the volume of stock traded (TRAD) with a coefficient of -0.78 and 0.47. This means that Capital Gain Tax Rate and Dividend Tax Rate adversely affect the volume of stock traded (TRAD) in the Nigerian stock market.

4.2 Econometric (Inferential) Analysis

Testing for Unit Root

Since the majority of time series data are not stationary, a unit root test must be performed on them. The stationarity and integration order of the data would be evaluated using the Augmented Dickey-Fuller (ADF) test. The outcomes of the ADF test are shown in Table 3.

<table>
<thead>
<tr>
<th>Augmented Dickey-Fuller (ADF) Test</th>
<th>Variables</th>
<th>Level</th>
<th>First Difference</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRAD</td>
<td>-2.3019</td>
<td>-8.9027*</td>
<td>I[1]</td>
<td></td>
</tr>
<tr>
<td>TRACOST</td>
<td>-1.5095</td>
<td>-6.4778*</td>
<td>I[1]</td>
<td></td>
</tr>
<tr>
<td>CGTAXR</td>
<td>-0.8974</td>
<td>-6.0827*</td>
<td>I[1]</td>
<td></td>
</tr>
<tr>
<td>DTAXR</td>
<td>-1.9092</td>
<td>-5.9272*</td>
<td>I[1]</td>
<td></td>
</tr>
</tbody>
</table>

At a 1% significance level, * denotes rejection of the hypothesis.

Source: Researchers’ Calculation (2022) using E-views 9.0

In Table 3, the outcomes of the unit root test on each variable in the model are shown. If the comparison is made in absolute terms, the ADF test statistic value must be greater than the Mackinnon critical value at a 5% level of significance in order to establish whether the time series data are stationary. The ADF test showed stationary distributions for all the variables at the initial difference.

Co-integration test

We test for co-integration between the traded stock volumes (TRAD) and the regressors' total transaction cost (TRACOST), capital gain tax rate (CGTAXR), and dividend tax rate after verifying that the variables are generated by a unit root process (DTAXR). The unit root tests on the OLS residuals are shown in Table 4.5.

<table>
<thead>
<tr>
<th>Table 4: Unit Root Test for ECM Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>t-Statistic</td>
</tr>
<tr>
<td>Prob.*</td>
</tr>
<tr>
<td>Augmented Dickey-Fuller test statistic</td>
</tr>
<tr>
<td>Test critical values:</td>
</tr>
<tr>
<td>1% level</td>
</tr>
<tr>
<td>5% level</td>
</tr>
<tr>
<td>10% level</td>
</tr>
</tbody>
</table>

Source: Researcher’s Calculation (2022) using E-views 9.0
A quick glance at Table 4.3 indicates that the residual is stationary since the absolute ADF test statistic of -4.39 is greater than the absolute critical ADF value of -3.61 at a 1% level of significance, implying that the residual is stable. At the 1% test level, we can infer that the regressors (total value of the transaction (TRACOST), Capital Gain Tax Rate (CGTAXR), and Dividend Tax Rate (DTAXR)) and the volume of stock traded (TRAD) are co-integrated. As a result, the volume of stock traded (TRAD) and the explanatory variables have a long-run equilibrium connection, which supports the employment of the Error Correction Mechanism (ECM) in this study.

**Error Correction Mechanism (ECM)**

After specifying an over-parameterized model (ECM1) that is developed by including a sufficient lag length long enough to ensure that the dynamics of the model is not being inhibited by a lag length that is too short, the ECM includes estimating the parsimonious model (ECM2) that incorporates short-run dynamism. Table 4 displays the results of the over-parameterized error correction model.

### Table 5: Over-parameterized Error Correction Model (ECM1) Result

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Std-Error</th>
<th>t-ratio</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>61595.86</td>
<td>101807.5</td>
<td>0.605023</td>
<td>0.5500</td>
</tr>
<tr>
<td>DTRAD(-1)</td>
<td>-0.056010</td>
<td>0.179413</td>
<td>-0.312186</td>
<td>0.7572</td>
</tr>
<tr>
<td>DTRACOST</td>
<td>-2858.527</td>
<td>7810.274</td>
<td>-0.365996</td>
<td>0.7171</td>
</tr>
<tr>
<td>DTRACOST(-1)</td>
<td>-3170.049</td>
<td>7849.362</td>
<td>-0.403861</td>
<td>0.6894</td>
</tr>
<tr>
<td>DCGTAXR</td>
<td>-380886.9</td>
<td>3322216.</td>
<td>-0.114648</td>
<td>0.9095</td>
</tr>
<tr>
<td>DCGTAXR(-1)</td>
<td>3114024.</td>
<td>3579832.</td>
<td>0.869880</td>
<td>0.3918</td>
</tr>
<tr>
<td>DDTAXR</td>
<td>354293.6</td>
<td>5840358.</td>
<td>0.060663</td>
<td>0.9521</td>
</tr>
<tr>
<td>DDTAXR(-1)</td>
<td>58602.89</td>
<td>5780149.</td>
<td>0.010139</td>
<td>0.9920</td>
</tr>
<tr>
<td>ECM(-1)</td>
<td>-0.713747</td>
<td>0.217096</td>
<td>-3.287698</td>
<td>0.0027</td>
</tr>
</tbody>
</table>

| Source: Researcher’s Calculation (2022) using E-views 9.0 |

The outcome of the over-parameterized ECM for the volume of stock traded (TRAD) is shown in Table 4, however it is not interpretable in its present form. The over-parameterized ECM model was improved to generate a parsimonious error correcting model. To account for short-run dynamism, the ECM2 includes the lead and lag values of each explanatory variable that are significant or have higher significance if both are significant or closer to significance if none are. The ECM1 is condensed into the ECM2 to achieve this.
Table 6: Dependent Variable: DTRAD

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Std-Error</th>
<th>t-ratio</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>39419.61</td>
<td>95236.08</td>
<td>0.413915</td>
<td>0.6818</td>
</tr>
<tr>
<td>DTRAD(-1)</td>
<td>-0.083633</td>
<td>0.168761</td>
<td>-0.495571</td>
<td>0.6237</td>
</tr>
<tr>
<td>DTRACOST</td>
<td>-3786.064</td>
<td>7451.946</td>
<td>-0.508064</td>
<td>0.6150</td>
</tr>
<tr>
<td>DCGTAXR</td>
<td>-564301.8</td>
<td>3206387.</td>
<td>-0.175993</td>
<td>0.8614</td>
</tr>
<tr>
<td>DDTAXR</td>
<td>-213000.9</td>
<td>5579076.</td>
<td>-0.038179</td>
<td>0.9698</td>
</tr>
<tr>
<td>ECM(-1)</td>
<td>-0.633027</td>
<td>0.193660</td>
<td>-3.268749</td>
<td>0.0026</td>
</tr>
</tbody>
</table>

R-squared     | 0.376613    |
Adjusted R-squared | 0.276067 |
F-statistic   | 3.745673    |
Durbin Watson stat. | (0.0090) |
2.060001      |

Source: Researcher’s Calculation (2022) utilising E-views 9.0

The ECM2 result in Table 4 has an adjusted $R^2$ of 0.276067, an implication that 27.7% of the total deviation in the total volume of stock traded (TRAD) is explained by the total volume of transaction cost (TRACOST), Capital Gain Tax Rate (CGTAXR) and Dividend Tax Rate (DTAXR) and the remaining 72.3% is explained by factors not included in the model. Because the model's F-statistic value of 3.745673 indicates that it is statistically significant at the 1% level, we may infer that it is appropriate for empirically investigating the impact of financial market frictions on trade on the Nigerian stock exchange. The model's importance is further supported by the F-probability statistic's value of 0.009084. In ECM2, the lagged error correction term's coefficient had the correct sign and was statistically significant at the 1% level. As a result, any shift in stock traded volume (TRAD) from short-run to long-run equilibrium may be accounted for by the model. When there is a transient disequilibrium, the ECM coefficient is 0.63, suggesting that the rate of change is roughly 63 percent in the long run. The result also reveals the absence of autocorrelation in the model, since the Durbin Watson statistic of 2.06 was less than 2.

It can be seen from the ECM2 result in Table 4 that not all of the parameters have a coefficient smaller than one. If all explanatory factors are maintained constant, the volume of stock traded (TRAD) increases by 39419.61 units. Previous year volume of stock traded \{TRAD (-1)\} is negatively related to current year volume of stock traded (TRAD). Its coefficient which is -0.083633 infers that a unit increase in the previous year's volume of stock traded (TRAD) (-1) causes a fall in the volume of stock traded by -0.083633 units. The total value of transaction cost (TRACOST) is negatively related to the volume of stock traded (TRAD). Its coefficient of -3786.064 indicates that a unit increase in Total value of transaction cost (TRACOST) leads to a decrease in the volume of stock traded (TRAD) by -3786.064 units. This is due to the high transaction cost in the Nigerian stock market. The coefficient of Capital Gain...
Tax Rate (CGTAXR) is -564301.8. This shows that the Capital Gain Tax Rate (CGTAXR) exerts a negative influence on the volume of stock traded (TRAD). A unit increase in Capital Gain Tax Rate (CGTAXR) leads to -564301.8 decreases in the volume of stock traded (TRAD) in the Nigerian stock market. The implication of this is that an increase in Capital Gain Tax Rate (CGTAXR) has brought about a decrease in the volume of stock traded (TRAD) in the Nigerian stock market. The dividend tax rate (DTAXR) is inversely proportional to the volume of stock traded (TRAD). With a value of -213000.9, the Dividend Tax Rate (DTAXR) coefficient implies that if is increased by one unit, the volume of stock traded (TRAD) will decline by -213000.9 units. This data suggests that a rise in the Dividend Tax Rate (DTAXR) in the Nigerian stock market results in a decreased volume of stock traded (TRAD). The findings also show that all of the explanatory factors meet the 'a Priori' predictions and are not statistically significant at the 5% level, meaning that they are not as important in influencing the volume of stock traded (TRAD) in the Nigerian stock market.

Long-Run Analysis

After we've looked at the short-run data, we'll look at the long-run predictions. Table 5 shows the outcome of the long-run association between the variables.

Table 7: Long Run Results from Ordinary Least Square (OLS)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Std-Error</th>
<th>t-ratio</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>1791373.0</td>
<td>830331.2</td>
<td>2.157420</td>
<td>0.0384</td>
</tr>
<tr>
<td>TRACOST</td>
<td>339.2727</td>
<td>6581.887</td>
<td>0.051546</td>
<td>0.9592</td>
</tr>
<tr>
<td>CGTAXR</td>
<td>-6133233.0*</td>
<td>1769735.</td>
<td>-3.465623</td>
<td>0.0015</td>
</tr>
<tr>
<td>DTAXR</td>
<td>-3496577.0</td>
<td>5184188.</td>
<td>-0.674470</td>
<td>0.5047</td>
</tr>
</tbody>
</table>

R-squared       0.650301
Adjusted R-squared 0.607914
F-statistic     15.34174 (0.0000)
Durbin Watson stat. 2.022130

* Denotes 1% level statistical significance.

Source: Researchers’ Calculation (2022) utilising E-views 9.0

A quick glance at the results in Table 5 reveals an adjusted R-square of about 61%, signifying that changes in the explanatory variables (total value of transaction cost (TRACOST), Capital Gain Tax Rate (CGTAXR), and Dividend Tax Rate (DTAXR)) account for about 61 percent of the variation in the independent variable - volume of stock traded (TRAD). The hypothesis of a substantial linear nexus between the explanatory factors and volume of stock traded (TRAD) is supported as the f-statistic value of 15.34 is highly significant at the 1% level. The estimated model is suitable for policy perspectives because there is no serial correlation, as indicated by the estimated model's Durbin Watson statistic of 2.02. The result demonstrates that, in the long term, one of the indicators of financial market frictions (Capital Gain Tax Rate (CGTAXR)) considerably influenced the volume of stock traded (TRAD) in the
Nigerian bourse, as evidenced by the likelihood value. However, the total value of transaction cost (TRACOST) and Dividend Tax Rate (DTAXR) has no significant impact on the volume of stock traded (TRAD) in the Nigerian stock market in the long-run. Regarding the *a priori* expectation, Capital Gain Tax Rate (CGTAXR) and Dividend Tax Rate (DTAXR) were correctly signed (negative) while the total value of transaction cost (TRACOST) was wrongly signed (positive). The negative relationship exhibited by the coefficients of Capital Gain Tax Rate (CGTAXR) and Dividend Tax Rate (DTAXR) indicates that a rise in Capital Gain Tax Rate (CGTAXR) and Dividend Tax Rate (DTAXR) would reduce the volume of stock traded (TRAD) in Nigerian stock market in the long run. The positive nexus between the total value of transaction cost (TRACOST) and the volume of stock traded (TRAD) in the Nigerian stock market, in the long run, is surprising. This might be due to the technological innovation that has made payment of these costs very easy. Thus, it can be concluded that financial market frictions (proxy by the capital gain tax rate (CGTAXR)) have a meaningful influence on trading in the Nigerian bourse in the long run.

**Discussion of Findings**

Financial market frictions have about the same degree of link to trade activity in the short and long run, according to the research. All of the financial market frictions variables (total value of transaction cost (TRACOST), capital gain tax rate (CGTAXR), and dividend tax rate (DTAXR)) align with a priori expectation in the short run, but they are not statistically meaningful at the 5% significance level, indicating that financial market frictions do not interfere with short-term trading in the Nigerian stock market. This finding is contrary to the result of Idolor, Oshadare, and Izedomi (2020) who found a positive relationship between transaction cost and stock market growth in the short run. Similarly, in the long run, two out of the three variables that capture financial market frictions, that is, capital gain tax rate (CGTAXR) and dividend tax rate (DTAXR) conform to *a priori* expectation while the total value of transaction cost was wrongly signed (positive). However, only the capital gain tax rate (CGTAXR) exerts a meaningful effect on trading activities in the Nigerian bourse in the long run. Therefore, we can conclude from this result that financial market frictions (in terms of, capital gain tax rate (CGTAXR)) adversely interfere with trading activities in the long run during the period under review.

**Policy Implication**

The estimations from the aforementioned analysis have intriguing policy implications. The results indicate that these factors are essential for accurately simulating financial market frictions based on the priori signals and statistical significance of the explanatory variables. The findings highlight the need to lower the capital gains tax rate given its considerable and unfavourable impact on stock trading. The power of the market in controlling financial market frictions in the Nigerian stock market...
bourse is demonstrated by the non-statistical significance of transaction cost and dividend tax rate.

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study investigates the effect of financial market frictions on trading in the Nigerian bourse over the period 1982-2021. The financial market friction indicators considered in this study include transaction costs and taxation. Transaction cost was proxy by the total value of transaction cost while taxation was proxy by capital gain tax rate and dividend tax rate. Trading in the Nigerian bourse was proxy with the total volume of stock traded in the market. The study used the preliminary test of descriptive statistics, Augmented Dickey-Fuller unit root test, and the Engle and Granger two stage co-integration methods, to determine the properties, stationarity, and long run relationship of the variables. The specified model was estimated using the error correction mechanism (ECM) and multivariate Ordinary Least Square (OLS) techniques. Findings revealed that only the capital gain tax rate hindered trading activities in the Nigerian bourse in the long-run during the period studied. However, in the short run, transaction cost, capital gain tax rate, and dividend tax rate negatively influence trading activities in the Nigerian bourse but they fail the significant test. Hence, the study concludes that the capital gain tax rate is the only financial market frictions that hinder trade in the Nigerian bourse during the period studied. This is not surprising given that the existing capital gain tax rate which is 10% in Nigeria is on a high side.

5.2 Recommendations

The following recommendations for policy are given in light of our research's empirical findings:

(i) To mitigate the negative effects on Nigeria's stock market trading, the government should ensure that capital gains are taxed at a rate that is appropriate. As a result, the present 10% capital gain tax rate should be reduced to 5%.

(ii) Operators and investors in the market should embrace Financial Technology (FinTech) in their operations to reduce 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 usage of FinTech. In addition, it will lessen the amount of paperwork that comes with costs for securities transactions and the settlement cycle. An investor who wishes to participate in the stock market can do so while relaxing in his own home.

REFERENCES


