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Financial market frictions and portfolio investment performance in Nigeria

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Abstract

In reallocating resources from the fund surplus unit to the fund deficit unit, financial markets face some interference which is referred to as financial market frictions. The study examines the micro and macro aspects of the effects of financial markets frictions on portfolio investments decisions and performance of financial market participants (individual firms and the entire economy). The study employs secondary data collected from firms annual reports and accounts and the World Bank data bank for national economic data. The firm level data covers a period of five years while the macro level data covers a period of seven (11) years. The study used EView 8.0 for generating the estimation results for the study. The study uses panel least square and two stage least square estimation techniques for the analysis of the data and to test the hypotheses. The study find, amongst other findings, that financial markets frictions and changes in financial market frictions across specific financial markets significantly affect investor's portfolio decision and performance at the firm level and national economies. The study concludes that financial market frictions affect both portfolio investment decisions and portfolio investment performance in all financial markets and that exchange rate cheanges and changes in other financial markets frictions result in significant changes in investor's decisions and performance across the globe. The study also concludes that the portfolio constituent of an investor changes with regards to changes in financial frictions. That portfolio investment decisions in all financial markets are significantly influenced by financial markets frictions at varying degrees and magnitudes and that these frictions changes frequently in financial markets. The study recommends, amongst other recommendations, that investors should give considerable attention to minimizing varied financial markets frictions that affect their investment decisions and the performance of their investment portfolio.

Keywords: Financial Markets Friction, Portfolio Investment Decisions, Investors Performance.

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1. INTRODUCTION

Financial markets (in developed and developing economies) primarily seek to reallocate capital from areas where there is less investment needs but with surplus funds to areas where there is high investment demand with no or little available funds given attendant incentives to fund owners and minimal cost to those that need the funds. This brings about optimal allocation of resources. In ensuring this optimality, there are some interferences encountered in the transmission of these funds from the surplus units of fund owners to the deficit units of fund users. In essence, the reallocation of funds is impeded by financial markets frictions. The effects of these interferences are felt both by individual investors, firms and the economy at large. In developed economies, major economic shocks and crisis have derived from influences of interferences in investors' decision which have amplification effect on economic aggregates. [1]

The choice of capital investment is a standard portfolio problem in financial markets. Investors in the financial markets, both domestic and international, purchase capital stocks at certain periods at some determinable rates (e.g., interest rate). The level of these rates determine where, when and how much of such capital stocks will be bought or sold by an investor. These rates are influenced either positively or negatively by barrage of forces which can be considered as financial markets frictions. These frictions at times bring about interrelationships between factors affecting asset prices, investment and output in financial markets, and at times economies at large.[2] Investors' decisions in developing economies

are to a large extent greatly influenced by frictions in the market than just the availability of funds. Financial markets both in developing and developed economies face a lot of constraints that investors take into consideration for optimal yield on investment. Such constraints included but not limited to financial market frictions. [3]

Financial markets frictions are variables that influence the choices and decisions of investors or policy makers in financial markets and the economies in general leading to the performance of their investment both at individual, firm and economy level. They are factors that influence or at times impede the reallocation of financial resources in financial markets such as collateral constraints. [4]

A friction is an impediment, obstruction, or constraint that prevents markets and economies from working smoothly (Adler, 2014). According to DeGennaro and Robotti (2007) financial markets frictions makes market participants not to hold the market portfolio meaning that in the search of optimal portfolio by investors, they may be opened to more or even less risk compared to the risk they will want to assume. This is because financial markets frictions affect practically all transaction in one way or the other. Also, financial markets frictions bring about certain costs which impede trades decisions taken by rational individuals or decisions that investors may take where there are no friction). [5]

Investment basically, is the forfeiting of current consumption for the sake of future benefits (returns). These benefits are taken to equal or greater than the sacrifice of not consuming in the present term which quantitatively is taken as the 'rate of return'. How an economic agent1 constitutes its portfolio depends on varied factors which the rate of return is one of them. Different from the rate of returns on investment, some other factors may affect the investor's choice of assets in constructing his/her portfolio. It is against this background, that the study seeks to investigate the impact of financial market frictions on portfolio investment performance of some selected firms in Nigeria. [6]

2. Review of Related Literature

2.1 Conceptual Review

2.1.1.Portfolio Investment and its Determinants in Financial Markets

Market Portfolio refers to not only a set of financial instruments but as well as human capital, real estate, investors' time, etc. Portfolio investment could be used to represent transactions relating to long-term financial assets (like bonds) between countries which do not influence the transfer of control. Where the transaction affects transfer of control, it is categorized as direct foreign investment instead of portfolio investment. Portfolio returns depends on the characteristics of exchange process of the securities constituents. The wider the bid – ask spread, the higher the returns the investors will demand to hold the securities that have a wide bid – ask spread (Amihud & Mendelson, 1986).

The concentration or dispersal of investment by investors is dependent on information in the financial market. This dictates the perception of value (risk and return framework). Different from economic forces that influence the construction of an investor's portfolio, some other behavioural forces also account for the choice of assets and the general composition of investor's portfolio. Goetzmann and Kumar (2008) find that the intensity of reduced spreading of investment assets is prominent with less-educated, low – income, younger, and less-sophisticated investors. Grinblatt, Keloharju and Linnainmaa (2011) discovered that investors who have high IQ have the tendency to invest in mutual funds with more volume of stocks than investors with lower IQ. This shows that cognitive skill is a significant factor for considering portfolio selection and performance. Also, French and Poterba (1991), Grinblatt and Keloharju (2001) and Huberman (2001) asserts that some investors hold mostly local stocks while Barber and Odean (2008) maintained that firm visibility impact greatly on portfolio choice. [7,8,9,10]

3. Financial Markets Frictions

The definition of financial markets friction is always contextual – that is, it must be defined based on certain financial variable or from the prism of certain area in the field of economics and other human interactions with the exchange of goods and services with particular reference to financial products and services. DeGennaro and Robotti (2007) defined financial markets frictions through the prism of capital asset pricing model (CAPM) as anything that interferes with trade. Such things that interfere with trade are taxes, capital gain tax and transaction costs. Stijn, Kenichi and Yishay (2010) identified financial markets frictions as key factors in driving both short-run macroeconomic fluctuations when economic variables cannot be changed and when they can all be varied. The effect of this is reduction in macroeconomic volatility and enhanced growth potential. [11,12,13,14,15]

Financial markets frictions to some are considered as market imperfections. They refer to factors that measure the difficulty which are classified as cost and also taken as time in buying and selling assets in financial markets (Stoll, 2000). The most common examples of financial markets frictions which affect virtually every transaction are taxes and transaction costs. Also part of financial markets frictions are the various financing restrictions such as credit market constraints which reduce debt financing. The extent of the reduction determines the value of the initial collateral. Different from debt financing, equity constraints reduces an investor's tendency of selling off risky claims. [16,17,1,8,19]

Christiano, Trabandt and Walentin (2010) see financial markets frictions as spillover effects of financial market disturbances to a certain variable

under consideration in their study (unemployment) in the economy. These disturbances are interferences that influences the choice of securities in terms of types, volume and terms of financial contracts and product that they hold in their investment portfolios. [20,21,22,23,24]

4. Theoretical Review

The traditional models in economics and finance assert that representative economic agents functioning in perfect financial markets do have direct access to an unlimited finance. With this assumption, other models that looked into the issue of friction introduced rigidities and constraints which reduce or hinders the accessibility of funding. The systems which can increase shocks from the economy can be adduced to the following classes: cash-flow constraints, external funds limits, collateral constraints, and financial regulations. The various models explained in this section contain one form of constraints or the other. [26,,27,28]

The failure of the Modigliani and Miller (1958) theorem on the independence of a firm's value from its financing structure necessitated the introduction of financial rigidities. They established their theorem based on the hypotheses of efficient markets; there are no presence of distortions from tax system changes, zero bankruptcy costs, and perfect information. They demonstrated that for the total value of a firm, it does not matter whether the funds of the firm are increased by debt or equity.

If the Modigliani and Miller (M-M) theorem is anywhere near reality, it is possible to exclude the functions of financial markets in getting finance since financial features will be less important in decision-making process. However, the oversight of the functions of financial markets has been highly criticized from the time the theorem was formulated. Quite a number of studies have included financial variables into the models.

In Brazdik, Hlavacek and Marsal (2012) the systems that can transform unexpected and short-lived crash of financial markets into sharp and prolonged fluctuations in the real economy are usually called financial accelerator mechanisms. Bernanke, Gertler, and Gilchrist (1999) stated that "the presence of a financial accelerator mechanism is adduced to an external finance premium (the credit channel, limiting the supply of external resources) or collateralization of debt (the collateral constraint channel)".

5. The Kiyotaki and Moore (KM) (1997) Framework

In a model by KM (1997) durable like buildings, land and other factors of production are taken as securities for borrowing. According to them, "the borrower's capacity to obtain a loan is impacted by the price of securitized assets. The way in which the model work is explained as follows with its various assumptions. Consider an economy which have a land (non depreciable) utilized for obtaining loans and manufacturing output. All the supply of land is known to be fixed. If there are firms with credit constrained and are highly levered because of previous borrowing activity. Assuming that in the period t, a number of firms encounter temporary productivity shock which diminish their net worth. Since there is less ability to borrow more, the credit constraint makes them to reduce the investment rate, thereby influencing the following time payoffs. Furthermore, this impacts the value of capital, causing a change in the activity of all constrained firms (drastic reduction in collateral value). This mechanism impacts the level of investment (and the amount of the output) over the long-run".

KM (1997) stated that "there exist two kinds of farmers that are risk-neutral. They derive satisfaction from the consumption of fruits at t+s. The major variation between them is their discount factor. Given that β' is the discount factor for impatient farmers and β the discount factor for patient farmers, in equilibrium, there is no production deferrement by impatient farmers, hence $\beta' < \beta$ which guarantee that they borrow to fund their activities".

The framework of KM (1997) was previously introduced in an estimated Dynamic Stochastic General Equilibrium (henceforth DSGE) model by Iacovellio (2005). He started the model by using two kinds of households as used by KM (1997) model plus entrepreneurs that behave in the same pattern as impatient households. As a result, there are two kinds of agents which have need of credit; they are entrepreneurs and impatient households. Contrary to the model of KM (1997), the collateral decrease in value over time and there are specialized agents that produce new housing stock (Viziniuc, 2015).

6. Empirical Review

In a study by Heaton and Lucas (1997) titled "market frictions, savings behaviour, and portfolio choice" conducted in United States of America examined a framework of portfolio choice where investors encounter income risk prevalent in the money market which cannot be directly insured. In their paper they explored the quantitative implications for portfolio choice and savings behaviour of a class of buffer-stock-type models with transaction costs. They looked at the sensitivity of savings and portfolio allocation rules to diverse postulation regarding utility, the stochastic process for income and asset returns, and financial markets frictions (short-sale constraints and transactions costs). Under constant relative risk aversion (CRRA) time additive utility, habit persistence utility, and for wide parameterizations, the model forecast that investors desire to borrow and invest their total savings in stocks. This qualitative repercussion is strong in permitting the influence of major transaction costs in the stock market, and extremely differs with portfolio allocation frameworks where there is no labour income.

Levin, Natalucci and Zakrajsek (2004) in their study "the magnitude and cyclical behaviour

of financial market frictions" employ balance sheet data, probability of default and bond spreads for 918 publicly traded U.S. firms over the period 1997Q1 to 2003Q3 to examine financial markets frictions and to study how they evolve over time. The "Expected Default Frequency" variable (constructed by Moody's/ KMV Corp.) allows them to more accurately get the bankruptcy cost coefficients that offer the best fit to the observed credit spreads. They obtain precise time-specific estimates of the bankruptcy cost parameter and consistently reject the null hypothesis of frictionless financial markets. For most of the firms in their sample, the estimated premium on external finance was very low during the expansionary period 1997 – 99, but rose sharply in 2000 – especially for firms with higher ratios of debt to equity – and remained elevated until early 2003.

In empirically investigating the effect of frictions, Lo, Mamaysky and Wang (2004) in their study titled "asset prices and trading volume under fixed transactions costs" conducted in United States of America; they calibrate their model using empirically plausible parameter values and derive numerical implications for the illiquidity discount, trading frequency, and trading volume. They found that even small transaction costs can have a considerable impact, making investors to cease from trading. Also, from an aggregate perspective, Amihud and Mendelson (1986) show some substantiation that stock returns reveal the impacts of financial markets frictions.

Hou and Moskowitz (2005) in their study titled "market frictions, price delay, and the cross-section of expected return" conducted in United States of America; they parsimoniously characterised how financial markets frictions severely affect a stock using the delay with which its price react to information. The most delayed firms in their study commands a large return premium not described by liquidity, size, or micro – structure property. Additionally, delay covers part of the size effect, idiosyncratic risk being priced only among the most delayed firms, and earnings drift is monotonically rising in delay. They found that financial markets frictions associated with investors' recognition contribute more to the delay impact. The minute segment of delayed firms comprise only 0.02% of the market, produce sizeable variation in average returns, stressing the significance of financial markets frictions.

Luca and Giovanni (2009) develop a two-country framework presenting financial markets frictions on nontrivial portfolio choices and capital investment by agents under incomplete markets in their study titled "financial frictions, financial integration and the international propagation of shocks" carried out in Germany. Their model analyzed the model of international financial multiplier working via the statement of financial positions of cross-border levered investors, as hypothesized in past studies on international transmission via financial channels (Calvo, 2000; and Krugman, 2008), and examine its impacts for shocks propagation, as empirically noted by Kaminsky and Reinhart (2000) in the background of fundamentals-based "contagion" of financial shocks and crises. Calvo (2000) and Krugman (2008) argued that the essence to rebalance the total risk of an investor's cross-border asset portfolio and to deleverage following the losses after the initial shock can result to a marked reversal in investment and asset prices across markets where the investor has considerable exposure. They found out that foreign exposure in interconnected balance sheets of leveraged investors can indeed act as a powerful propagation mechanism of asymmetric shocks across countries. Kaminsky and Reinhart (2000) finds that in the case of banks this assist in describing cross-border spillovers of shocks, because when a bank is faced with a considerable increase in non-performing loans in a particular economy it is likely to be called upon to lower the total risk of its assets by pulling out of other high risk projects elsewhere. Consequently, it will lend less (if at all), as it is forced to recapitalize and adjust to its lesser level of wealth.

7.Methodology

7.1 Research Design

The study is of the longitudinal ex-post facto type of research. This is because the subject of examination in the study cuts across different firms and countries for different years and ex-post facto in that it utilized secondary data which are "after the fact" in nature. The study employed a causal research design, where data are collected to quantitatively verify the stated hypotheses of the study which are concerned with the impact and effect (cause and effect relationships) of one variable on another, using statistical methods of analysis in arriving at conclusions for the study.

7.2 Sources of Data

The data for the study were collected from statement of financial position, comprehensive income statement and cash flow statement of firms that are listed on the Nigerian Stock Exchange (NSE). These firm level data covered available performance measures and investment spending and other variables such as interest income, interest expenses, taxes, leverage ratio, liquidity constraints data, etc.

7.3 Model Specification

The model for this study is patterned after the works of Kiyotaki and Moore (1997) and Gertler and Karadi (2011), by creating an assumed investment portfolio in each of the classified financial markets using the data of firm's balance sheet covering profitability/ returns on assets of firms from each of the selected markets. The portfolios are used to examine how financial markets frictions affect investor's decision/ performance in the financial market. The model specified as follows:

$IVS = f(FinF_{ij})$ ---------- (1)

$FNP = f(FinF_{ij})$ ---------- (2)

Where

IVS = Investment Spending proxied by total assets

FNP = Firm Performance proxied by firms returns on assets which is given as

$\frac{Profit/loss\ After\ Tax}{Total\ Assets}$

Financial markets frictions for the firm level data examined such variables as effect of exchange rate movement on cash balances, cash flow (cash and cash equivalents at end of the year), tax expenses (income tax expenses), liquidity constraint (interest expenses), interest income, leverage (total book value of debt to book value of common equity, i.e.,

$\frac{Total\ Liabilities}{Total\ Equity\ (Deficit)}$),

borrowings, and collateral constraints.

The model is stated econometrically thus:

$IVS_{it} = \alpha_0 + \beta_{1\ to\ n} FinF_{it} + \varepsilon_{it}$ ---------- (3)

$FNP_{it} = \alpha_0 + \beta_{1\ to\ n} FinF_{it} + \varepsilon_{it}$ ---------- (4)

Where

α_0 = intercept,

$\beta_{1\ to\ n}$ = coefficient of the explanatory variables,

ε = residual (error term or stochastic variable),

i = firm specific (cross – section properties),

t = current time (time series properties),

n = the number of independent variables.

The models in equation 2, 3 and 4 are presented in full forms as stated in equation 5 and 6.

$IVS_{it} = \alpha_0 - \beta_1 EER_{it} + \beta_2 CFL_{it} - \beta_3 TXE_{it} - \beta_4 INE_{it} + \beta_5 INI_{it} + \beta_6 LVG_{it} + \beta_7 BRW_{it} - \beta_8 CCT_{it} + \varepsilon_{it}$ ---------- (5)

$FNP_{it} = \alpha_0 - \beta_1 EER_{it} + \beta_2 CFL_{it} - \beta_3 TXE_{it} + \beta_4 INE_{it} + \beta_5 INI_{it} + \beta_6 LVG_{it} + \beta_7 BRW_{it} - \beta_8 CCT_{it} + \varepsilon_{it}$ ---------- (6)

Where

IVS = Measured as previously defined,

FNP = Measured as previously defined,

EER = effect of exchange rate movement on cash balances,

CFL = cash flow (cash and cash equivalents at end of the year),

TXE = tax expenses,

INE = liquidity constraint (interest expenses),

INI = interest income,

LVG = leverage (total book value of liabilities to book value of common equity(deficit), i.e.,

$\frac{Total\ Liabilities}{Total\ Equity\ (Deficit)}$),

BRW = borrowings, and

CCT = collateral constraint.

The a priori expectations of the models used for the micro aspect of the study are as follows:

For model on investment spending:

$\alpha_0 > 0$; $\beta_1 < 0$, $\beta_2 > 0$, $\beta_3 < 0$, $\beta_4 < 0$, $\beta_5 > 0$, $\beta_6 > 0$, $\beta_7 > 0$, $\beta_8 < 0$.

8. Method of Data Estimation/Analysis

The study used Econometric View (EView) software version 8 for conducting the statistical analysis to generate the various parameters needed to analyse the data for the study. Considering the cross sectional nature of the data, the study utilized the panel regression estimation which takes heterogeneity into consideration by allowing for cross-sectional (random) and/or period specific (fixed) effects characteristic of panel data. Correlated Random Effects - Hausman Test was conducted to determine the results of regression model to analyse. Fixed effect estimation is chosen for some of the results because the individual firms have specific differences that influence the behaviour of the firms. While random effect analyzes the differences of each individual with respect to the whole population, fixed effects incorporate unknown parameters into the model and assess their effects on the firm's behaviour over time (Verbeek, 2008). The random-effects framework for panel data takes care of the panel-specific errors as uncorrelated random variables taken from a population with zero mean and constant variance. The regressors must be uncorrelated with the random effects for the estimates to be consistent. The fixed-effects model is a model for panel data where the panel-specific errors are treated as fixed parameters. These parameters are panel-specific intercepts and therefore allow the conditional mean of the dependent variable to vary across panels. The linear fixed effects estimator is consistent, even if the regressors are correlated with the fixed effects (StataCorp, 2015). Tests such as descriptive statistics and correlation analysis were conducted for an overview in the description of data distribution and relationships between the variables. The regressions were conducted under varied conditions taking into cognizance different coefficient variation and different weights. In evaluating the panel regression results, individual statistical significance tests (t-test) and overall statistical significance results (F-test) were used including other parameters such as the coefficient of determination, measure for goodness of fit, etc. The various tests in the study were conducted under the 5% level of significance where significance level is required.

Since the study involves the use of panel data, this implied that the data set used do have properties characterised by trends and non-stationarity. In order to examine the stationarity features of the time series component, panel unit root tests are used. The panel unit root test was applied in the study to determine if the series exhibit a unit root as developed by Levin, Lin and Chu (2002), Im, Pesaran and Shin (2003),

and Maddala and Wu (1999) – ADF – Fisher Chisquare. Maddala and Wu (1999) Fisher test is founded on mixing the p-values of the test-statistic for a unit root in each sample. They are of the opinion that this test performs better than other tests for unit roots in panel data and that it has the advantage which does not necessitate a balanced panel, as required by most tests. The Levin, Lin & Chu assumes common unit root process while Im, Pesaran and Shin W-stat, ADF-Fisher Chi-square and PP-Fisher Chi-square assume individual unit root process. The Fisher type unit root test requires specification of Augmented Dickey-Fuller (ADF) and Phillip Peron (PP) to test whether a variable has unit root. The data generating process for which the unit root tests are conducted are based on the equation

$$y_{it} = \propto_i + \beta_i t + \rho_i y_{it-1} + \mu_{it} \text{ ---------- (7)}$$

Given that i = 1, ..., N and t = 1, ..., T; where $\propto i$, $\beta i \in \mathbb{R}$ and – 1< $\rho i \leq 1$. The Levin–Lin–Chu (LLC) test assumes that all panels share a common autoregressive parameter. They suggest that in order to mitigate the problem of serial correlation, the regression model be augment with added lags of the dependent variable. The equation is presented as:

$$\Delta y_{i,t} = \phi_i y_{i,t-1} + z'_{it} \gamma_i + \Sigma^{p}_{j=1} \theta_{ij} \Delta y i_{,t-j} \mu_{it} \text{ ------ (8)}$$

The IPS (2003) builds up a set of tests which relax the assumption of a common autoregressive parameter. Additionally, the IPS test does not require balanced datasets, though there cannot be gaps within a panel. The beginning of the IPS test is a set of Dickey–Fuller regressions of the form below:

$$\Delta y_{i,t} = \phi_i y_{i,t-1} + z'_{it} \gamma_i + \epsilon_{it} \text{ ---------- (9)}$$

R. A. Fisher put together the p-values from independent tests to get the total test statistic and is often called a Fisher-type test. The unit-root test on every panel's series is conducted independently, and then merges the p-values to know generally if the panel series possesses unit root. The test is based on ADF or Phillips–Perron unit-root tests.

From among all the variables in table 1 above, IVS has a very high mean and standard deviation values compared to the other variables. This implied that on the average, the assets of the firms used in the study are relatively large meaning that all the firms have relatively very large portfolio. There is also much variance in the portfolios of these firms under investigation. FNP had the lowest mean value and standard deviation amongst all the variables. The value of the standard deviation shows that there is considerable difference between the mean and the standard deviation for all the variables except for FNP. EER and TXE show negative skewness in the distribution of the data. The other variables are positively skewed from the origin – rightward tailed. Among the variables, IVS, CFL, INE, INI and BRW have average values of kurtosis implying mesokurtic while FNP, EER, TXE, LVG and CCT are relatively highly peaked (platykurtic) in the distribution. The probability of the Jarque – Bera statistic is significant at 5% level of significance showing that the series failed the normality test. Hence the need for conducting a unit root test to check for stationarity of the data to avoid spuriousness in the regression results used for inferences. The unit root test is presented in table 2 below.

The output of the panel unit root test shows that the whole variables are stationary at level. This confirms that the time series properties of the data are relatively stable and there is the absence of unbiasedness of information in the panel data used for the Nigerian financial service firms. The likelihood of spuriousness in the regression results is non-existence.

The regression results for the firms from Nigerian financial markets are presented in table 3 above. Using the fixed effects regression results on the relationship between financial markets frictions and portfolio investment decisions in the Nigerian economy, the regression results revealed that EER, CFL, INE and BRW significantly affect the decision of investors in the Nigerian financial market using financial service firms. This agrees with the study of Luckett (1980) who had earlier examined the role of interest rate in determination of business investment who also suggested that higher interest rates lead firms to hold smaller inventories. TXE, INI, LVG and CCT did not significantly affect the decision of the investor in the Nigerian economy. The signs of the coefficients show that EER, INE and CCT have negative relationship with IVS. This implies that portfolio investment decisions are adversely affected by these financial markets frictions in the Nigerian financial market. The independent variables could explain the systematic variation in the dependent variable up to 97.75% as shown by the coefficient of determination value. The adjusted coefficient of determination is also considerably high implying that the model is properly fit. On the overall significance of the model, the F-statistic and its probability revealed that the model is significant at 5% level of significance. The Durbin-Watson statistic of 1.86 reveals that there is no evidence of serial correlation in the model, hence reliance on the output of the regression results for inference.

For the relationship between portfolio investment performance and financial market friction in the Nigerian financial markets, the Hausman test revealed that the study utilize the random effects estimation regression results (see table 4). The R-squared value of 13.60% shows the extent to which the independent variables could explain variations in the dependent variable. The F-statistic and its probability revealed the overall statistical significance of the model. On the statistical significance of the variables, CFL, INI, BRW and CCT significantly affects the portfolio investment performance of firms from the Nigerian economy. On this effect, CFL, LVG, BRW and CCT have negative

relationship with FNP while the other variables are positively related with FNP.

Hypothesis Testing

There is one major hypothesis stated in the study. This hypothesis is stated in the null form. The test of hypothesis is based on 5% level of significance using the p-value from the regression results used.

Hypothesis One:

The first hypothesis was that financial markets frictions do not have significant effect on portfolio investment decisions of selected firms of financial markets. In order to test for this hypothesis, the study utilized the regression results for firm's level data for Nigeria, South Africa, America and their combination. For the Nigerian financial firm level data, we reject the hypothesis that financial markets frictions do not have significant effect on portfolio investment decisions of Nigerian financial markets and accept that financial markets frictions do have significant effect on portfolio investment decision of Nigerian financial market. Four of the financial market friction variables (EER = 0.0000, CFL = 0.0000, INE = 0.0080, and BRW = 0.0000) have their p-value less than 0.05 (see table3).

9. Discussion of Findings on the Effect of Financial Markets Frictions on Portfolio Investment Performance

In the Nigerian financial market, the performance of investment portfolio depends heavily on prevailing rates in the financial markets. The level of these rates positively affects returns on investment and consequently the performance of portfolio of investors. For the periods under consideration because of the credit squeeze in the financial market resulting from hiked rates which of-course resulted in high interest income made latent funds with financial intermediaries which borrowers could not afford because of heightened rates. These latent funds negatively affect portfolio investment decisions of investors in the financial market in Nigeria. The more the unused cash flow in the hands of investors the less profitably the portfolios will perform. Due to interest expenses paid by investors in the financial markets which implied financing costs to investors, the amount of borrowed funds negatively affect the performance of investment portfolio. The more the borrowed funds the less likely the investment portfolios are likely to perform. For investors in the Nigerian financial markets, it was revealed that various bottlenecks to securing funds for investment purposes inversely affect the performance of investment portfolio. This is because interest expenses are first deducted from returns before the net profit accruable to investors. This contradicts the theoretical predictions of Frazzini & Pedersen (2013) and Black (1972) who posited that costs of leverage and leverage constraints negatively affect risk-adjusted returns.

10. Policy Implications of Findings for Investors (individual and firms)

10.1 Findings from the study imply that:

The volatile nature of the Nigerian foreign exchange market which inversely affects portfolio investment decisions is a militating friction that investors should use strategies such as hedging to minimize risks emanating from its effects. In economies where exchange rate movement do not significantly affect cash balances, investors can afford not to hedge against foreign exchange risk but must design their portfolio in such a way that it is sufficiently diversified to allow for different streams of income for other investment opportunities as they arise.

While cash flow is a determining factor for portfolio investment decisions in Nigeria, in developed economies, cash flow does not significantly determine portfolio investment decisions. This implied that for the Nigerian investors, there should be a build up of liquid assets that is sufficient for optimal investment decision and also ensure that the liquid assets are income generating for the firm.

There are ineffective tax structures and systems opened to investors which enable them to exploit tax advantages of investment in less developed economies. Also, there are other benefits of being investors in some financial market whose treasury managers lower entry requirement and most time grant tax holidays to attract foreign capital. This, most of the time removes completely dividend taxes and other forms of entry requirements for businesses and individual investors. Examples are the case of MTN Nigeria – a mobile communication company that have enjoyed tax holiday for ten years, and the new Terrestrial Television (TSTV) who is to enjoy dividend tax holiday for the investors for some determinable period.

Investor's decisions at the firm level from the financial markets examined are not significantly affected by taxes. The implication of this is that investors at the seller end of the financial market may not be constrained or dissuaded by the various taxes imposed on financial assets and other investment opportunities available for exploitation.

Since liquidity constraint has significant negative effect on portfolio investment decisions in Nigeria, it implied that investors in Nigeria do have limited financing capacity. Therefore investor in the Nigerian financial market will need to develop and seek other ways of financing their investment opportunities different from the conventional banking/credit market in Nigeria.

Table 1: Descriptive Statistics for Financial Markets Frictions and Portfolio Investment Decision and Performance in Nigeria

	IVS	FNP	EER	CFL	TXE	INE	INI	LVG	BRW	CCT
Mean	2398.778	0.369166	3.656985	378.2447	-27.16824	-47.65153	255.6528	7.168701	176.3001	178.7647
Median	87.22312	0.020825	0.000000	14.48573	-0.430603	-3.705464	24.19105	1.037892	2.904087	0.000000
Maximum	28393.01	63.06600	1766.698	6494.587	624.8785	2694.846	3609.170	953.5421	1842.704	18372.49
Minimum	0.000000	-14.01414	-2701.121	-785.0617	-3467.390	-674.3438	0.000000	-4.499502	0.000000	0.000000
Std. Dev.	5117.672	4.564548	211.8454	975.8390	250.2330	287.2971	520.6147	61.38223	374.6943	1183.674
Skewness	2.678079	11.14450	-5.924464	3.769607	-11.69692	6.200551	3.089982	14.85600	2.623636	14.63804
Kurtosis	10.18745	148.6219	126.8368	19.13136	153.2466	60.53235	14.59759	228.1613	9.600255	225.0867
Jarque-Bera	836.9574	226068.1	161207.9	3302.712	240847.1	36080.82	1798.917	537296.2	740.5962	522704.0
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	599694.6	92.29151	914.2462	94561.16	-6792.060	-11912.88	63913.19	1792.175	44075.01	44691.17
Sum Sq. Dev.	6.52E+09	5187.940	11174738	2.37E+08	15591525	20552363	67488879	938176.8	34958559	3.49E+08
Observations	250	250	250	250	250	250	250	250	250	250

Source: Author's Estimation using EView 8.0, 2022.

Table 2: Unit Root Results Presentation and Analysis in Level (No Individual Intercept and Trend) for Nigerian Financial Service Firms

Assumes common unit root process			Assumes individual unit root process			
Variables	**Levin, Lin & Chu t***	**Prob.**	**ADF – Fisher Chi-square**	**Prob.**	**PP – Fisher Chi-square**	**Prob.**
IVS	-6.12527	0.0000	139.726	0.0054	145.364	0.0021
FNP	-7.26375	0.0000	211.720	0.0000	217.980	0.0000
EER	-379.544	0.0000	88.5908	0.0000	93.1543	0.0000
CFL	-100.924	0.0000	191.173	0.0000	207.248	0.0000
TXE	-291.379	0.0000	289.379	0.0000	297.738	0.0000
INE	-5.14405	0.0000	122.529	0.0000	130.448	0.0000
INI	-57.1277	0.0000	167.354	0.0000	179.001	0.0000
LVG	-103.008	0.0000	178.568	0.0000	183.110	0.0000
BRW	-6.08123	0.0000	130.879	0.0000	143.288	0.0000
CCT	-7.75134	0.0000	70.7407	0.0000	71.4001	0.0000

Source: Author's Estimation using EView 8.0, 2022.

Table 3: Impact of Financial Markets Frictions on Portfolio Investment Decisions of Nigerian Financial Service Firms

		FIXED EFFECTS ESTIMATION			RANDOM EFFECTS ESTIMATION		
Dependent Variable	**Independent Variable**	**Coefficient**	**t-Statistic**	**Prob.**	**Coefficient**	**t-Statistic**	**Prob.**
IVS	C	1373.659	12.96209	0.0000	263.0110	2.331272	0.0206
	EER	-1.431984	-4.742055	0.0000*	-1.070403	-3.688631	0.0003
	CFL	0.865522	4.699526	0.0000*	2.353600	16.11558	0.0000
	TXE	0.146529	0.529744	0.5969	-0.164579	-0.641300	0.5219
	INE	-1.087323	-2.678261	0.0080*	-4.238916	-12.62183	0.0000
	INI	0.070603	0.201400	0.8406	-0.916201	-3.216353	0.0015
	LVG	0.079840	0.079154	0.9370	0.127314	0.130795	0.8960
	BRW	3.674084	8.924495	0.0000*	7.255256	24.62953	0.0000
	CCT	-0.062754	-0.920234	0.3586	-0.015676	-0.231946	0.8168
	R-squared	0.977516		R-squared	0.815255		
	Adjusted R-squared	0.970841		Adjusted R-squared	0.809122		
	F-statistic	146.4470		F-statistic	132.9372		
	Prob(F-statistic)	0.000000		Prob(F-statistic)	0.000000		
	Durbin-Watson stat	1.863097		Durbin-Watson stat	1.698994		

Correlated Random Effects - Hausman Test	
Chi-Sq. Statistic	279.713932
Prob.	0.0000

*Significant at 5%
Source: Author's Estimation using EView 8.0, 2022.

Table 4: Effects of Financial Markets Frictions on Portfolio Investment Performance of Nigerian Financial Service Firms

		FIXED EFFECTS ESTIMATION			RANDOM EFFECTS ESTIMATION		
Dependent Variable	Independent Variable	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.
FNP	C	-0.323259	-0.579680	0.5628	0.071907	0.215606	0.8295
	EER	0.000914	0.575196	0.5658	0.000854	0.603864	0.5465
	CFL	-0.000696	-0.718088	0.4736	-0.001380	-2.239588	0.0260*
	TXE	-0.000254	-0.174294	0.8618	8.27E-05	0.070395	0.9439
	INE	-0.001643	-0.768875	0.4429	0.000605	0.405202	0.6857
	INI	0.004929	2.672139	0.0082	0.006137	5.093288	0.0000*
	LVG	0.000248	0.046761	0.9628	-0.000220	-0.046329	0.9631
	BRW	-0.001594	-0.735631	0.4629	-0.003378	-2.843527	0.0048*
	CCT	-0.000637	-1.774805	0.0775	-0.000697	-1.995860	0.0471*
	R-squared	0.217406		R-squared	0.136011		
	Adjusted R-squared	-0.014926		Adjusted R-squared	0.107331		
	F-statistic	0.935756		F-statistic	4.742334		
	Prob (F-statistic)	0.606442		Prob (F-statistic)	0.000020		
	Durbin-Watson stat	2.242891		Durbin-Watson stat	2.255175		
Correlated Random Effects - Hausman Test							
Chi-Sq. Statistic		3.904983					
Prob.		0.8656					

*Significant at 5%
Source: Author's Estimation using EView 8.0, 2022.

Conclusion and Recommendations

The study has considered financial markets frictions and portfolio investment decision/ performance in Nigeria. From the various findings derived from the study, the study concludes that financial markets frictions affect both portfolio investment decisions and portfolio investment performance in all financial markets. Also, movements in exchange rate play significant role in determining portfolio investment decision and performance both at firm level and at the levels of national economies. And that exchange rate changes significantly results in changes in financial markets frictions in Nigeria. The study further observed that the portfolio constituent of an investor changes with regards to changes in financial markets frictions.

Recommendations

Based on the findings of the study, the study recommends as follows:

1. Investors should give consid erable attention to minimizing varied financial markets frictions that affect their investment decisions and the performance of their investment portfolios through the design of optimal portfolio that is risk – return efficient and well diversified.
2. Other than giving considerable attention to financial markets frictions in investment management, other factors like diversification, risk tolerance and short and long term plans should be considered in taking investment decisions to enhance the performance of their portfolio investments.
3. Investors should ensure hedging of their investments to minimize frictional costs arising from movement in foreign exchange rate which affects investment returns and performance of portfolio investments. Hedging traditionally reduces or at times completely removes undesired effects currency fluctuations have on a firm's balance sheet.
4. Regulators of major financial market trading platforms should introduce transactions in the financial market that reflect the current (going)

exchange rate. This way, transaction in every trading platform will reflect the going exchange rate.

5. In taking investment decision, investors should consider the different tax patterns of investment destinations and particularly the micro perspective of the style induced heterogeneity of tax burden in order to minimize the incidence of transaction costs emanating from taxes.
6. For the national economies, there is need for proactive regulatory policies and greater supervisory scrutiny in the form of regular monitoring by designated institutions on specific areas of the economic life of a nation and also ensure harmonization of both fiscal and monetary policies to reduce instability in the investment climate.
7. For economies and financial markets were investors significantly borrow to trade in securities, diversification of securities will mitigate the risk/ impact of loss and financial distress resulting from excess use of borrowings by investors.
8. Investment in tax-preferred financial securities such as investing in municipal bonds and related funds that aid investors to avoid unnecessary taxes should be pursued.

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