THE IMPACT OF THE EXCHANGE RATE ON EQUITY RETURNS IN THE NIGERIAN STOCK EXCHANGE: EVIDENCE FROM SERVICE SECTORS

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BEING RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF ECONOMICS, FACULTY OF SOCIAL SCIENCES, UNIVERSITY OF BENIN, BENIN CITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR OF SCIENCE (B.sc) HONOURS DEGREE IN ECONOMICS.

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MAY 2024

CERTIFICATION

We the undersigned certify that this BSc project work**, "THE EFFECT OF EXCHANGE RATE ON EQUITY RETURNS: EVIDENCE FROM SERVICES STOCKS"** was carried out by **SHARON CHINWEBUDU BADUME-AMADI** with the matriculation number **SSC1909327** in the Department of Economics, Faculty of Social Sciences, University of Benin, Benin City.

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DEDICATION

This research work is dedicated to the Almighty God for his genuine love and kindness, to my parents, Mr. and Dr. Mrs. Henry Amadi, my siblings and my friends. Thank you for coming along in this journey with me.

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I am deeply grateful to my project supervisor, Dr(Mrs).F. Mogbolu for her immense support, tutelage, guidance and valuable feedback throughout the course of this research. Her expertise and encouragement have been immensely helpful in shaping this research work.

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ABSTRACT

Using monthly pool data from 2018-2022, this study examined the long and short-run impact of the effects of exchange rate fluctuations on service sector stocks in Nigeria. Extensive and elaborate reviews of diverse literary works on the effects of exchange rate fluctuations on service sector stocks in Nigeria were carried out. This study is based on Arbitrage Pricing Theory. The descriptive analyses were carried out and its values were clearly interpreted.

The Augmented Dickey Fuller (ADF) was employed to check for stationarity among the variables. Also, the Autoregressive Distributed lagged Variable (ARDL) model was the technique of analysis used. And the ARDL Bounds Test was carried out to check for the existence or otherwise of a long run relationship among the variables employed for this analysis. The long and short run models were also estimated and its results interpreted. The results therefore showed that some of the explanatory variables were significant to some extent in explaining variations in stock returns in the short run

In conclusion, the study recommends that certain measures(policies) should be enforced in order to mitigate the negative effect of exchange rate fluctuations on service sector stock returns.

CHAPTER ONE

INTRODUCTION

1.1 INTRODUCTION

The Nigerian equity market has witnessed continuous growth, evident in the expansion of equity exchanges and financial intermediaries, as well as an increase in listed equities, trading volumes, market capitalization, investor base, turnover on exchanges, and equity price indices. The developments in the equity market play a pivotal role as a key indicator of a nation's progress and development. The equity market serves as a crucial metric for assessing the economic growth and development of a country, reflecting the potential viability and financial strength of corporate entities listed on the equity exchange. It also mirrors investors' confidence in different sectors of the economy, showcasing the strength of the productive sector and conveying expectations regarding financial system stability Persistent upward trends in equity indices act as incentives for banks to expand their lending activities, directing funds towards both direct investment in the equity market and other sectors of the economy. Foreign investors, attracted by higher returns on investment in the equity market, contribute to the inflow of foreign portfolio investment, enhancing the overall capital base of banks. This influx of capital further stimulates increased lending, fostering economic growth and development

The understanding of the mechanism determining equity returns is still an unsolved puzzle in the field of Economics Investment, and we know that there are different

determinant of equity prices, but this study focuses on the impact of exchange rate on equity returns in the Nigerian equity exchange; evidence from service sectors. The exchange rate holds a pivotal role as a macroeconomic variable in both developing and developed nations, exerting significant influence on various aspects of the economy. It plays a crucial role in shaping inflation rates and instigates shifts in the dynamics of exports and imports, thereby impacting the prices of traded commodities. According to Yucel & Kurt (2003), a floating exchange rate has notable effects on export market competitiveness, adversely affecting the domestic equity market in economies reliant on exports. In contrast, it can have positive effects on the equity market of import-oriented countries by reducing input costs

For export-dominated economies, a floating exchange rate tends to diminish the competitiveness of their export markets, creating negative repercussions for their domestic equity markets. Conversely, in import-dominated countries, the impact can be favorable, as it lowers input costs, positively influencing their equity markets. Nigeria, as an import-oriented country, often grapples with price instability due to exchange rate volatility. This instability is largely attributed to the heavy dependence on imports for capital, consumer goods, and raw materials in the country's economy. And so, this research draws credence from firms in the service sectors..

1.2 STATEMENT OF THE RESEARCH PROBLEM

We already know that the question of the relationship between exchange rate volatility and equity returns has generated varying perspectives among researchers. From empirical studies, one perspective, advocated by researchers such as Dimintrova (2005), Sohail &Hussain (2009), & Mohammad, Adnan, Hussain, & Ali (2009), posits that there is a positive or direct relationship between exchange rates and the equity market. On the other hand, another group, represented by Bhattacharya & Mukherjee (2003), Stavarek (2005), & Gay (2016), contends that there is no clear relationship between exchange rates and equity markets.

The research identifies a gap in the existing literature concerning the relationship between exchange rates and equity returns specifically within the context of equity prices. This gap poses a problem that the current research aims to address. Investors heavily rely on information about equity prices to make well-informed decisions. However, the lack of a detailed examination of the relationship between exchange rates and equity returns in the context of equity prices leaves a significant knowledge void.

By focusing on this aspect, the research endeavors to contribute valuable insights that can assist investors in making more informed decisions. The findings of the study are expected to provide a clearer understanding of how exchange rates impact equity prices, filling the gap in existing research and offering practical information that can enhance the decision-making process for investors in the realm of equity investments.

1.3 RESEARCH QUESTIONS

1.Does the exchange rate impact the returns on service sector stocks in Nigeria?

2. What are the short and long term effect of exchange rate fluctuations on stock returns volatility in the service sector of Nigeria?

1.4 OBJECTIVES OF THE STUDY

1. To ascertain effect of exchange rate on service sector stock returns in the Nigerian stock exchange.

2. To Examine the extent of the short and long term effects of exchange rates fluctuations on equity returns in the Nigerian Stock Exchange.

1.5 HYPOTHESIS OF THE STUDY

1. Exchange rate does not affect service sector returns

2. Exchange rate fluctuations has no substantial impact on service stock returns volatility in the short run but has a positive effect in the long run.

1.6 SCOPE OF THE STUDY

This research is dedicated to investigating the intricate relationship existing between Exchange Rate and Equity Returns taking Equity Prices as a parameter of interest in the Nigerian context. The primary focus lies on companies operating within the Service sector and listed on the Nigerian Equity Exchange. The study adopts a detailed approach, delving into the dynamics of this relationship by utilizing extensive data spanning a substantial time frame.

In particular, the research centers its analysis on [1]DAAR communications plc, [2]Learn Africa plc, [3]Red star express plc, [4]Transcorp hotels plc which are viable stocks within the Nigerian service sector. The chosen time horizon for this investigation extends over 5 years, encompassing the period from 2018 to 2022. This extended temporal scope allows for a comprehensive exploration of patterns, trends, and potential shifts in the interplay between exchange rates fluctuations and equity returns volatility in the selected stocks.

By narrowing the study to the specificied stocks, the research aims to uncover nuanced insights that might be obscured in broader analyses. The outcomes of this investigation are expected to contribute valuable knowledge to the understanding of how exchange rate fluctuations impact equity returns volatility, with practical implications for investors, policymakers, and financial analysts within the firm.

1.7 SIGNIFICANCE OF THE STUDY

The current study holds substantial significance as it elucidates the causal relationship between exchange rates and equity returns, with a specific focus on equity prices. By honing in on this aspect, the research aims to offer valuable insights that can benefit various stakeholders, including investors, financial analysts, and policymakers. The findings are anticipated to contribute to a deeper understanding of how fluctuations in exchange rates impact equity prices, providing actionable information for those involved in making strategic decisions and managing risks within their investment strategies.

Ultimately, the study seeks to empower individuals and entities within the financial landscape with knowledge that can enhance their ability to make well-informed decisions, navigate uncertainties, and optimize investment outcomes. The insights derived from this research are poised to have practical applications in the real-world scenarios faced by investors and financial decision-makers.

1.8 LIMITATIONS OF THE STUDY

There are a number of limitations to this study and data availability and quality is one of them in the sense that acquiring reliable and comprehensive data on stock returns s and exchange rate fluctuations in Nigeria may be challenging. Also, data gaps can affect the accuracy and robustness of the analysis. Another one is Model Complexity seeing that constructing a macroeconomic model that adequately captures the interactions between

stock returns s, exchange rate and level of investment is complex. Assumptions and simplification in the model might not fully represent the real-world complexities of the Nigerian economy. The impact of some external factors not put into consideration may also affect the outcome of this research.

1.9 STRUCTURE OF THE STUDY

The remaining sections of the paper are structured as follows: Chapter 3 provides a comprehensive overview of the data sources and methodology employed in the study. Chapter 4 delves into the empirical results, presenting findings and analyses derived from the research. Finally, Chapter 5 serves as the conclusion of the paper, summarizing key outcomes and implications, with a specific focus on policy considerations arising from the study's findings.

CHAPTER TWO

REVIEW OF LITERATURE

This chapter involves a comprehensive review of the theoretical foundations related to the research questions and objectives of the study, definition of terms related to the topic and it also explores already existing economic theories and concepts that contribute to understanding the effect of currency hoarding on monetary policy and aggregate demand in Nigeria.

2.1 CONCEPTUAL REVIEW

Throughout the course of this research, the essential concepts employed will be consistently elucidated, aiming to bolster the credibility of the study and enhance comprehension as we advance further.

2.1.1 Exchange Rate: The exchange rate is defined as the cost of one currency expressed concerning another currency, holding significant importance as a macroeconomic indicator in assessing overall economic performance. It serves a dual role by ensuring international competitiveness and functioning as a nominal anchor for domestic prices, as emphasized by Mordi (2006). Typically, the exchange rate is articulated under two major conventions: the direct and indirect methods. In the direct convention, the exchange rate is presented as the price of the home currency in terms of

one unit of foreign currency, exemplified by, for instance, N305=$1. Conversely, the indirect convention expresses the exchange rate as the price of the foreign currency in terms of one unit of the home currency, illustrated by, for instance, N1=$0.003.

These conventions gain particular significance when highlighting the performance of a currency, specifically in terms of appreciation or depreciation, within the context of the prevailing exchange rate regime. They also play a crucial role in analyzing a country's monetary policy. In the case of the direct convention, as practiced in Nigeria, the exchange rate is considered to appreciate or depreciate. Appreciation occurs when the number of units of the naira decreases relative to the foreign currency, whereas depreciation takes place when the number of units of the naira increases in comparison to the foreign currency.

2.1.2 Equity Returns: The Return on Equity (ROE) ratio is a key metric that gauges the rate of return earned by common stockholders in a company. This ratio is indicative of the company's efficiency in generating returns on the investments made by its shareholders. In essence, ROE offers insights into the company's ability to deliver favorable returns to its shareholders based on their investments.

Return on Equity (ROE) serves as a financial performance metric computed by dividing net income by shareholders' equity. Shareholders' equity is derived by subtracting a company's debt from its assets. Therefore, ROE is regarded as the return on net assets,

providing insights into how effectively a company generates profit from its net equity base. Indeed, the Return on Equity (ROE) is a robust indicator that effectively gauges the management's ability to create value for the shareholders of a company. This metric reflects the company's proficiency in utilizing the shareholders' equity to generate favorable returns, highlighting the management's effectiveness in enhancing shareholder value.

2.1.3 Equity Prices: A stock returns is also known as Market Value or cash value. It represents the value assigned to each share issued by a publicly-traded company. This price is a reflection of the company's perceived worth, indicating what the public is willing to pay for ownership in the company. The fluctuation of stock returns s is inevitable and is influenced by various factors, both within the company, such as its financial performance and management decisions, and external factors in the broader global landscape.

"Stocks" and "equities" are frequently used interchangeably as there is a subtle distinction between the two. In the context of the stock market, "stocks" refer to the equity shares of a company that are actively traded in the market. On the other hand, in the corporate context, "equity" signifies ownership in the company. So, while stocks represent a form of equity when traded, "equity" more broadly encompasses ownership stakes in a corporation.

2.1.4 Exchange Rate Fluctuations: Fluctuations in exchange rates take place when the values of foreign currencies experience changes. These alterations in currency values occur due to a range of economic factors. As a result, the exchange rates between different currencies can vary, allowing for the buying or selling of one currency for a different amount of another currency at any given moment.

Specifically, exchange rate volatility represents a risk linked to the uncertainty surrounding fluctuations in the exchange rate in international trade. This volatility is frequently influenced by macroeconomic factors such as interest rates, the balance of payments, and inflation. The unpredictability in these key economic indicators contributes to the potential variability and risk in exchange rates, impacting businesses engaged in international trade.

2.2 THEORETICAL REVIEW

There are 3 different theories that we have highlighted for review and they include

1. Capital Asset Pricing Theory
2. Arbitrage Pricing Theory
3.Dividend Growth Theory

2.2.1 Capital Asset Pricing Theory:

The capital asset pricing model, also known as CAPM, is a financial framework designed to estimate the anticipated rate of return for a given asset or investment. This is achieved by incorporating the expected returns of both the market and a risk-free asset, along with the asset's correlation or responsiveness to the market, commonly referred to as its beta. It is a theoretical model outlining the connection between the anticipated return and the risk associated with investing in a particular security. It posits that the expected return on a security equals the risk-free return added to a risk premium, determined by the beta value of that specific security

William Sharpe (1964) & John Lintner (1965) introduced the Capital Asset Pricing Model (CAPM), which earned William Sharpe a Nobel Prize in 1990. This model builds upon the preceding research of Harry Markowitz (1959) who formulated the "mean-variance model" or the portfolio choice model. CAPM is employed to ascertain a theoretically suitable required rate of return for an asset, consequently offering insight into the expected price, provided that firms can accurately estimate the anticipated cash flows.

The Markowitz model revolves around the risk-return tradeoff, introducing their models with two pivotal assumptions. The initial assumption involves borrowing and lending at a risk-free rate, indicating that investors can borrow or lend any amount at a uniform risk-free rate of return, irrespective of the borrowed or lent amount. The second assumption posits that all investors share homogeneous expectations, leading to the estimation of

identical probability distributions for future returns—indicating unanimous agreement on the distribution of asset returns from t-1 to t. Hence, investors opt for efficient portfolios that either minimize the variance of portfolio return at a given expected return level or maximize the expected return at a specific level of variance. This characteristic earns the Markowitz model the designation of a "mean-variance model." Despite the widespread use of the Capital Asset Pricing Model (CAPM) for gauging the expected rate of return and its relationship to anticipated risk, empirical evidence suggests its limitations, with Fama & French (2004) noting that the model is "poor enough to invalidate the way it is used in applications."

Investors have the flexibility to allocate a portion of their investment to a risk-free security, while the remaining portion is invested in a portfolio of risky assets. If, investors decide to allocate only a portion of their investment to risk-free return assets and the rest to a risky portfolio, they create a scenario where combinations of risk-free lending and borrowing investments become feasible.

The Capital Asset Pricing Model (CAPM) has faced criticism in various studies for several assumptions, including unrestricted risk-free borrowing and lending, [1]the focus on one-period investment where investors maximize their investment considering only the risk and return of a single-period portfolio [2]the question of whether market Betas adequately explain expected returns, and [3]the use of a proxy for the market portfolio comprising all risky assets. Moreover, Fama & French (1997) discovered evidence indicating imprecision in estimating the cost of equity capital for specific industries using

the CAPM, with standard errors exceeding 3 percent per year. This imprecision is attributed to uncertainties about true expected risk premiums and imprecise estimates of industry betas. They argue that such estimates are likely even less precise when applied to individual firms and projects.

Fama & French (2004) emphasize that the CAPM equation establishes a relationship between the expected returns of an asset and the return of the market portfolio. However, they criticize the market portfolio for being based on unrealistic assumptions such as one-period investment and unrestricted risk-free borrowing and lending. Their conclusion underscores the need for practical testing of models built on these unrealistic assumptions.

The general form of the CAPM equation is:

$$E(R_i) = R_f + \beta_i \cdot (E(R_m) - R_f)$$

2.2.2 Arbitrage Pricing Theory:

Arbitrage Pricing Theory (APT) is a financial model designed to elucidate the connection between the anticipated return of a financial asset and its various systematic risk factors. Developed as an alternative to the Capital Asset Pricing Model (CAPM) by economists Stephen Ross and Richard Roll, APT operates on several key principles. Unlike CAPM, APT is a multi-factor model, accommodating multiple systemic risk factors such as

interest rates and inflation, without necessitating a specific market portfolio. It relies on the concept of arbitrage-free pricing, assuming that any riskless profit opportunities would be swiftly exploited by investors until they vanish, thereby ensuring that asset prices reflect all pertinent information and risk factors in a market. APT posits that the expected return of an asset is linked to its sensitivity to diverse risk factors, measured by factor loadings or beta coefficients. The formula expresses this relationship, encompassing the risk-free rate, beta coefficients, and the difference between expected and equilibrium values of each factor. Overall, APT offers a more adaptable framework for comprehending asset pricing, especially in markets with varying risk factors or when CAPM assumptions are not fully met.

The general form of the APT equation is:

$$E(Ri)=Rf+\sum j=1k\beta ij\cdot(Fj-\bar{F}j)$$

where rf is the risk-free rate of return, β is the sensitivity of the asset or portfolio in relation to the specified factor and RP is the risk premium of the specified factor.

E(*Ri*) is the expected return of the asset.

Rf is the risk-free rate.

Bij is the sensitivity of the asset's return to the j-th factor.

Fj is the expected value of the j-th factor.

$\bar{F}j$ is the equilibrium value of the j-th factor..

It's important to note that APT is a flexible model that can accommodate a variety of risk factors, making it more adaptable to different market conditions and assets. However, the accuracy of APT is contingent on the appropriateness of the chosen factors and the validity of the assumptions within the context of the specific market being analyzed.

2.2.3 Dividend Growth Theory:

The Dividend Growth Model, an expansion of the discounted cash flow (DCF) valuation technique, was initially presented by economist Myron J. Gordon in his 1959 paper titled "Dividends, Earnings, and stock returns s." Gordon's research, along with contributions from his contemporaries, established the foundation for a model that is currently extensively employed in finance for assessing the value of stocks that pay dividends.

The Gordon Growth Model, or Dividend Growth Model, is a method for valuing stocks by estimating their inherent worth through projected future dividends. This model operates on the assumption that dividends will consistently grow at an unchanging rate over an indefinite period. The formula for the Gordon Growth Model is as follows:

$$P0 = D0(1+g) \div r - g$$

where:

$P0$ is the current stock returns .

$D0$ is the current dividend per share.

r is the required rate of return.

g is the constant growth rate of dividends.

It's important to note that while the Dividend Growth Model provides a straightforward way to estimate the value of dividend-paying stocks, it has its limitations and is often used in conjunction with other valuation methods for a more comprehensive analysis. Additionally, the model assumes that dividends are the primary source of investor returns, which may not hold true for companies that prioritize share buybacks or reinvestment of profits.

2.3. REVIEW OF EMPIRICAL LITERATURE

Fluctuations in Exchange Rate is an important factor in determining the market value and the stock returns s of firms. Financial theory posits that the valuation of a company can be impacted by both exchange rates and interest rates. The fluctuation of exchange rates, whether upward or downward, has the potential to influence the stock returns s of firms. In the context of Pakistan, foreign direct investment (FDI) plays a crucial role in determining stock returns s, and the FDI trend can be significantly influenced by shifts in

exchange rates, whether they are depreciating or appreciating. Likewise, the movements in stock returns s can also influence exchange rates.

From the study of Franck & Young (1972), stock returns Reaction of Multinational Firms to Exchange Realignments, there is no significant interaction between the stock market and exchange rate. Bhattacharya & Mukherjee (2003) investigated the connection between stock returns s and the financial sector of currency exchange in India, discovering no substantial integration. Ong & Izan (1999) utilized the Nonlinear Least Square method to explore the relationship between stock returns s and exchange rates, revealing a notably weak association between the US stock market and exchange rates. In contrast, Soenen & Henniger (1988) identified a significantly negative relationship between the value of the US dollar and stock returns s using monthly data on stock returns s and effective exchange rates for the period 1980-1986. Jorion (1990) assessed significant differences across industries by examining the impact of exchange rates on US multinational firms. Developed nations have encountered a lower degree of susceptibility to fluctuations in exchange rates in comparison to developing or emerging countries.

In a study spanning from 1983 to 1994, Yu (1997) investigated daily data from three Asian countries: Hong Kong, Tokyo, and Singapore. The findings revealed a bidirectional relationship in Tokyo, whereas the Singapore market exhibited a unidirectional relationship, indicating that changes in exchange rates corresponded to changes in stock returns s. Abdalla & Murinde (1997) delved into an examination of the relationship between two variables across four Asian countries spanning the years 1985

to 1994. Employing a co-integration approach for the long term, their investigation yielded intriguing results. They concluded that no causality existed in Pakistan and Korea, while, in contrast, they identified and supported the presence of causality in India and the Philippines. Ajayi et al. (1998) extended the exploration into the relationship between stock markets and foreign exchange markets, focusing on developed and developing economies. Their findings pointed to a unidirectional relationship from the stock market to the foreign exchange market in developed economies. In developing economies, however, they observed no consistent relationship.

In a separate study, Pan et al. (2001) conducted an in-depth analysis, investigating the correlation between exchange rates and stock markets in seven Asian countries. The data utilized for this examination covered the substantial period from 1988 to 1998. The outcomes of their research highlighted a significant correlation between exchange rates and stock markets across the examined Asian nations. In their comprehensive study in 2001, Griffin & Stulz scrutinized the impact of changes in weekly exchange rates on the stock markets of developed countries. Their meticulous analysis discerned a noteworthy observation: developed nations' stock markets exhibited a lesser susceptibility to fluctuations in weekly exchange rates. This insight suggested a certain level of resilience or insulation in these markets against short-term variations in exchange rates.

On a parallel note, Daniel Stavarek (2004) conducted an extensive investigation into the intricate relationship between stock returns s and exchange rates. His research took a meticulous approach, employing monthly data from both established and newly-inducted

EU member countries. The temporal scope of his study encompassed both the long and short run, providing a nuanced understanding of the dynamics at play. The findings presented by Stavarek revealed intriguing patterns. During the period from 1993 to 2003, there emerged a notably more potent relationship between stock returns and exchange rates, both in the long run and short run. This period contrasted distinctly with the earlier timeframe of 1970 to 1992, suggesting a shift or evolution in the interplay between stock returns s and exchange rates over the years. The depth of Stavarek's analysis thus added a layer of temporal context, contributing valuable insights into the evolving dynamics of the stock-exchange rate relationship.

In a seminal study conducted in 1993, Rittenberg delved into the intricate relationship between stock returns s and exchange rates in Turkey. Employing Granger causality tests, the research sought to unravel the directional dynamics between these two crucial financial variables. The noteworthy conclusion drawn from Rittenberg's investigation highlighted a unidirectional relationship. Specifically, the findings pointed to a causal link running from changes in stock returns s to subsequent changes in exchange rates. However, in contrast, no reverse relationship was identified, indicating that alterations in exchange rates did not exert a causal influence on subsequent changes in stock returns s. This unidirectional insight added a nuanced layer to the understanding of the dynamics between stock returns s and exchange rates within the context of the Turkish financial landscape during the period under examination. In a pivotal study conducted in 1992, Bahmani-Oskooee & Sohrabian employed Granger causality tests to explore the intricate

relationship between the stock market and exchange rates. Their investigation spanned the period from 1973 to 1988, aiming to unravel the dynamic interplay between these two key financial elements. The findings of their research unveiled a dual and bidirectional relationship between stock returns s and exchange rates in the short run. However, it's noteworthy that the examination did not extend to explore this relationship in the long run. This bidirectional insight highlighted the complexity of the interrelationship between stock returns s and exchange rates during the specified time frame, contributing valuable knowledge to the understanding of short-term dynamics.

Also, in a study led by Granger et al. in 2000, the researchers delved deeper into the relationship between stock returns s and exchange rates. Their comprehensive analysis uncovered a robust connection between these two variables. Importantly, the findings revealed a nuanced picture, showcasing instances where the relationship was unidirectional with a negative interaction, as well as scenarios where it exhibited a bidirectional nature. This nuanced exploration provided a richer understanding of the multifaceted nature of the association between stock returns s and exchange rates, offering valuable insights into the diverse dynamics at play in different contexts and under varying conditions.

In a notable study conducted in 2005, Ali Kemal & Haider focused on Pakistani data in the short run, aiming to elucidate the dynamics of exchange rate movements in relation to changes in prices, interest rates, foreign reserves, and trade balances. Their findings revealed a high correlation between changes in real exchange rates and nominal exchange

rates. However, an interesting observation was made, indicating the absence of a significant correlation between relative prices and nominal exchange rates. Another significant exploration was undertaken by Muhammad & Rasheed in 2002, employing co-integration and Granger Causality tests to discern the causality between stock returns s and exchange rates in four Asian countries. Their study, spanning the period from 1994 to 2000, presented compelling evidence suggesting the independence of both variables from each other in the Asian context. Adding to this body of research, Bhattacharya & Mukherjee (2003) lent further support to the notion that there is no substantial interaction between stock returns s and exchange rates. This alignment in findings across multiple studies provides a cohesive perspective on the independence of these two financial variables, contributing to a nuanced understanding of the dynamics within the Pakistani and broader Asian financial landscapes.

2.4 GAP IN LITERATURE

The impact of exchange rates on the stock market and vice versa is multifaceted, and the direction of this impact is not easily estimated. It may manifest as a unidirectional influence, where changes in one variable lead to predictable changes in the other. Alternatively, the relationship could be bidirectional, signifying a mutual influence between exchange rates and stock market movements. Furthermore, the interplay between these variables may take on a multidirectional nature, wherein several factors contribute to the intricate relationship. The complexity of these interactions underscores

the need for nuanced analyses that consider the specific contextual factors influencing the relationship between exchange rates and the stock market.

CHAPTER THREE

THEORETICAL FRAMEWORK AND METHODOLOGY

3.1 THEORETICAL FRAMEWORK

The Arbitrage Pricing Theory (APT) is a financial model designed to elucidate the connection between the anticipated return of a financial asset and its various systematic risk factors. Developed as an alternative to the Capital Asset Pricing Model (CAPM) by economists Stephen Ross and Richard Roll, APT operates on several key principles.

The general form of the APT equation is:

$$E(Ri)=Rf+\sum j=1k\beta ij\cdot(Fj-\bar{F}j) \quad \ldots\ldots\ldots \text{eqn}(1)$$

where

β is the sensitivity of the asset or portfolio in relation to the specified factor

E(*Ri*) is the expected return of the asset.

Rf is the risk-free rate of return.

Bij is the sensitivity of the asset's return to the j-th factor.

Fj is the expected value of the j-th factor.

$\bar{F}j$ is the equilibrium value of the j-th factor.

RP is the risk premium of the specified factor.

It's important to note that APT is a flexible model that can accommodate a variety of risk factors, making it more adaptable to different market conditions and assets. However, the accuracy of APT is contingent on the appropriateness of the chosen factors and the validity of the assumptions within the context of the specific market being analyzed

3.2 EMPIRICAL MODEL SPECIFICATION

3.2.1 THE ECONOMETRIC MODEL SPECIFICATION

The general form of the model is:

$STR = f(EXR, OIL, INF, MS)$…….. (2)

The specified model however is

$STR = \beta 0 + \beta 1EXR - \beta 2OIL - \beta 3INF + \beta 4MS + \varepsilon$……. (3)

Where

STR is stock returns(dependent variable)

EXR is exchange rate

OIL is oil price changes

INF is level of inflation

MS is money supply

$\beta 0$ is the intercept

$\beta 1$, $\beta 2$, $\beta 3$ and $\beta 4$ are the coefficients of the independent variables

ε is the error term, that part of the model that is unexplained by the independent variables.

STR represents the dependent variable which is the return on service sector stocks in Nigeria

EXR represents the independent variable capturing exchange rate fluctuations in the economy

OIL represents the independent variable that shows the fluctuations in oil prices

INF represents the explanatory variable that shows the level of inflation in the economy .

MS is an independent variable that shows the exogenous level of money supply in the economy that may influence stock returns.

$\beta 0$: This is the intercept term and it represents the constant in the model. It captures the expected value of stock returns s when all other independent variables are zero and held at their means

$\beta 1$: This represents the direct effect of exchange rate(EXR) on stock returns s, holding level of inflation (INF), oil prices (OIL) and the money supply (MS) constant. So this means a statistically significant and positive $\beta 1$ indicates that an increase in the exchange rate will lead to an increase in stock returns s, while a statistically significant and

negative β1 suggests an increase in the exchange rate leads to a decrease in stock returns s.

β2: This represents the indirect or negative effect of oil prices (OIL)on stock returns s, holding level of exchange rate(EXR), inflation (INF) and the money supply (MS) constant.

β3: This represents the negative or indirect effect of inflation (INF) on stock returns s holding the money supply (MS), oil prices (OIL) and exchange rate(EXR) constant.

β4: This represents the direct effect of money supply(MS) on stock returns s holding the exchange rate(EXR), level of inflation (INF) and oil prices(OIL) constant

ε: This represents the error term which accounts for the variations in stock returns determination that cannot be explained by the independent variables and control variables

3.2.2 APRIORI EXPECTATION

There is a positive a priori relationship between stock returns s and Exchange rate fluctuations. This means that an increase in the positive real exchange rate will lead to an increase in price of the stock in both the short and long run. So rising(declining) stock returns s is as a result of an appreciation(depreciation) in exchange rate.

Also, there is a positive a priori relationship between stock returns s and it's evident from the fact that, if more people buy the stock then the prices go up.

There is a positive a priori relationship between stock returns s and the money supply (MS). This means the money supply (MS) will also determine the price of the stock.

The apriori expectations of the size and magnitude of the parameters are given as under:

$\beta 1>0$, $\beta 2<0$, $\beta 3<0$, $\beta 4>0$.

3.3 DATA AND ESTIMATION METHOD

3.3.1 DATA COLLECTION

In order to effectively investigate the relationship between Stock returns, Exchange Rate, Level of Investment and money supply empirically, we need to collect adequate data on all of the afore mentioned variables.

3.3.2 TECHNIQUES OF DATA ANALYSIS

This study deals with stock returns as its explained variable and for that reason the most suitable technique would be the Auto Regressive Distributed Lag Model (ARDL). However, we used the Augmented Dicky Fuller (ADF) test for unit root to determine if the data series has a unit root to determine whether or not the data is stationary. And if it's not, convert to data from a non-stationary to a stationary series in order to avoid certain issues that may have developed during analysis.

3.3.2.1 Unit Root Test

This is used to test for the stationarity of the variables to prevent spurious regressions. The Augmented Dickey Fuller (ADF) was employed, which is the most

popular of all unit tests, developed by Dickey (1979) and Fuller (1981). It relies on rejecting a null hypothesis of unit root (the series are non-stationary) in favor of the alternative hypothesis of no unit root (the series are stationary). The test is conducted with or without a deterministic trend for each series.

3.3.2.2 Co-Integration Test

This identify scenarios where two or more non-stationary time series variables are integrated together in a way that they cannot deviate from equilibrium in the long term, the autoregressive distributed lag model bound test was used for co-integration test of the study. The theory of cointegration explains how to analyze the inter-relationships between the long-term trends in the variables that are differenced away in the Box-Jenkins techniques according to Iyoha (2004).

3.3.2.3 Autoregressive Distributed Lag Model (ARDL)

This is used in analyzing dynamic relationships in each time series data in a single equation model. In such models, the present value of the regressor is allowed to depend on its own past values as well as the current and past value of the predetermined variables. The variables in the ARDL models could be stationary, non-stationary or a mixture of both. It also separates the long run and the short run effect of an econometric model analysis. It also tests for the long run relationship among variables of interest.

3.4 SOURCE OF DATA

The data for our independent variables were gotten from the central bank of statistical bulletin and world bank. it's will cover a period of 2018-2022.

CHAPTER FOUR

PRESENTATION AND INTERPRETATION OF RESULTS

4.1 INTRODUCTION

This section presents the various variables employed in the study along with their various test, parameter estimate, and result interpretation in line with economic theory for policy implications. The section begins with the presentation of the descriptive statistics and graphical exposition, next is the presentation of the unit root test, the Johansen cointegration test and the long run and short run regression estimates of the models follows next. The chapter concludes with the summary of the result found and its policy implications.

4.1.1 Preliminary Data analysis or summary statistics

The descriptive statistics of all variables employed in the study are given below with full discussion. The measure of central tendency and variability represent a very important area of our analysis. The mean of each series indicates the average variables. The standard deviation shows the variability of the distribution from the mean. The summary of the descriptive statistics is given in the table below:

Table 4.1: Descriptive Statistics Results:

	EXR	MS	INF	OIL	TRANSCORP_HOTEL	RED_STAR_EXPRESS	DAAR_COMMUNICATION	LEARN_AFRICA
Mean	77.14983	37977220	14.49917	71.028	5.3095	2.251167	0.2635	1.366833
Median	76.355	36056577	13.525	68.195	5.4	2.26	0.2	1.255
Maximum	101.42	52155417	21.47	130.1	7.55	2.37	0.9	2.61
Minimum	59.01	28207927	11.02	14.28	3.25	2.06	0.2	0.97
Std. Dev.	10.47903	6416763	3.194627	22.50544	1.22797	0.115276	0.157069	0.409408
Skewness	0.328987	0.614299	0.637199	0.333639	0.00143	-0.505202	2.963783	1.636
Kurtosis	2.644238	2.48649	2.221151	3.663613	2.053866	1.836893	10.73712	4.934802
Jarque-Bera	1.398739	4.432862	5.576742	2.214104	2.237944	5.934341	237.4975	36.12361
Probability	0.496898	0.108997	0.061521	0.330532	0.326615	0.051449	0	0
Sum	4628.99	2.28E+09	869.95	4261.68	318.57	135.07	15.81	82.01
Sum Sq. Dev.	6478.793	2.43E+15	602.1329	29883.2	88.96669	0.784018	1.455565	9.889298
Observations	60	60	60	60	60	60	60	60

Source: Author's computation using Eviews 9.0.

These descriptive statistics provide insights into several variables, including Exchange Rate (EXR), Money Supply (MS), Inflation Rate (INF), Oil Prices (OIL), and specific stock prices like Transcorp Hotel, Red Star Express, Daar Communication, and Learn Africa. The mean Exchange Rate is approximately 77.15, with a median of 76.355. This suggests that, on average, the exchange rate fluctuates around this value. The skewness value of 0.329 indicates a slight positive skewness, while the kurtosis value of 2.644

suggests a distribution with heavier tails than a normal distribution. The Jarque-Bera statistic of 1.399 with a probability of 0.497 suggests that the distribution may not significantly deviate from normality. Money Supply has a mean of approximately 37,977,220 and a median of approximately 36,056,577, indicating the average and middle values, respectively. The standard deviation of approximately 6,416,763 reflects considerable variability. The skewness value of 0.614 suggests a moderate positive skewness, while the kurtosis value of 2.486 indicates a distribution with heavier tails. Inflation Rate has a mean of approximately 14.50, indicating the average observed inflation rate, with a median of approximately 13.53. The skewness value of 0.637 indicates a moderate positive skewness, while the kurtosis value of 2.221 suggests a distribution with heavier tails. The Jarque-Bera statistic of 5.577 with a probability of 0.062 suggests some deviation from normality. Oil Prices have a mean of approximately 71.03, with a median of approximately 68.20. The skewness value of 0.334 suggests a slight positive skewness, while the kurtosis value of 3.664 indicates a distribution with heavier tails. The Jarque-Bera statistic of 2.214 with a probability of 0.331 suggests no significant deviation from normality. The stock prices of Transcorp Hotel, Red Star Express, Daar Communication, and Learn Africa exhibit different characteristics in terms of mean, median, skewness, and kurtosis, indicating variations in their distributions. Overall, these statistics provide an overview of the central tendency, variability, and distributional characteristics of the variables under consideration. They can inform decision-making processes in areas such as monetary policy, investment strategies, and

economic forecasting, helping stakeholders understand the dynamics of these variables and their potential implications for the economy.

Table 4.2: Descriptive Statistics for Logged Variables Result

	LSTR	LEXR	LMS	LINF	LOIL
Mean	1.493286	1.883422	7.573656	1.151488	1.826371
Median	1.488703	1.882837	7.556984	1.130997	1.833746
Maximum	1.563273	2.006124	7.717299	1.331744	2.114277
Minimum	1.409933	1.770926	7.450371	1.04202	1.154728
Std. Dev.	0.042371	0.058777	0.071409	0.092201	0.159747
Skewness	0.06308	0.025988	0.331885	0.410029	-1.408271
Kurtosis	1.91319	2.491387	2.304574	1.831598	7.162444
Jarque-Bera	2.99268	0.653473	2.310521	5.094143	63.14711
Probability	0.223948	0.721274	0.314976	0.078311	0
Sum	89.59714	113.0053	454.4193	69.08926	109.5823
Sum Sq. Dev.	0.105922	0.20383	0.30086	0.501559	1.50562
Observations	60	60	60	60	60

Source: Author's computation using Eviews 9.0.

In respect to stock return, the mean and median values suggest that the data is approximately symmetrically distributed around the mean. The skewness value of 0.06308 further confirms this. The kurtosis value of 1.91319 indicates a distribution slightly more peaked than a normal distribution. The Jarque-Bera test with a p-value of 0.223948

suggests that the data may follow a normal distribution.Implication: The returns on equity investments appear to have relatively low variability around the mean, as indicated by the low standard deviation. The distribution of returns is approximately symmetric, with a slight peak compared to a normal distribution. Based on exchange rate, the mean and median values suggest that the data is approximately symmetrically distributed around the mean. The skewness value of 0.025988 and the low kurtosis value of 2.491387 further confirm this. The Jarque-Bera test with a p-value of 0.721274 suggests that the data may follow a normal distribution.Implication: The real values or indices appear to have relatively low variability around the mean, as indicated by the low standard deviation. The distribution of real values is approximately symmetric, with no significant peak compared to a normal distribution. Inflation log shows that the mean and median values suggest that the data is approximately symmetrically distributed around the mean. The skewness value of 0.410029 and the kurtosis value of 1.831598 indicate a slightly right-skewed distribution with tails lighter than a normal distribution. The Jarque-Bera test with a p-value of 0.078311 suggests that the data may not follow a normal distribution.Implication: The logarithm of inflation rates appears to have moderate variability around the mean, as indicated by the standard deviation. The distribution is slightly right-skewed with tails lighter than a normal distribution. Crude LOIL observed that the mean and median values suggest that the data is approximately symmetrically distributed around the mean. The skewness value of -1.408271 and the high kurtosis value of 7.162444 indicate a significantly left-skewed distribution with much heavier tails than a normal distribution. The Jarque-Bera test with a p-value of 0 suggests that the data significantly deviates from

a normal distribution.Implication: The logarithm of crude LOIL prices exhibits relatively high variability around the mean, as indicated by the standard deviation. The distribution is significantly left-skewed with much heavier tails than a normal distribution, indicating the presence of extreme values or outliers.

4.2 CORRELATION ANALYSIS

Table 4.3 Corraletion Table

	LSTR	LEXR	LMS	LINF	LLOIL
LSTR	1 -----				
LEXR	0.33774 (0.0083)	1 -----			
LMS	-0.3126 (0.0151)	-0.8471 (0)	1 -----		
LINF	-0.218706 (0.0932)	-0.7618 (0)	0.7822 (0)	1 -----	
LLOIL	0.427122 (0.0007)	-0.284557 (0.0276)	0.407364 (0.0012)	0.403854 (0.0014)	1 -----

The correlation coefficient between LSTR and LEXR is 0.33774, indicating a positive but relatively weak linear relationship between stock returns and exchange rates. The probability associated with this correlation coefficient is 0.0083, suggesting that this correlation is statistically significant at the 5% significance level. The correlation coefficient between LSTR and LMS is -0.312607, indicating a negative linear relationship between stock returns and money supply. The magnitude of this correlation suggests a moderate negative relationship. The probability associated with this correlation coefficient

is 0.015, indicating statistical significance at the 5% level. The correlation coefficient between LSTR and LINF is -0.218706, indicating a negative but relatively weak linear relationship between stock returns and inflation. The probability associated with this correlation coefficient is 0.0932, suggesting that this correlation is not statistically significant at the conventional significance levels (e.g., 5%). The correlation coefficient between LSTR and LLOIL is 0.427122, indicating a positive and relatively strong linear relationship between stock returns and crude oil prices. The probability associated with this correlation coefficient is 0.0007, indicating statistical significance at a high level of confidence (e.g., 1%). The statistically significant positive correlation between LSTR and LEXR suggests that changes in exchange rates may influence stock returns, although the relationship is relatively weak.

4.3 UNIT ROOT TEST

4.3.1 Test for Stationarity

The test for stationarity is a time series property that asserts the constancy of the value of the variables concerned with time, i.e., the temporary variability does not stand as a factor that causes changes in the value of a variable. In this study, the Augmented Dickey Fuller test was used to assess the stationary of the variables before performing the co-integration tests. The test also plays a crucial role in determining the order of integration, a vital factor for establishing long term relationships among variables. It also evaluates the null hypothesis concerning the presence of a unit root, and if the absolute values of the test statistics exceed critical values we reject the null hypothesis, indicating stationarity. Conversely, if the absolute values of the test statistics are lower than critical values, we do

not reject the null hypothesis, indicating non-stationarity. The test results, along with the integration order of variables at the level are presented in the tables below:

Table 4.3: Augmented Dickey Fuller Test for Unit Root and First Difference

Series	t-Statistics	1% level	5% level	10% level	Remark	t-Statistics	1% level	5% level	10% level	Remark
LSTR	-1.835305	-3.546099	-2.91173	-2.593551	Non-stationary	-7.071825	-3.548208	-2.912631	-2.594027	Stationary
LEXR	-1.317613	-3.546099	-2.91173	-2.593551	Non-stationary	-9.031185	-3.548208	-2.912631	-2.594027	Stationary
LLOIL	-1.99E+00	-3.546099	-2.91173	-2.593551	Non-stationary	-6.396868	-3.550396	-2.913549	-2.594521	Stationary
LINF	-1.528941	-3.548208	-2.912631	-2.594027	Non-stationary	-2.579207	-3.548208	-2.912631	-2.594027	Stationary
LMS	-1.408811	-3.546099	-2.91173	-2.593551	Non-stationary	-7.939482	-3.574446	-2.92378	-2.599925	Stationary

Source: Author's computation using Eviews 9.0.

The table provides the results of the unit root test (Augmented Dickey-Fuller test) for each series, comparing the t-statistic to critical values at different significance levels (1%, 5%, and 10%). All series (LSTR, LEXR, LLOIL, LINF, and LMS) have t-statistics with absolute values less than the critical values at all significance levels (1%, 5%, and 10%). Therefore, all series are considered non-stationary, implying that they exhibit unit roots and are likely to be non-stationary time series data. For all series (LSTR, LEXR, LLOIL, LINF, LMS), the absolute values of the t-statistics are greater than the critical values at all

significance levels (1%, 5%, and 10%). Since the absolute values of the t-statistics exceed the critical values at all significance levels, all series are considered stationary. The results justify the use of the AUTOREGRESSIVE DISTRIBUTED LAG MODEL as the estimating technique for this analysis. Since the variables are now stationary, we now proceed to conduct the ARDL COINTEGRATION BOUNDS testing and the estimation of the short and long run models.

4.4 TEST FOR CO-INTEGRATION

4.4.1 Johansen Cointegration Test

This analysis advances by conducting a co-integration test on the time series data, utilizing the Johansen Cointegration test. The primary objective is to examine whether there exists a long-term relationship among the variables under scrutiny. Employing a lag length of one, we draw conclusions based on two statistical tests: the trace test for a joint hypothesis and the maximum eigenvalue test for hypotheses on the eigenvalues.

Table 4.5 Trace Test Results

Unrestricted Cointegration Rank Test (Trace)

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.443913	94.92329	88.8038	0.0168
At most 1	0.345946	61.4739	63.8761	0.0783
At most 2	0.268801	37.27363	42.91525	0.1635
At most 3	0.181121	19.42865	25.87211	0.2562

At most 4	0.13154	8.038936	12.51798	0.2485

Source: Author's computation using Eviews 9.0.

Table 4.6 Maximum Eigenvalue Test Results

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.443913	33.44938	38.33101	0.1637
At most 1	0.345946	24.20027	32.11832	0.3355
At most 2	0.268801	17.84499	25.82321	0.3892
At most 3	0.181121	11.38971	19.38704	0.474
At most 4	0.13154	8.038936	12.51798	0.2485

In the Trace test, the null hypothesis "None" suggests no cointegrating equation, indicating that there are no long-term relationships among the variables. The test statistic exceeds the critical value at the 5% significance level, leading to rejection of the null hypothesis. This implies the presence of at least one cointegrating equation. Subsequent hypotheses, such as "At most 1," "At most 2," and so on, suggest restricting the number of cointegrating equations. As the number of restricted equations increases, the eigenvalues and test

statistics decrease, indicating a weaker evidence against the null hypothesis. However, none of the hypotheses are significant at the 5% level.

In the Maximum Eigenvalue test, similar interpretations apply. The null hypothesis "None" implies no cointegrating equation, with the test statistic compared against the critical value to assess significance. In this case, none of the hypotheses are significant at the 5% level, suggesting that there may not be strong evidence for cointegration among the variables.

4.5 ESTIMATED RESULTS

4.5.1 Presentation of Result

Table 4.7: Short Run Results

Dependent Variable: LSTR

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LSTR(-1)	0.719103	0.080249	8.960933	0
LEXR	-0.157807	0.282685	-0.558244	0.5794
LEXR(-1)	0.376055	0.25926	1.450496	0.1539
LMS	0.05161	0.081482	0.633391	0.5297
LMS(-1)	-0.133719	0.083058	-1.609938	0.1144
LOIL	0.030002	0.029383	1.021066	0.3127
LOIL(-1)	-0.043311	0.040504	-1.069289	0.2906
LOIL(-2)	0.019562	0.040156	0.487137	0.6285
LOIL(-3)	0.073632	0.030789	2.391483	0.021
LINF	0.45221	0.209418	2.159364	0.0362

LINF(-1)	-0.36045	0.198185	-1.81875	0.0756
C	0.377062	0.721928	0.522298	0.604
R-squared	0.893352	Mean dependent var		1.49169
Adjusted R-squared	0.867283	S.D. dependent var		0.04281
S.E. of regression	0.015596	Akaike info criterion		-5.298965
Sum squared resid	0.010945	Schwarz criterion		-4.868849
Log likelihood	163.0205	Hannan-Quinn criter.		-5.131807
F-statistic	34.26814	Durbin-Watson stat		2.03327
Prob(F-statistic)	0			

Source: Author's computation using Eviews 9.0.

Long Run Estimation

Table 4.8: Long Run Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LEXR	0.776968	0.430894	1.803154	0.0781
LMS	-0.29231	0.253106	-1.154889	0.2542
LOIL	0.284393	0.062102	4.579451	0
LINF	0.326671	0.199802	1.634973	0.109
C	1.342348	2.46993	0.543476	0.5895

Source: Author's computation using Eviews 9.0.

4.5.2 Interpretation

This short-run ARDL model provides insights into the relationships between the dependent variable (LSTR) and several independent variables (LEXR, LMS, LOIL, LINF) over time. A one-unit increase in the lagged value of LSTR is associated with a 0.719103 increase in the current LSTR, holding other variables constant. The coefficient is not statistically significant at conventional levels (p-value > 0.05), indicating that changes in LEXR do not have a significant immediate effect on LSTR. The lagged value of LEXR has a positive coefficient, suggesting a positive relationship with the current LSTR, but it is not statistically significant. Changes in LMS and its lagged value do not have a statistically significant impact on LSTR. While the lagged values of LOIL show mixed effects, none of them are statistically significant. The current and lagged values of LINF have statistically significant positive coefficients, indicating that increases in inflation positively affect LSTR. The model explains approximately 89.3% of the variance in LSTR, suggesting a good fit. Adjusted for the number of predictors, the adjusted R-squared is 86.7%, indicating that the model's explanatory power remains strong. The standard deviation of the residuals is 0.015596, suggesting that the model's predictions are, on average, within this range of the actual values. AIC is a measure of the model's goodness of fit, considering the trade-off between model complexity and goodness of fit. Lower values indicate better fitting models. while some independent variables like inflation (LINF) show significant short-term effects on equity returns (LSTR), others such as real

exchange rates (LEXR) and crude LOIL prices (LOIL) do not exhibit immediate significant impacts. However, the lagged values of some variables may have indirect effects on equity returns. The value of Sum squared residual is (0.010945) which represents the sum of the squared residuals, measuring the overall fit of the model. Smaller values indicate a better fit. The Schwarz criterion, also known as the Bayesian Information Criterion (BIC), is a measure of model fit adjusted for the number of parameters in the model. Lower BIC values indicate a better trade-off between model fit and complexity. In this case, the BIC value of -4.868849 suggests that the model has good fit with relatively low complexity.The log-likelihood of the model indicates how likely the observed data are given the model parameters. Higher log-likelihood values suggest that the model provides a better explanation for the observed data. In this case, the log-likelihood value of 163.0205 indicates a relatively high likelihood of the observed data given the model parameters. Similar to the BIC, the Hannan-Quinn criterion is another measure of model fit adjusted for the number of parameters. Lower values of the Hannan-Quinn criterion suggest a better balance between fit and complexity. The Hannan-Quinn criterion value of -5.131807 suggests that the model has good fit with relatively low complexity. The F-statistic tests the overall significance of the model by comparing the fit of the model with an intercept-only model. Higher values of the F-statistic indicate a more significant model. In this case, the F-statistic value of 34.26814 suggests that the model is statistically significant, indicating that at least one independent variable has a non-zero effect on the dependent variable. The Durbin-Watson statistic tests for the presence of autocorrelation in the residuals. Values around 2 suggest no autocorrelation, while values significantly different

from 2 indicate the presence of autocorrelation. In this case, the Durbin-Watson statistic value of 2.03327 suggests that there is little to no autocorrelation in the residuals. The probability associated with the F-statistic (Prob(F-statistic)) indicates the probability of observing the F-statistic value if the null hypothesis (that all coefficients are zero) is true. A value close to 0 suggests that the model is significant. In this case, the probability value of 0 indicates that the model is statistically significant.

In the long run model, the coefficients represent the relationship between the dependent variable and the independent variables after accounting for any short-run dynamics. The coefficient is positive (0.776968), indicating that in the long run, an increase in the real exchange rate is associated with a corresponding increase in the dependent variable (equity returns in the service sector). However, the coefficient is not statistically significant at conventional levels (p-value = 0.0781), suggesting that this relationship may not be robust. The coefficient is negative (-0.29231), implying that in the long run, an increase in the money supply is associated with a decrease in the dependent variable (service sector equity returns). However, like the real exchange rate, this relationship is not statistically significant (p-value = 0.2542). The coefficient is positive and highly statistically significant (0.284393, p-value = 0), indicating that in the long run, an increase in crude LOIL prices is associated with an increase in equity returns. The coefficient is positive (0.326671), suggesting that in the long run, higher inflation is associated with higher equity returns. However, like the real exchange rate and money supply, this relationship is not statistically

significant at conventional levels (p-value = 0.109). The intercept represents the value of the dependent variable when all independent variables are zero. In this case, it is 1.342348, but it is not statistically significant (p-value = 0.5895). In the long run, only the crude LOIL price variable appears to have a statistically significant impact on equity returns, with higher crude LOIL prices associated with higher equity returns. However, further analysis may be needed to confirm the robustness of these relationships and explore potential interactions between variables.

4.6 POLICY IMPLICATIONS

In the short run, changes in the real exchange rate do not have a statistically significant impact on service sector equity returns. However, in the long run, there is a positive relationship between the real exchange rate and equity returns in the servic sector , although this relationship is not statistically significant at conventional levels. This suggests that policymakers may need to consider other factors beyond the real exchange rate when formulating policies related to equity markets. Both in the short run and long run, changes in the money supply do not have a statistically significant impact on equity returns. This implies that monetary policy actions related to money supply may not directly influence equity market performance. However, it's important to monitor how changes in the money supply interact with other economic variables over time. Both in the short run and long run, there is a statistically significant positive relationship between crude LOIL prices and equity returns. Higher crude LOIL prices are associated with higher equity returns. Policymakers should consider the implications of fluctuations in crude LOIL prices on

service sector equity markets and may need to implement measures to mitigate potential risks associated with such fluctuations. In the short run, increases in inflation have a statistically significant positive impact on service sector equity returns. However, in the long run, the relationship between inflation and service sector equity returns is not statistically significant at conventional levels. This suggests that while short-term inflation dynamics may affect equity market performance, the long-term relationship is less clear. Policymakers should monitor inflation trends and their potential impacts on equity markets, but additional analysis may be needed to understand the underlying mechanisms. policymakers should carefully consider the dynamics of real exchange rates, crude LOIL prices, and inflation when formulating policies related to service sector equity markets. While short-term effects may be observed for certain variables, the long-term relationships may be more nuanced and require further investigation. Additionally, policymakers should remain vigilant to potential interactions between these variables and other economic factors to ensure effective policy formulation and risk management in the equity market.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 SUMMARY OF FINDINGS

This study sorts to examine the impact of the exchange rate on service sector equity returns in the Nigerian stock exchange in Nigeria from the year 2018 – 2022. The descriptive statistics reveal important characteristics of the variables studied, including mean values, standard deviations, skewness, kurtosis, and tests for normality. The study employed the use of Augmented Dickey-Fuller (ADF) for the unit root test to check for stationarity or non-stationarity of the variables both at level and at first difference. Also, to check for the long-term relationship of the variables the study uses the Autoregressive Distributed Lag Model bound test for its cointegration test. The short-run ARDL model reveals the immediate and lagged effects of independent variables on equity returns. While inflation shows statistically significant positive effects on service sector equity returns, other variables such as real exchange rates, money supply, and crude LOIL prices do not exhibit immediate significant impacts. The model explains a significant portion of the variance in service sector equity returns and exhibits good fit according to various goodness-of-fit

criteria. In the long run, only crude LOIL prices exhibit a statistically significant positive relationship with service sector equity returns, suggesting that higher crude LOIL prices are associated with higher service sector equity returns. Other variables like real exchange rates, money supply, and inflation do not show statistically significant relationships with service sector equity returns in the long run. the study provides valuable insights for policymakers, investors, and financial analysts, helping them make informed decisions and manage risks effectively in the Nigerian service sector equity market.

5.2 CONCLUSION

The study contributes to the existing body of literature by shedding light on the relationship between inflation and service sector equity returns in the Nigerian equity market, with specific focus on the construction sector. By understanding the implications of inflation on equity returns, stakeholders can better navigate the complexities of the market and optimize their investment strategies for long-term success.

5.3 RECOMMENDATIONS

1. Diversification Strategy: Investors should consider diversifying their portfolios to include construction sector stocks, especially during periods of inflation. These stocks have demonstrated a positive relationship with inflation, potentially serving as a hedge against its adverse effects on investment returns.
2. Inflation Monitoring: Investors and financial analysts should closely monitor inflation trends and their impact on service sector equity returns in the construction

sector. By staying informed about inflation dynamics, investors can adjust their investment strategies accordingly to capitalize on potential opportunities or mitigate risks.

3. Risk Management Practices: Implementing robust risk management practices is essential for investors navigating the Nigerian stock market, particularly within the construction sector. This includes setting clear investment goals, diversifying portfolios, and regularly reviewing and rebalancing investments to mitigate potential losses associated with inflation fluctuations.
4. Policy Advocacy: Investors and industry stakeholders can advocate for policies that promote economic stability and mitigate inflationary pressures. This may involve engaging with policymakers to ensure that monetary and fiscal policies are conducive to sustainable economic growth and stability in the construction sector and the broader economy.
5. Research and Education: Continued research and education on the relationship between inflation and service sector equity returns, specifically within the context of the Nigerian stock market, are crucial. Investors, policymakers, and financial analysts should stay informed about the latest research findings and market developments to make informed decisions and formulate effective policies.
6. Long-term Perspective: Investors should adopt a long-term perspective when investing in construction sector stocks or any other asset class affected by inflation. While short-term fluctuations may occur, focusing on long-term investment goals

and maintaining discipline during market volatility can lead to more favorable outcomes.

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