

Systematic Review of Nexus between Exchange Rate Fluctuations and Stock Market Price Movements: Flow Oriented Theory, Stock Oriented Theory and Portfolio Balance Theory

EFUNTADE, Alani Olusegun, FCIB, ACA.
Federal University Oye-Ekiti, Ekiti State, Nigeria

EFUNTADE, Olubunmi Omotayo, PhD.
Federal University Oye-Ekiti, Ekiti State, Nigeria

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Abstract:

The study investigated literatures on nexus between exchange rate fluctuations and stock market price movements: flow oriented theory, stock oriented theory and portfolio balance theory. It was discovered that many studies predominantly found out statistically significant positive nexus between exchange rate fluctuations and stock market price movements (Parsva & Lean, 2017; Mechri, Ben Hamad, De Peretti & Charfi, 2018; Morales-Zumaquero & Sosvilla-Rivero, 2018; Bahrnani-Oskooee & Saha, 2016; Ho & Huang, 2015; Sui & Sun, 2016; Mroua & Trabelsi, 2019; Nazakat & Kashif, 2017; Yildirim & Adali, 2018; Fapetu, Adeyeye, Seyingbo & Owoeye, 2017; Okechukwu, Mbadike, Geoffrey & Ozurunma, 2019; Bagh, Azad, Razzaq, Liaqat & Khan, 2017; Alzyoud, Wang & Basso, 2018) while very scanty and few studies revealed a negative significant relationship and statistically insignificant. Various studies conducted shows different results on asymmetric and symmetric effects and causality: bidirectional, unidirectional and no causality between exchange rate fluctuations and stock market price movements. Some results support the flow oriented theory, some are for the stock oriented theory and portfolio balance theory while others believe that three theories are functional in an economy. Variation in these studies could be as a result of methodology used, market condition, risk and other factors that are peculiar to each economy. The study discovered other factors namely GDP of a country, level of employment, companies business internal financing structure, investment inflow, inflation rates, oil prices, government expenditure, inflation rate, interest rate, and exchange rate that have effect on stock market movements. The empirical studies examined recommended as follows: Regulators should consider developing sound policy measures to prevent financial risk. The public who desire to invest must utilize the information of important macro-economic variable in particular exchange rates volatility in order to predict the behaviour of stock market. Therefore the researchers suggested among others that the regulatory and supervisory authorities should focus on domestic economic policies to stabilize the stock market. Policymakers are required to

have an in-depth understanding of the nature of the co-movement between the variables to ensure timely and operative policy responses are rolled out to minimize adverse fluctuations in stocks and the local currencies. Policy makers may be able to know when to intervene in influencing the markets using monetary or fiscal policies. Investors and portfolio managers can apply the findings of this study to hedge against exchange rate risk, efficiently diversify their portfolios and predict future stock market movements by observing the exchange rate market.

Keywords: *exchange rate fluctuations, flow oriented theory, portfolio balance theory, stock oriented theory and stock market price movement.*

JEL classification codes: F31,O16,E44,E12

1.0 Introduction

Stocks market movements have deep effects on the nation economy as well as everyday life of people. A downfall in the price of a share more likely has the considerable potential to cause the prevalent economic melt –down. The term Volatility may be defined the deviation in the stock prices varies throughout the time.in stock returns refers to deviation in stock prices varies throughout a time. On daily basis stock exchange indices fall and rise and there is sometimes upward and downward propensity. These trends are subjects to change. This study typically focuses on systematic review of nexus between exchange rate fluctuations and stock market price movements.. The movement in exchange rate has impact on daily human life. Firm’s decisions directly or indirectly influenced by the movements in exchange rates either in domestic or global environments. So, presence in global market without studying the movement of exchange rate is not an easy task. Understanding the possible relationship between exchange rates and stock index will facilitate the national as well as international organizations to manage their foreign exchange exposure. This information is useful for portfolio investors to hedge or forecast their returns from foreign investments. Regulatory authorities can take proactive steps to protect financial markets from disasters.

According to Abbas (2010) currency exchange can be defined as the rate of exchange among the currencies of two countries. A stock index or stock market index is a measurement of the value of a section of the stock market. It is computed from the prices of selected stocks (typically a weighted average). It is a tool used by investors and financial managers to describe the market, and to compare the return on specific investments (Al-Majali & Assaf, 2014). In addition to this, everyday we hear about variations in the stock indexes in the news. This is often reported in the news that stock index are fall or rises due to instable of political and economic conditions. So, a major portion of research in finance has been conducted to explore the key elements of stock index. But it is not easy to measure political occurrences or changes, and most of previous studies have focused on the variables such as financial and economic for which data is available from any secondary source. Stock market is reflection of country’s economy. From last few decades the importance of stock market over the world wide has created a Gap for research in economic growth and stock market development.

The effect of changes in exchange rates on stock market index returns and the interactions between stock markets and money markets has become an interesting topic of research. According to the literature, several researchers have paid more attention to the cause—and-

effect relationship between the changes in exchange rates and the fluctuation of stock market index returns. In fact, measuring the interconnectedness of exchange rates and stock markets is increasingly recognized as being of paramount importance in terms of practical implications for financial investment, as it involves portfolio management, asset allocation and risk management. The existing literature on dynamic links between exchange rates and stock returns is extensive and most studies have mixed results.

1.2 Theoretical review

The idea of whether stock prices and exchange rates are related has been studied since the 1970s. Franck and Young (1972) was the first study that examined the relationship between these two variables. They used six exchange rate changes and found no reaction of stock price to exchange rate realignments. While Ang and Ghallab (1976) investigated the behavior of stock price during US dollar devaluation and also found no significant relationship.

This section will examine theories that supported the relationship between stock prices and exchange rates. First, the traditional theory advocates that exchange rates lead stock prices (Aydemir and Demirhan,2009). Second, the portfolio balance approach by Branson, I-lalittusen and Mason (1977) states that exchange rates are determined by market mechanism, in other words changes in stock prices might have impact on exchange rate movements. This approach opined that stock prices is expected to lead exchange rate with a negative correlation since a decrease in stock prices reduces wealth this theory further expatiated that exchange rate fluctuations and stock prices are correlated through account transactions. The theory is of the opinion that, as exchange rates fluctuate, investors engage in portfolio adjustment and balancing to take advantage of exchange rate changes as well as to achieve a diversified portfolio of assets. Implying that, a rise in exchange rate, makes investment in domestic stock market attractive to foreign investors and domestic investors with foreign currency. This leads to a rise in stock prices in the domestic stock market (Aydemir and Demirhan,2009).

Third, the flow oriented model by Dornbusch and Fisher (1980) argued that, rise in exchange rates(depreciation of the domestic currency) exerts upward pressure on the general cost of production in the economy leading to a downward revision of investors' expected rate of return, thereby affecting the prices of assets quoted on the stock market. Fourth, the real balance approach according to Clark (2002) asserted that a rise in exchange rate which causes a rise in general level of prices in the domestic economy also leads to a decline in real balances and this in tum, induces investors in the aggregate to sell off their stock holdings in an effort to maintain their balances; an action that leads to a fall in stock prices as a result of the ensuring excess supply of assets in the stock market. Fifth, the balance of payment theory as recorded by Jhingan (2006) opined that under free exchange rates, the exchange rate of the currency of a country depends upon its balance of payment.

A favourable balance of payment raises the exchange rate, while an unfavourable balance of payment reduces the exchange rate. Jhingan (2006) insisted that the demand for foreign exchange arises from the debit side of the balance of payments. It is equal to the value of payments made to the foreign country for goods and services purchase from it plus loans and investments made abroad. The supply of foreign exchange arises from the credit side the balance of payments. It equals all payments made by the foreign country to our country for goods and

services purchased from us plus loans disbursed and investment made in this country. The balance of payments balances if debits and credits are equal. If debits exceed credits, the balance of payments is unfavourable.

On the contrary, if credits exceed debit, balance of payments is favourable. When balance of payments is unfavourable, it means that the demand for foreign currency is more than its supply. This causes the external value of the domestic currency to fall in relation to foreign currency. Consequently, the exchange rate falls. On the other hand, in case of balance of payments is favourable, the demand for foreign currency is less than its supply at a given exchange rate. This causes the external value of the domestic currency to rise in relation to the foreign currency. This causes the exchange rate to rise. This implies that the exchange rate is determined by the demand and supply of foreign exchange which in turn depends on the depth of the stock market in creating funds that can stimulate export

According to Franck and Young (1972) the effect of exchange rates on stock prices depends on whether the listed firms were multinational or domestic in nature. In the case of multinational firms, as the value of exchange rates changes, the values (profit or loss) of the multinational firms also changes, and affecting the company's share prices. But the way in which the movements in exchange rate affect firm's earning and its stock price depend on the characteristics of firms. Certainly, because of the differences in firm's characteristics, their values tend to be affected by exchange rate movements in a different way.

Although, the increasing use of derivatives like forward contracts and currency options could help to reduce the effect of exchange rate fluctuations on the firms earning (Richards et al. 2009). Hence, flow oriented theory sometimes referred to as traditional approach strongly believe that there exist a causal relationship between exchange rates and stock prices which runs from the former to the latter (Dornbush and Fisher, 1980), and studies by Aggarwal (1981), Soenan and Hennigar (1988) and Tabak (2006) provided some evidence in support of the theory. Aggarwal (1981) examined the relationship between exchange rates and stock prices. He looked at the correlation between changes in US trade—weighted exchange rate and US stock market indices each month for the period 1974 to 1978. The evidence revealed that the US trade—weighted exchange rate and US stock market indices were positively correlated during this period.

Thus, from the findings, the study draws an inference by concluding that the interactions of the two variables are consistent with the flow oriented theory, which claimed that exchange rate movements could affect the stock prices of multinational firms directly by influencing the value of its overseas operations, and indirectly on the domestic firms through the influence on the prices of its exports or its imported inputs. In contrary,

Soenen and Hennigar (1988) reveals the existence of significant negative correlation between the effective value of the US dollar and changes in US stock prices using monthly data for the periods 1980 to 1986, while the report from Tabak (2006) show no long run relationship between stock price and real exchange rate in Brazil, but with evidence of nonlinear causality running from exchange rate to stock prices. Contrary to flow oriented theory, stock—oriented theory put forward that improvement in stock market affect exchange rate through liquidity and the wealth effects. Hence, stock—oriented theory as proposed by Branson (1993) pointed that capital account is the major determinant of exchange rate.

The postulate of this theory implies that stock prices decrease reduces local investor's wealth, which in turn lowers their demand for money. Consequently, as the demand for money falls, banks will react by lowering interest rates which in turn dampens capital inflows. This may likely reduce the demand for local currency further and thus, result to depreciation of the local currency. Since domestic and foreign assets are not perfect substitutes in the portfolio balancing effect, as investors adjust their portfolio ratio of domestic to foreign assets in response to changes in economic conditions, the exchange rate responds accordingly. However, this theory is consistent with the findings of studies by Aliyu (2009), Adebisi et al. (2009), and Okpara and Odionye (2012), which shows a long run relationship between stock prices and exchange rate as well as unidirectional causality running from stock prices to real exchange rate.

1.3 Portfolio balance theory

The second theory, which suggests that the effect runs from the stock prices to the exchange rate, is the Portfolio Balance theory. According to Phylaktis and Ravazzolo (2005), the Portfolio balance theories indicate that activities in the capital account determine the exchange rate. The theory indicates that when stock prices increase, this will attract foreign investors into the domestic market. The arrival of foreign investors will result in huge influx of capital inflows. Given that foreign investors change their foreign currency into the domestic currency, there will be a huge demand for money. The huge demand for money might be inflationary, which can prompt the intervention of monetary authorities through increasing the interest rate, which can further result in more funds flowing into the country. On the other hand, when stock prices decrease, this may diminish corporate wealth and hence the country's wealth Phylaktis and Ravazzolo (2005). The theory therefore emphasize that the effect runs from stock prices to exchange rate. Again, the theory highlights that the link between the variables is dependent on what happens to the interest rate.

The traditional economic theory: The Traditional economic theory suggests that either a depreciation or appreciation of the currency may cause a company to have a profit or loss in its books of accounts, which ultimately affects its share price. According to this theory, currency depreciation result in higher exports and hence an increase in company profits which will ultimately attract investors resulting in the share price increasing. Traditional approach stated that when domestic currency depreciates it facilitates domestic firms so those firms will become more competent as a result their exports will increase which ultimately results to increase in their stock price. So it can be concluded from the preceding theory that increase in exchange rates leads to increase in stock index. Branson (1983) describes portfolio approach which states that positive change in stock index motivates investors to invest more in domestic assets and it will result to increase in the domestic currency. He also proposes that exchange rate is led by stock index while these two variables correlated negatively. He also suggested „stock—oriented“ model of exchange rates, that exchange rate serves to create equilibrium between supply and demand for assets such as stocks and bonds

1.3 Arbitrage pricing theory

Ross (1978) proposed the Arbitrage Pricing Theory (APT). According to this theory, the performance of a share price is dependent on a number of economic variables, which influences the discount rate and future dividends. The theory suggests that individuals prefer portfolios of

investment with specific systemic risk, which are different. So according to this theory, events which affect the exchange rate have a potential of affecting the stock prices.

1.4 Flow-Oriented model

One of the theories which is popularized to explain the link between the exchange rate and the stock price is the Dornbusch and Fisher (1980)'s Flow-Oriented model. The model suggests that it is the exchange rate that affects the stock prices. In line with the APT model discussed earlier, the Flow-Oriented model indicates that factors that reduce the cash-flow of the firm, holding everything constant, will result in a decrease in the stock prices of the company, or vice-versa.

The classical theory in economic suggests that stock prices and exchange rates interrelate. The first approach involved the flow oriented theory (Dornbusch and Fisher, 1980). This approach argued that exchange rate fluctuations could cause stock price instability. This theory is built on the macro view that support the premise which maintained that stock prices represent present value of a firm's expected future cash flows, and any occurrence that effects firm's cash flow will reflect in that firm's stock price if the market is efficient (Richards, Simpson and Evans, 2009), and otherwise if the market is inefficient.

2.0 Analyses of empirical evidences

2.1 Bidirectional causality effect between exchange rate and stock market price movements

Mira (2019) investigated the nature of the interaction between exchange rate sensitivity and stock market stationarity test using the ADF and PP tests, Johansen and Juselius cointegration procedures bivariate as well as multivariate. With sample from 2007-2017 from Kazakhstan stock exchange. The study revealed stationarity in differences of the time series. Granger causality tests demonstrate strong bidirectional relationship between exchange and stock prices in Kazakhstan.

Parsva and Lean (2017) investigated the causal relationship between stock prices and exchange rates for six Middle Eastern countries, namely, Egypt, Iran, Jordan, Kuwait, Oman, and Saudi Arabia before and during (after) the 2007 global financial crisis for the period between January 2004 and September 2015. The sample is divided into two sub-periods, that is, the period from January 1, 2004 to September 30, 2007 and the period from October 1, 2007 to September 30, 2015, to represent the pre-crisis period and the post—crisis period, respectively. Using Vector Autoregressive (VAR) model in a multivariate framework (including two control variables, inflation rates and oil prices) the results suggest that in the case of Jordan, Kuwait and Saudi Arabia, there exists bidirectional causalities after the crisis period but not the before. The opposite status is available for the case of Iran. In the case of Oman, there is bidirectional causality between the variables of interest in both periods.

Sikhosana and Aye (2018) studied asymmetric volatility transmission between the real exchange rate and stock returns in South Africa using EGARCH, GJR-GARCH and APARCH as the estimation techniques. The research results indicate the impact of exchange rate on stock market is positive and there is a bi directional relationship between exchange rate and stock prices.

Manasseh, Chukwu, Abada, Ogbuabor, Onyeka, and Okoro (2019) examined stock prices and exchange rate interactions with multivariate VAR-GARCH model using monthly data from January 2000 to October 2014. The results of the EGARCH and Johansen cointegration test show that there is stable long-term relationship between stock prices and exchange rate. The empirical evidence of the VAR—GARCH model shows a significant mean spillover running from stock market to exchange market but not a mean spillover from exchange market to stock market. The Variance equation results indicated the existence of bi-directional Volatility transmission effect between stock prices and exchange rates, indicating the past innovations in stock market have the great effect on future volatility in foreign exchange market, and vice Versa. The results have important implications for international portfolio managers in the portfolio diversification decisions and risk hedging strategies.

2.2 Unidirectional causality effect running from exchange rate to stock market price movements

Sekhar and Nguyen (2019) examined the long-term relationship and causal relationship between exchange rates and stock prices employing Johansen cointegration model, vector error correction model and granger causality tests using weekly data from 2013 to 2018. The granger causality test confirms the existence of the short-run unidirectional causal relationship from exchange rates to stock prices in the Mexican markets. This research supports the flow oriented theory of exchange rate.

Tiwari, Islam and Islam (2019) investigated the relationship between the exchange rate and stock prices using a continuous wavelet-based analysis; utilizing a relatively novel and non-traditional technique known as continuous wavelet approach-continuous wavelet power spectrum, cross-wavelet transform and cross-wavelet coherency using monthly time series data from 1986-2014. The empirical results strongly support the traditional hypothesis that the exchange rate leads (causes) stock prices compared to the alternative portfolio-based hypothesis. This research supports the flow oriented theory of exchange rate.

Udobi—Owoloja, Philomina, Iyiegbuniwe and Onwualu (2018) investigated the long run directional relationship that exists between exchange rate and stock prices in Nigeria within the period 1986-2017. Time series data of the variables were sourced from CBN statistical bulletin and Nigerian Stock Exchange. Stock price is the criterion variable, exchange rate, is the predictor variable while Consumer Price Index (proxy for inflation), Broad Money Supply (BMS) and Foreign Portfolio Investment (FP1) are the control variables. Johansen cointegration, Vector Error Correction Model (VECM) and granger causality test were adopted to assess the existence, nature and direction of association among the variables. There exists a unidirectional relationship which emanates from exchange rate to stock prices in Nigeria. This research supports the flow oriented theory of exchange rate.

2.3 No causality effect between exchange rate and stock market price movements

Guru-gharana, Rahman and Islam (2021) examined the causal linkages of Japan's stock market (proxied by NIKKEI 225 index) performance and exchange rate. Multivariate granger causality tests using monthly time series data from 1974-2017. No causality is detected between the stock markets and the general price level and exchange rate in japan.

Jayashankar and Rath (2017) examined linkage between exchange rate, stock price and interest rate in India using monthly data from 2000 to 2014. Maximum overlap discrete wavelet transform (MODWT) and Granger causality test were used as estimating technique. This study adopts a more sophisticated MODWT approach for examining the cross-correlation and causality. Interest rates and stock returns showed a negative relationship. Granger causality tests established a lead/lag relationship between stock price, exchange rate and interest rate.

Zubair (2013) studied relationship between stock prices and real exchange rate in Nigeria. The research showed evidence of no long-run relationship between stock prices and real exchange rate, but found a unidirectional causality running from stock prices to real exchange rate. Zubair (2013) further investigates the long run relationship before and after the 2008 financial crises using a monthly data that spans the periods 2001 to 2011, and found no existence of long run relationship before and after the 2008 financial crises.

2.4 Asymmetric effect of exchange rate on stock market price movements

Fasanya and Akinwale (2022) assessed the effect of the exchange rate shocks on ten (10) sectorial stock returns in Nigeria from 2007 to 2018; the study examined symmetric and asymmetric relationship between exchange rate and sectorial stock returns. The autoregressive distributed lag and nonlinear autoregressive distributed lag were used. Only financial service sector moves in an asymmetric fashion in the short and long period without taking account of structural breaks and with structural breaks. None of the sectorial stock returns were asymmetric.

Saidi, Muttalib, Adam, Rumbia and Sani (2021) examined the symmetric and asymmetric effects of the IDR/USD exchange rate and its volatility on stock prices using the monthly time series data of the IDR/USD exchange rate and Indonesian composite stock price index from 2006 to 2019. The data were analyzed using ARDL and NARDL model. The results showed that in the long term both the exchange rate and the volatility lack symmetric and asymmetric influence on stock prices.

Sahin and Mohamed (2020) analysed the relationship between exchange rate and stock prices in the short-run and long run. Using NARDL model for the Kuwait economy and classical linear regression model, autoregressive distributed lag model and NARDL a cointegration relationship revealed short-run and long-run asymmetry between exchange rate and stock prices; macroeconomic and financial variables are extrinsically intertwined with stock prices.

Naresh et al. (2018) try to identify the long-run spillover effect of the US dollar on major stock indices of BRICS nations by applying individual and panel GMM. The results indicate that the appreciation in the value of BRICS currencies against dollars has increased the value of the respective nation's stock indices asymmetrically.

2.5 Symmetric effect of exchange rate on stock market price movements

Saidi, Muttalib, Adam, Rumbia and Sani (2021) examined the symmetric and asymmetric effects of the IDR/USD exchange rate and its volatility on stock prices using the monthly time series data of the IDR/USD exchange rate and Indonesian composite stock price index from 2006 to 2019. The data were analysed using ARDL and NARDL model. The results showed that in the short term, the IDR/USD exchange rate has a symmetry effect on stock prices, while volatility lacks such a symmetric influence.

Koskei (2017) investigated the effect of exchange rate risk on the stock returns in Kenya's listed financial institutions. Using purposive sampling technique which concentrated on 14 financial institutions. A causal research design and a panel data regression using the ordinary least squares OLS method on time series data and cross sectional data indicated that exchange rate risk affect stock returns of listed financial institutions in Kenya symmetrically.

2.6 Statistically significant positive nexus between exchange rate fluctuations and stock market price movements

Parsva and Lean (2017) investigated the causal relationship between stock prices and exchange rates for six Middle Eastern countries, namely, Egypt, Iran, Jordan, Kuwait, Oman, and Saudi Arabia before and during (after) the 2007 global financial crisis for the period between January 2004 and September 2015. The sample is divided into two sub-periods, that is, the period from January 1, 2004 to September 30, 2007 and the period from October 1, 2007 to September 30, 2015, to represent the pre-crisis period and the post—crisis period, respectively. Using Vector Autoregressive (VAR) model in a multivariate framework (including two control variables, inflation rates and oil prices). The results also reveal that the relationship between stock prices and exchange rates has become stronger after the 2007 global financial crisis. Overall, the results of this study indicate that fluctuations in foreign exchange markets can significantly affect stock markets in the Middle East.

Mechri, Ben Hamad, De Peretti and Charfi (2018) reviewed the connection between exchange rate and stock market using dynamics GARCH estimation method and multiple regression model. The results indicated that exchange rate volatility has a significant effect on stock market fluctuations and exchange rate volatility positively affected stock prices in Tunisia and Turkey.

Morales-Zumaquero and Sosvilla-Rivero (2018) empirically analyzed the evidence of intra—spillovers and inter—spillovers between foreign exchange and stock markets in the seven economies, which constitute the majority of foreign conditional heteroskedastic methodology and the structural vector autoregressive framework, results suggest that the long-run volatility relationships are stronger than the short-run volatility linkages with reinforcement during the post-global financial crisis period. Where the foreign exchange markets are the main long-run volatility triggers. In addition, the characteristics of the stock markets, the behaviour of investors and the economic policies of BRICS countries are different from those of developed countries and other emerging countries.

Bahrnani-Oskooee and Saha (2016) explored the effect of exchange rate movements on stock prices, for other countries (Brazil, Canada, Chile, Indonesia, Japan, Korea, Malaysia, Mexico and the UK), applying the non-linear ARDL method and they discovered that exchange rate movements have asymmetric effects on stock prices mainly in the short term. Tang and Yao (2018) investigated the impact of the domestic financing structure, considered as a key means of interaction between stock markets and foreign exchange markets, on the relationship between stock prices and exchange rates of 11 emerging countries, namely, Argentina, Brazil, China, India, Indonesia, South Korea, Mexico, Russia, Saudi Arabia, South Africa and Turkey during the period 1988-2014. Using Granger's cointegration method and multivariate causality tests, the results showed that the internal financing structure, which reflects the share of direct and indirect financing, plays an important role in the relation between the exchange rate and share price. They also find that, with the exception of China, internal financing structures had a significant effect,

whether through capital or equity flows, on the coupling mechanism between the exchange rate and the emerging market equities.

Ho and Huang (2015) investigated the relationship between the stock market indices and exchange rates of the BRIC countries (with the exception of South Africa) using the Lagrange multiplier principle, during the period from February 2002 to December 2013 and showed that the causal relationship of the exchange rate to the stock index differ according to the market states during the period 2006-2015.

Sui and Sun (2016) examined the spillover effects of exchange rates and share prices of BRICS countries after the global financial crisis of 2007-2008, looking at dynamic, long-term and short-term relationships. By applying autoregressive Vector models and Vector error correction models, the results showed a significant effect of stock prices on exchange rate movements in the case of Brazil. More recently, based on a wavelet analysis, Dahir et al. (2018) investigate the dynamic links between exchange rates and stock returns in BRICS countries and revealed that relationships between exchange rates and stock returns are positive in the medium and long term, indicating that exchange rates influenced stock returns in Brazil and Russia, negative in India and seem to be more bidirectional causality in China.

Mroua and Trabelsi (2019) investigated simultaneously the causality and the dynamic links between exchange rates and stock market indices. It attempts to identify the short- and long-term effect of the US dollar on major stock market indices of Brazil, Russia, India, China and South Africa (BRICS) nations. The study applies a new methodology combining the panel generalized method of moment model and the panel auto-regressive distributed lag (ARDL) method to investigate the existence of a causal short-/long-run relationships and dynamic dependence among all stock market returns and exchanges rates changes of BRICS countries. Results showed that exchange rate changes have a significant effect on the past and the current volatility of the BRICS stock indices. Besides, ARDL estimations revealed that exchange rate movements have a significant effect on short and long-term stocks market indices of all BRICS countries. The findings have implications for policymakers and market participants who try to manage the exchange rate will have a different dose of intervention if they know that the effects of currency depreciation are different than appreciation. These results have important implications that investors should take into account in frequency-varying exchange rates and stock returns and regulators should consider developing sound policy measures to prevent financial risk.

Nazakat and Kashif (2017) analysed the relationship between exchange rates and stock market prices of Asian countries using OLS and quantile regression method to measure the correlation of the variables' monthly data for periods 2003-2017. The result from the unit root test, Augmented Dickey-Fuller (ADF), Phillip-Perron (PP) and granger causality tests showed that stock market prices influences exchange rate in China. In Pakistan, Russia and Turkey economy the exchange rate influences stock prices.

Yildirim and Adali (2018) examined the linear and non-linear causality tests of Turkish's economy exchange rate and stock prices for a duration of 22 years (2005-2017). The granger causality test on the monthly real exchange data and Consumer Price Index (proxy for stock prices) shows that an association exist between the variables and that stock market price triggers changes in exchange rate in Turkey.

Fapetu, Adeyeye, Seyingbo and Owoeye (2017) examined exchange rate volatility and the performance of stock market in Nigeria applying GARCH, ARCH, E-GARCH and TARARCH. The findings showed exchange rate positively relate with market capitalization rate in all the four models.

Okechukwu, Mbadike, Geoffrey and Ozurunma (2019) investigated the relationship between stock market return volatility and macroeconomic variable (exchange rates, inflation and interest rates). The study employed GARCH techniques to evaluate the existence of high stock market returns volatility, and the impact of the exchange rate, interest rate and inflation on stock market returns in Nigeria, using monthly series data from 1995-2014 inflation rate and exchange rate have a positive relationship with stock market returns. Also, there is high and persistent volatility in Nigeria stock market returns.

Bagh, Azad, Razzaq, Liaqat and Khan (2017) studied the effect of exchange rate volatility on the stock index at Pakistan stock exchange based on monthly data from 2003 to 2015 applying simple linear regression and augmented dickey-fuller statistical test. A positive and statistically significant relationship between exchange rate and stock index in Pakistan is found out. The result also showed that exchange rate volatility had a positive effect on stock prices. The exchange rate Volatility is considered to be the most important and persuasive variable that affects the performance of stock index. Based upon key findings, this study particularly postulates that countries like Pakistan which has an emerging economy the macroeconomics variables i.e. exchange rate Volatility and stock index of Pakistan are associated, thus the public who desire to invest must utilize the information of important macro-economic variable in particular exchange rates volatility in order to predict the behaviour of stock market.

Alzyoud, Wang and Basso (2018) examined the dynamics of Canadian oil price and its impact on exchange rate and stock market performance; the study analyzed the impact of crude oil prices (COP) on exchange rate and stock market returns in Canada for period of 1986-2015 using regression analysis and cointegration technique and used stock index, exchange rate, and crude oil price as variables in the study. OLS, DOLS, GARCH showed that oil price, exchange rate, and their variations had a positive and significant impact on the Canadian stock market returns and there was no cointegration among COP, exchange rate and stock market returns.

2.7 Statistically significant negative nexus between exchange rate fluctuations and stock market price movements

Ejem and Ogbonna (2020) studied stock prices and exchange rates relations and made use of exchange rate proxied by exchange of Naira and United States of America Dollar and Stock price proxied by All Share Index collected from the Central Bank of Nigeria Statistical Bulletin and Nigerian Stock Exchange Fact Books respectively from January 02, 2014 to May 20, 2019. After estimations of the models, the following were revealed: stock price leads exchange rate in Nigeria Stock market. It was equally observed that negative correlation exists between stock prices and exchange rate and decrease in stock prices reduces wealth. It was also found that no long run relationship exists between stock prices and exchange rates. Therefore the researchers suggested among others that the regulatory and supervisory authorities should focus on domestic economic policies to stabilize the stock market.

Kudakwashe and Takawira (2022) examined the relationship between the stock market and exchange rate in South Africa for the period from 1980 to 2020. Quarterly data was used employing the Autoregressive Distributed Lag (ARDL) model given the order relationship between the variables of interest. The results revealed that there is a negative relationship between the stock market and exchange rate movement. The results also showed that there is a negative relationship between the stock market and the interest rate as well as inflation as measured by CPI. These results implied that innovations in the exchange rate do have an impact on what happens stock market. The impact of exchange rates on stock market can be positive in the short run and negative in the long run and so policymakers can use our findings to avoid making unnecessary monetary or fiscal policy decisions. Policy makers may be able to know when to intervene in influencing the markets using monetary or fiscal policies. Investors and portfolio managers can apply the findings of this study to hedge against exchange rate risk, efficiently diversify their portfolios and predict future stock market movements by observing the exchange rate market.

Udobi—Owoloja, Philomina, Iyiegbuniwe and Onwualu (2018) investigated the long run directional relationship that exists between exchange rate and stock prices in Nigeria within the period 1986-2017. Time series data of the variables were sourced from CBN statistical bulletin and Nigerian Stock Exchange. Stock price is the criterion variable, exchange rate, is the predictor variable while Consumer Price Index (proxy for inflation), Broad Money Supply (BMS) and Foreign Portfolio Investment (FPI) are the control variables. Johansen cointegration, Vector Error Correction Model (VECM) and granger causality test were adopted to assess the existence, nature and direction of association among the variables. The outcomes show a negative long run association between the stock prices and exchange rate.

Shinkeva (2020) examined the effect of exchange rate risk on stock market returns at the Namibia stock exchange using monthly time series 2010-2018. By applying error correction model (ECM) and granger causality. The results showed an increase in exchange rate risk and prime rate negatively affect NSX stock returns while it is positively affected by increases in CPI. Alashi (2022) investigated the influences of exchange rate and stock market index in Palestine exchange using least square testing approach and daily data ranging from 2012 to 2021. It was found out that USD exchange rate negatively affects the stock index of Palestine exchange in both the long and short term.

2.8 Statistically insignificant nexus between exchange rate fluctuations and stock market price movements

Sui and Sun (2016) examined the spillover effects of exchange rates and share prices of BRICS countries after the global financial crisis of 2007-2008, looking at dynamic, long-term and short-term relationships. By applying autoregressive Vector models and Vector error correction models, the results showed an insignificant effect for the case of India, China and South-Africa.

Sekhar and Nguyen (2019) examined the long-term relationship and causal relationship between exchange rates and stock prices. Estimating the data by applying Johansen cointegration model, vector error correction model, granger causality tests using weekly data from 2013 to 2018 showed insignificant existence of long-run relationship between stock prices and exchange rate in Canadian and Mexican markets.

Agyei et al. (2022) examined the co-movement between exchange rate (EXR) returns and stock (STK) returns in Africa amid COVID-19 in a time and frequency domain. The study employed the bi- and partial wavelet and the wavelet multiple correlation techniques using daily data from 13 February 2013 to 6 May 2021. Findings divulged that COVID-19's effect does not increase the intensity of the relationship between EXR and STK returns in Africa but causes a significant difference in the lead-lag relationship between the two assets. The results indicated a strong likelihood for a high market integration between African markets in the long run, regardless of market conditions. Under general market conditions, South African (Namibian) equities have the lead/lag potential in the short and long run (intermediate term). Namibian stocks are the first to respond to shocks before all other remaining Variables in the intermediate term, while in the long term, the South African EXR market is the last variable to experience shocks. Owing to the recently intensified alliances between African markets, investors should be wary of the specific African equities they include in their portfolios in the periods ahead. Policymakers are required to have an in-depth understanding of the nature of the co-movement between the variables to ensure timely and operative policy responses are rolled out to minimize adverse fluctuations in stocks and the local currencies.

Mira (2019) investigated the nature of the interaction between exchange rate sensitivity and stock market stationarity test using the ADF and PP tests, Johansen and Juselius cointegration procedures bivariate as well as multivariate using sample from 2007-2017 from Kazakhstan stock exchange. The outcome revealed that stationarity in differences of the time series and absence of long-run relationship between the variables in bivariate model.

Uche and Effiom (2021) studied oil price, exchange rate and stock price in Nigeria: fresh insights based on quantile ARDL model re-examination of the dynamic pass-through of international oil prices to exchange rates and stock prices in Nigeria applying quantile ARDL model. Findings from the results revealed the spill effects of oil price shocks on both the exchange rate and stock prices in Nigeria are heterogeneous and differ significantly across the quantile distributions of the forex and stock markets.

3.0 Conclusions

The study investigated literatures on nexus between exchange rate fluctuations and stock market price movements in relation to flow oriented theory, stock oriented theory and portfolio balance theory. it was discovered that many studies predominantly found out statistically significant positive nexus between exchange rate fluctuations and stock market price movements (Parsva & Lean,2017; Mechri, Ben Hamad, De Peretti & Charfi,2018; Morales-Zumaquero & Sosvilla-Rivero ,2018; Bahrnani-Oskooee & Saha ,2016; Ho & Huang ,2015; Sui & Sun, 2016; Mroua & Trabelsi, 2019; Nazakat & Kashif, 2017; Yildirim & Adali, 2018; Fapetu, Adeyeye, Seyingbo & Owoeye , 2017; Okechukwu, Mbadike, Geoffrey & Ozurunma, 2019; Bagh, Azad, Razzaq, Liaqat & Khan , 2017; Alzyoud, Wang & Basso, 2018). while very scanty and few studies revealed statistically significant negative nexus between exchange rate fluctuations and stock market price movements Ejem & Ogbonna, 2020; Kudakwashe & Takawira, 2022; Udobi-Owoloja, Philomina, Iyiegbuniwe & Onwualu, 2018; Shinkeva, 2020; Alashi, 2022).

Asymmetric effect of exchange rate on stock market price movements were also discovered (Fasanya & Akinwale, 2022; Saidi, Muttalib, Adam, Rumbia & Sani, 2021; Sahin & Mohamed,

2020; Naresh et al. , 2018). symmetric effect of exchange rate on stock market price movements (Koskei, 2017; Saidi, Muttalib, Adam, Rumbia & Sani, 2021)

There are bidirectional causality effect between exchange rate on stock market price movements (Mira, 2019; Parsva & Lean, 2017; Sikhosana & Aye, 2018; Manasseh, Chukwu, Abada, Ogbuabor, Onyeka, & Okoro, 2019). Unidirectional causality effect between exchange rate on stock market price movements (Sekhar & Nguyen, 2019; Tiwari, Islam & Islam, 2019; Udobi-Owoloja, Philomina, Iyiegbuniwe & Onwualu, 2018); no causality effect between exchange rate on stock market price movements (Guru-gharana, Rahman & Islam, 2021; Jayashankar & Rath, 2017; Zubair, 2013). The following studies found out statistically insignificant nexus between exchange rate fluctuations and stock market price movements (Sui & Sun, 2016; Sekhar & Nguyen, 2019; Agyei et al., 2022; Mira, 2019; Uche & Effiom, 2021).

Few studies aligned with stock oriented theory (Guru-gharana, Rahman & Islam, 2021) and portfolio balance theory (Sikhosana & Aye, 2018; Manasseh, Chukwu, Abada, Ogbuabor, Onyeka, & Okoro, 2019). In contrast, many studies supported flow oriented theory (Sekhar & Nguyen , 2019; Udobi—Owolaja, Philomina, Iyiegbuniwe & Onwualu, 2018; Tiwari, Islam & Islam, 2019; Morales-Zumaquero & Sosvilla-Rivero, 2018; Bahrnani-Oskooee & Saha, 2016; Ho & Huang, 2015; Sui & Sun, 2016; Mroua & Trabelsi, 2019; Nazakat & Kashif, 2017; Yildirim & Adali, 2018; Fapetu, Adeyeye, Seyingbo & Owoeye, 2017).

The variation in these studies could be as a result of methodology used, market condition, risk and other factors that are peculiar to each economy. Thus policy decision makers should consider this influence that exchange rate has on share prices when adjusting, formulating or implementing new policies as it has long term effect on share prices.

4.0 Recommendations

The study discovered other factors namely GDP of a country, level of employment, companies business internal financing structure, investment inflow, inflation rates, oil prices, government expenditure, inflation rate, interest rate, and exchange rate that have effect on stock market movements. The empirical studies examined recommended as follows:

Regulators should consider developing sound policy measures to prevent financial risk. The public who desire to invest must utilize the information of important macro-economic variable in particular exchange rates volatility in order to predict the behaviour of stock market. Therefore the researchers suggested among others that the regulatory and supervisory authorities should focus on domestic economic policies to stabilize the stock market.

Policymakers are required to have an in-depth understanding of the nature of the co-movement between the variables to ensure timely and operative policy responses are rolled out to minimise adverse fluctuations in stocks and the local currencies. Policy makers may be able to know when to intervene in influencing the markets using monetary or fiscal policies.

Investors and portfolio managers can apply the findings of this study to hedge against exchange rate risk, efficiently diversify their portfolios and predict future stock market movements by observing the exchange rate market.

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