

Impact of Exchange Rates on Returns in Share Market: A Case Study of Pakistan



BY

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DECLARATION

I hereby declare that except where due reference is made in the text of this thesis, to the best of my knowledge and belief, this thesis contains no material previously published or written by another person; this thesis contains no material that has been accepted for the award of any other degree or diploma in any university or equivalent institution; there has been no editorial work, paid or unpaid, by a third party on this thesis.

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DEDICATION

This Research is dedicated to this respective supervisor who guided me and helped me in this work. My beloved family who has been my constant source of inspiration, his relentless efforts and prayers make me, able for this work and would help me in every step of life. My Brother and friends who have given me drive and discipline to tackle tasks with great enthusiasm and determination. Without their support and help, it was impossible for me to complete this research work.

ABSTRACT

The study is focused at appraising the influence of Exchange rates on Returns in Share Market: A Case study of Pakistan. Time-series data of 36 years was used, from year 1980 to 2016. For seizing the impact of Exchange rates on Returns in Share Market: A Case of Pakistan, a theory based model, consisting of six sub-models is planned with intention to estimate through Recursive Simultaneous-equations econometric estimation technique. Since, the data is time series, the Augmented Dickey-fuller (ADF) tests were used to assess the stationary of the considered variables. The study used autoregressive distributed lag (ARDL) model because some of the study's variables were found at different levels, such as I(0) and I(1). The results of bounds tests specify that the value of F-statistics is 5.545058, indicating that long-run relationships exist in variables. The results of the approach revealed that Exchange rate has a positive significant influence on Share Market Returns. The results of the approach revealed that Foreign Portfolio Investment (FPI) has a positive significant influence on Share Market Returns with the value of 0.284864 with a p-val of 0.0008. The result also demonstrates that National Savings (NS) has a positive and significant association with Share Market Returns (SMR) with the value of 0.843564 with the p-val of 0.0000. Outcomes of the study also exemplify that (NI) has a positive and significant influence on SMR with the value of 3.039655 with a p-val of 0.0067. This thesis has encompassed well-expanded details and estimation techniques of the various estimation models and measures needed in this type of research, especially when using time-series data. Based on research findings, it was suggested that, using this research as a guiding base, potential researchers should reproduce this research for achieving a better and relatively well-conceived, well-estimated model on the topic; it was further recommended that public and private sector planners and researchers take guidance, not only on the statistically significant exogenous variables but also of the other explanatory variables for their effects on the endogenous variables.

Keywords:- Exchange rates, ARDL, SEM/Recursive Models, KSE-100 Index, Share Market Returns.

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CHAPTER ONE

INTRODUCTION

A. Background of the study

Various macroeconomic factors may have a significant impact on stock prices and company market value, with exchange rates being one of the most important (Maheen, 2013). Similarly, changes in exchange rates affect foreign portfolio investment (FPI). The latter does not directly affect the share market (share prices, share returns, and firm market value); however, the returns in the share market can be affected by a variety of other factors, including the predicted exchange rate. Many studies have been done to determine the impact of exchange rates on stock market results. With the traditional technique of Co-integration, Alam (2020) found no significant relationship between exchange rate and stock market performance. Maheen (2013) discovered the same thing from the study concluded that there is no link between stock price and exchange rate, and that both variables are independent of one another. Thus, many research studies have attempted to analyze the effects of exchange rate on share market returns; however, Maheen (2013) used Asset Market Approach, which elucidated that there is no or only a weak relationship between exchange rate and share market returns; however, this is due to other pre-determined variables that are affected by other exogenous variables, but not on the basis of econometrics/regression theory.

By evaluating stock prices and India's financial sector of currency, Bhattacharya and Mukherjee (2001) discovered a negligible association between the exchange rate and the stock market. Similarly, Pervaiz et al. (2018) discovered that exchange rate and other macro factors affected Kenya's stock market returns; nevertheless, exchange rate was shown to have an unfavourable relationship with the Nairobi Stock Exchange (NSE). Many recent research have found that there are some favorable correlations between exchange rates and stock market outcomes in the near run. This is owing to the usual strategy, although there was little positive correlation between the two in the long run. The classic method, which shows that there is a positive association between exchange rate and stock market returns and that causation can be shown from exchange rate to stock market. Furthermore, it was claimed that as domestic currency depreciates and local businesses become more competitive, a positive relationship between exchange rates and share prices emerges, driving local firms to export more and more. This will eventually lead to a rise in stock prices. In some recent studies, researchers have recognized the use of structural equation models (SMEs) and have incorporated multiple into the model dependent variable equations (Maxim and Ashif, 2017). Rehman (2019) used 36-year time series data from 1980 to 2016 in a research on Pakistan to better understand the influence of interest rates and currency rates on the Pakistani economy. A theory-based model, consisting of eight sub-models, was planned with the intention of estimating through Recursive Simultaneous-equations econometric estimation technique to assess the effects of interest rates and exchange rates on GDP in Pakistan; however, the estimations model yielded partial results.

There are various financial theories, including as APT and Asset Portfolio Balance, that explain how exchange rates and interest rates may have a significant impact on stock market results. The upward and negative swings in currency rates impact the value of a company. Foreign direct investment is a critical component of share prices in Pakistan, and its trend might be drastically impacted by exchange rates, whether the currency appreciates or depreciates. Researchers have acknowledged the utility of structural equation models (SMEs) in recent studies and have added several dependent variable equations into the model (Maxim and Ashif, 2017). Rehman (2019) used a 36-year time frame in a study on Pakistan to better understand the influence of interest rates and currency rates on the Pakistani economy. From 1980 through 2016, a collection of data was collected. Similarly, if the local currency increases against the foreign currency, the two currencies will have an inverse relationship, as indicated by the Portfolio Balance Approach.

The exchange rate, which is more impulsive than prices, serves as a pointer to changes in the relative price of imported items. The foreign demand for domestic goods and the domestic demand for imports are both hampered by this variation. As a result, variations in exchange rates influence a country's export and import.

Many excellent research projects have been attempted in the past to capture the impact of macroeconomic factors on stock market performance. However, the quantity of studies in Pakistan is quite restricted. As a result, the goal of this research is to look at the influence of exchange rates on share market returns in Pakistan's Karachi Stock Exchange.

B. Problem statement

A lot of empirical studies have wrongly attempted to assess the effects of fluctuations in exchange rates on share market return, and a few correctly used simultaneous-equations/Structural equations model (SEM), it is thus in need to analyse the impact of exchange rates on share market (share prices/share returns/firms market value). Such analysis is accomplished by following the research questions and research goals, including:

C. Research Questions

- Is there any association between exchange rates and the share market returns?
- If there is an association, is that association positive or negative and strong or weak?
- What are the major macro-economic variables and do they affect Exchange rate?

D. Research Objectives

- To determine the effects of exchange rate on the returns of share market.
- To determine and estimate, the strength of the relationship between the two.
- To develop a simultaneous/Structural-equations model (SEM) for capturing the effect of the first on the second.
- To highlight the problems, if any, and put forward necessary recommendations.

E. Significance of the Study

The study has a vast level of useful implications for several parties. Policy makers in Pakistan would be significantly profit from findings on the reasons that affect share market returns. Understanding the factors that influence stock market returns is the predictive power of policy makers that the relationship between stock returns and economic activity awakens economic growth. Findings of the study will make financial analysts to develop better investment policies which in turn improve the performance of their investment portfolios. Further, the research findings will be constructive to academia, students, instructors and other forthcoming researchers to approach the subject with deeper understanding as they will be well versed with the basics as well as serving as a source of reference.

F. Scope of the study

The goal of the research is to provide and provide insight into the important contribution to theory and practice. Furthermore, the goal of the study is to see whether exchange rates have a positive or negative impact on stock market returns in the long run. Secondary data spans the 20-year period from 2000 to 2020, which appears to be long enough to examine and graph changes in the KSE100 Index's stock market performance.

Based on their expertise and understanding of the stock market's predicted evolution, regulators have devised numerous regulations, guidelines, and judgments to validate and create attractive trading and investment conditions in the stock market. Finally, competent share market trading activity helps to the general interest of young Pakistani investors.

G. Scheme of the study

In chapter one, provided a comprehensive level of background knowledge of the study. In chapter two, provided Literature review, theoretical framework and conceptual model. Chapter 3 describes econometric models, econometric tools used, and data and data sources. Chapter 4 provides the results for different models and provides appropriate explanations for the different results. Finally, in chapter, five provided summary of the study, conclusion and a number of good recommendations.

CHAPTER TWO

LITERATURE REVIEW

A. Introduction

This chapter describes various theories that reveal the study, along with empirical evidence. The first section describes empirical studies conducted in the same field of study, and the second section focuses on the theory being considered. B. Efficient market, capital price model, arbitrage price model hypothesis.

B. Exchange rate

According to Chen (2020), exchange rate is the value of currency of one country comparative to another currency; it is the rate of conversion of one currency into another currency. For example, an interbank exchange rate of Rs.160 PKR to the US\$ means that for buying 1US dollar you should have Rs.160 PKR or in other words, Rs.160 PKR will be exchanged for 1 USD. In this case it is said that Rs.160 PKR is equivalent to 1 US dollar or 160 PKR in relation to 1 US dollar. Each country regulates the foreign exchange rate system that applies to its currency. For example, currencies can be fixed (selected), variable, and hybrid. Exchange rates are constantly monitored by the government. In addition, we may impose certain restrictions and controls as needed.

There are several factors which affect exchange rate such as differences in inflation in the two particular countries, differences in interest rates of the two countries, current accounts deficits, and public debt, term of trade and stability in terms of political conditions and economic performance. As the currency of one country depreciates, the demand for local products increases, so other countries prefer to convert their currency to the local currency in order to buy more products at lower rates. However, there is a time when demand for a currency gets higher than its supply; the currency becomes more expensive ultimately (Chen, 2020).

The Currency fluctuation has got effects on share market returns. Domestic share market will be adversely affected if the currency escalates, in a condition where the particular country is export-oriented; likewise, it is predicted that there will be a drop in the competitiveness of its exports. Because the companies which are more into exports are listed on stock exchange market and would be less profitable; likewise, it will reduce the attractiveness of investors (Muthike & Sakwa, 2012). In certain scenarios where the currency weakens, the opposite happens, and as a result, exports become competitive. Kenyan shilling has been observed to affect stock prices, but whether it gains or loses depends on fluctuations in Kenyan shilling. Even this exchange rate change can affect NSE's stock returns. However, escalating depends on the behavior of the currency.

There are several factors which affect exchange rate such as variances in inflation in the two countries, variances in interest rates of the two countries, current accounts deficits, and public debt, tenure of trade and administrative firmness and economic performance. For example:

- **Balance of Payments:** If the country's balance of payments account has a deficit or trade deficit, it means that its foreign spending (import) is greater than its foreign exchange income (export), so its foreign exchange demand is in its foreign currency. It exceeds the supply, as a result of which the currency is devalued and its exchange rate is devalued.
- **Interest rate level:** interest rates are measured as the cost and profit of borrowing capital. A country can attract capital inflow easily if its interest rate rises against foreign country's interest rate. Likewise, its demand for local/domestic currency will appreciate and ultimately it will help in appreciating local currency against foreign (Ajayi et al., 1998).
- **Inflation Factors:** Inflation can have a dramatic impact on a country's currency. For example, if a country raises inflation, its purchasing power declines. On the other hand, while foreign currencies rise, fiat currencies fall. However, it improves the export / demand of local goods.

- **Venture capital:** if a speculator expects that a local currency will appreciate, demand for domestic currency will increase in foreign exchange market. Conversely, if speculators expect that the local currency will appreciate, they will sell all the currency in foreign exchange market on higher rate however, later when currency declines, they will buy on a cheaper rate.
- **Government intervention:** a rustic's principal financial institution can admire its home foreign money cost whilst it floods share marketplace with overseas foreign money deliver in opposition to stressful for its nearby foreign money. Conversely, principal banks can depreciate its nearby foreign money through offering greater of its nearby foreign money for overseas foreign money. Foreign alternate deliver and call for reasons alternate prices are being constantly modified because of the share deliver and call for forces. When foreign money of a rustic depreciates its call for nearby merchandise will increase and consequently different nations opt to alternate their currencies for your nearby foreign money for getting an increasing number of merchandise at a less expensive rate. However, there's a time whilst call for a foreign money receives better than its deliver; the foreign money turns into greater costly ultimately.

C. Share Market Return

A change in price of an asset, investment or in a share price is called return. Return may be positive or negative, positive returns means when your investment earns extra on your invested capital. Conversely, negative returns mean when your invested capital bring losses due to several factors. According to Mun, Siong and Thing (2008) described stock market returns as the medium used to calculate the return on an investment over the period of ownership. In addition, investors earn either capital gains or dividend yields on the stock exchange. According to Jordan and Fischer (2002), share market returns have been regarded as the primary motivator and incentive in the investing process. This driving factor (share market return) is used by investors to assess different investments in which they want to invest. They further defined that the share market returns have two components first, in the form of dividends and second, in the form of capital gain/loss from investment. It has been conferred by Simiyu (1992), that there are so many parameters which affect equity market returns such as stock turnover, share market capitalization and indexing of the share market. Therefore, KSE-100 Index, Pakistan is usually used to analyze the returns for the collective market performance so that to identify the performance of an investment over a period of time.

a) KSE-100 Index

This is PSX's most well-known index, which features the top businesses by market capitalization. The stocks in the KSE 100 Index reflect all of PSX's business sectors. The Index accounts for 85 percent of the Exchange's total market capitalization. The Free Float Market Capitalization technique is used to measure it.

Share/stock market is a place where investors can buy and sell in various financial securities such as Bonds, Shares and derivatives, and stock exchange acts as a mediator in buying and selling of these financial securities. Every commercial enterprise information channel has ticker tape at the lowest in their monitors that flows financial and shares information. The tape job's to reveal distinctive businesses cutting-edge marketplace fees in their shares. And these, inventory fees are continuously maintain changing. They both cross up or down, even supposing the adjustments are very minor (josep, 2013). As economic markets globally have come to be greater open and liberalized, a near courting has been located among Stock Interest rates, exchange rates, Gross Domestic Product, inflation, and the Money Supply are examples of macroeconomic variables. These macro variables have been found the most vital determinants of stock market behavior, besides there importance, the state of an economy can be monitored by an investor with the help of these macroeconomic variables so that to make choices about investment decisions (Mureithi et al., 2019). There are several factors which bring changes in them as mentioned below:

- **Exchange rates:** A prior technique that supports the positive association between exchange rates and stock market returns while also testing the causal relationship between the two. Furthermore, it was proposed that if the local currency depreciates, local company rivalry grows fiercer, and local

company exports increase, the exchange rate and stock price will have a positive link. This will enhance stock market returns and stock values in the long run.

- Supply and demand: considered one of the most common factors which can dramatically influence (stock prices/share returns/and firms market value). A discrepancy between demand and supply can affect stock prices and firms market values. For example, if there is a demand for a particular company's stock and the supply is less, the stock price of the particular company will appreciate in value quickly. Conversely, if the demand has found lesser than supply of a particular company's stock the stock prices for that company will depreciate or decline in value.
- Interest rates: Interest rates have found another influential macro variable that affects stock prices and yields. Note that the Central Bank of Pakistan regularly monitors key monetary policy interest rates, such as repo rates and reverse repo rates, to curb inflation and stabilize the economy. There is an inverse relationship between interest rates and stock market returns. For example, the higher the interest rate, the lower the return on the stock market on the other side. Conversely, when interest rates fall, stock prices tend to rise. If interest rates remain low, companies can borrow money at lower interest rates, which ultimately helps them make more profits. On the other hand, when interest rates rise, companies stop borrowing and ultimately negatively impact profit / net income / EPS / current stock market prices.
- Current events: share market returns could also be dramatically influenced by the domestic and international ongoing events. If the events are favorable it will help in the growth of an economy; moreover, will improve the share market returns/share prices/firms market value.

D. Effects of Exchange Rates on Share Market Returns

Many research studies have sought to capture the impact of the exchange rate on the stock market, however this is not only conceptually incorrect, but also incorrect in terms of econometrics and regression theory. This is why, while examining stock prices and the financial sector of currency in India, Franck and Young (1972) and Bhattacharya and Mukherjee (2001) found a negligible association between the exchange rate and share market. Similarly, before the Bretton Woods Agreement, Aggarwal (1981) and Soenen and Hennigar (1988) evaluated the link between US share market prices and exchange rate values and found a relationship between the exchange rate and share market returns. Using traditional Co-integration methodologies, the two-step procedure of Co-integration was not observed by Engle and Granger (2015) or Johansen (1995). In terms of Pakistan, Abdalla and Murinde (1997) used the Co-integration technique to study the link between the two variables in four Asian nations over the long run from 1985 to 1994 and found no cause and effect relationship in Pakistan.

According to Khan (2019), the rate of foreign exchange has been counted in other financial and economic indicators which dramatically affecting share market returns and firms cash flows. Due to the descent of fixed exchange rates in 1970's (Rose, 2000). As a result, more uncertainty emerged in both foreign exchange market and international stock market. The instability in exchange rate has been augmented because of the acceptance of the floating exchange rate establishments in many countries; in addition, rapid increase of international trade. Exchange rates and stock market performance may have a fluctuating connection. Geographical locations, economic situations, international relations, and internal conditions, among other things, may all influence it. The disparity in outcomes across nations might be attributable to factors such as trade volume, equity, economic linkages, and risk assessment, among others. Both variables' directions might be projected in unidirectional, bidirectional, or multidirectional directions (Maheen, 2013).

Pervaiz et al. (2018) discovered that exchange rate and other macro variables affected stock market returns in Kenya; nevertheless, exchange rate was shown to have a negative relationship with the Nairobi Stock Exchange (NSE). A number of recent research have found that there is a positive relationship between exchange rate and stock market performance in the short run. This is owing to the employment of a conventional technique, which, in the end, only identified a sliver of a positive relationship between them. The conventional wisdom holds that there is a beneficial outcome.

The relationship between the exchange rate and stock market returns was investigated, as well as the causation from the exchange rate to the stock market. Furthermore, it was claimed that as domestic currency depreciates and local businesses become more competitive, a positive relationship between exchange rates and share prices emerges, driving local firms to export more and more. This will eventually lead to a rise in stock prices.

The study of Maheen (2013), presented several financial theories which explain exchange rates and interest rates could dramatically influence a firm value. A firm value is determined by upward and downward movements in exchange rates. In Pakistan, foreign direct investment has considered an imperative component of share prices and its trend might be dramatically influenced by exchange rates either if the rate appreciates or depreciates. Similarly, movements in stock prices also influence exchange rates. Investor would prefer to invest more in their domestic products if there is an upward movement in assets' prices; however, which in turn increase the demand for domestic currency and increase concentration to sell foreign assets. Interest rates will go up if there is an upward demand to purchase more and more local currency and ultimately it will attract foreign investors for investing in our country and achieve maximum returns. Likewise, there will be an inverse relation between the two currencies if the local currency appreciates against foreign currency as also explained by Portfolio Balance Approach.

According to Aggarwal and Saqib (2017), a study was conducted to investigate the impact of changes in selected macro-economic variables on the Indian stock market (Nifty 50 Index). The study found that US GDP, S&P 500 index, gold prices, Indian whole sale price index, fiscal deficit, IPI, and exchange rate have a significant impact on the Indian stock market (Nifty 50 Index).

Epaphra and Salema (2018) investigated the relationship between stock market returns and macroeconomic variables using monthly time series data from January 2012 to December 2016 across 10 companies listed on the Dar es Salaam Stock Exchange, and found that using the overall regression model, exchange rate and money supply have a positive effect on share prices of Tanzania's selected companies. Similarly, Yousof (2015) used OLS regression to look into the link between macroeconomic factors and stock market returns, and discovered that the unemployment rate has a positive and significant relationship with ISEQ all-share. The actual effective exchange rate and the consumer price index, on the other hand, have a negative and negligible relationship with ISEQ all-time.share. The study's findings revealed that the Irish stock market is more vulnerable to crude oil price fluctuations than domestic macroeconomic indicators.

Bagh et al. (2017) used the Augmented Dickey Fuller test to analyze the influence of exchange rate volatility on the Pakistan Stock Index, and the results revealed a positive and statistically significant relationship between the two. Similarly, Mechri et al. (2019) discovered the same results in his research. Khan (2019) employed the ARDL model to evaluate the short and long term links between exchange rates and the Shenzhen Stock Exchange, however the findings revealed a negative and statistically insignificant relationship between the two variables. Pervaiz et al. (2018) used the Arbitrage Pricing Theory (APT) and the Capital Asset Pricing Model in their research (CAPM)The study discovered two intriguing outcomes using the Ordinary Least Square (OLS) technique and the Ordinary Least Square (OLS) approach. First, all of the variables have converged on a single value (0). Second, with the exception of interest rates, stock market returns and macro-variables have a positive and statistically significant link. Chkili and Nguyen (2014) used a regime-switching model approach to investigate a dynamic relationship between exchange

rate and stock market returns for BRICS countries (Brazil, Russia, India, China, and South Africa). The study discovered that exchange rates have dramatic effects on stock market returns during both calm and turbulent periods. Similarly, Ahmad et al. (2010) used a multiple regression model to show that there is a positive and statistically significant influence in . Over the study period, the impact of exchange rates on stock returns was examined. The study of Aggarwal and Saqib (2017) investigated the impact of changes in selected macro-economic variables on the Indian stock market (Nifty 50 Index) using a multivariate regression model tested on the Standard ordinary linear square model. The study found that the US GDP, S&P 500 index, gold prices, Indian whole sale price index, fiscal deficit, IPI, and exchange rate have a significant impact on the Indian stock market (Nifty 50 Index).

The study of Aggarwal and Saqib (2017) investigated the impact of changes in selected macro-economic variables on the Indian stock market (Nifty 50 Index) using a multivariate regression model tested on the Standard ordinary linear square model. The study found that the US GDP, S&P 500 index, gold prices, Indian whole sale price index, fiscal deficit, IPI, and exchange rate have a significant impact on the Indian stock market (Nifty 50 Index).

According to Ahmad et al. (2012), a study using multiple regressions found that interest rate and exchange rate have a positive impact on stock market returns with an alpha of 10%; similarly, the study found an inverse correlation between interest rate and stock market returns, but a positive relationship between exchange rates and stock market returns.

Dimitrova (2005) investigated the relationship between the stock market and currency rates, which may provide light on the volatility in both markets. The study looked at how a short-term increase in a share market's trend may effect currency depreciation; on the other side, a weak currency could cause a share market trend to collapse. She used a multivariate simultaneous equation model to investigate the relationship at a large scale. Between 1990 and August 2004, she focused mostly on the United States and the United Kingdom.

She discovered that a decrease in the currency undermines the stock market, and that the stock market will respond to a little than 1% downward movement in the exchange rate, as opposed to a current decline in the exchange rate. She eventually came to the conclusion that the organization is somewhat advantageous amid the financial crisis. The stock market will see a moderate decrease if the exchange rate depreciates significantly. Because of the causal relationship, a drop in the stock market causes the exchange rate to rise. On the same page, if the stock market falls, the exchange rate will rise, which will boost stock prices. During the financial crisis, the two collided. She discovered that a decrease in the currency undermines the stock market, and that the stock market will respond to a little than 1% downward movement in the exchange rate, as opposed to a current decline in the exchange rate. She eventually came to the conclusion that the organization is somewhat advantageous amid the financial crisis. The stock market will see a moderate decrease if the exchange rate depreciates significantly. Because of the causal relationship, a drop in the stock market causes the exchange rate to rise. On the same page, if the stock market falls, the exchange rate will rise, which will boost stock prices. During the financial crisis, the two collided.

Kumar (2009) investigated the relationship between stock prices and the exchange rate. For the years 1999 to 2009, include the daily closing values of the S&P CNX Nifty and the INR/USD. He used the unit root and Co-integration tests for long-term associations, as well as linear and non-linear Granger causality tests for dynamic associations, and concluded that while there is no long-run association between interest rate and stock index, there is a bidirectional linear and non-linear relationship between share market returns and exchange rate.

In Iran, Kuwait, Jordan, Oman, and Saudi Arabia, Parsva and Lean (2011) investigated a model that incorporated interest rate, inflation rate, and oil prices as the key drivers of share prices. They utilized monthly data from 2004 to 2010 to evaluate their model, which included the Johansen Co-integration model and the Granger causality test. In the long term, all of the factors are influenced, according to the findings. However, before the 2008 crisis, two-way causation was discovered between share prices and currency rates for these nations, such as Egypt, Iran, and Oman. Unidirectional causation has been discovered in Kuwait, spanning from the exchange rate to a brief period of stock prices. The pre- and post-judgingThe researchers discovered that there were few changes in the behavior of these two factors when it came to subprime length.

According to Charles et al. (2011), a study was conducted in seven African nations, including Tunisia, to determine the relationship between share prices and exchange rate volatility. To examine the long and short term relationship between share prices and exchange rates, many models were presented, including the (VECM) vector error correction model, co-integration, and impulse response analysis. In Tunisia, the Co-integration test revealed a long-run relationship between share values and exchange rates; nevertheless, depreciation in the exchange rate has resulted in a drop in share prices. The short-run error co-integration test yielded the same result. Similarly, Zarrar et al. (2011) challenged to understand the dynamic relationship between exchange rates and the stock market index. Co-The test was utilized and discovered no long-term relationship between these two variables; moreover, the Granger causality test was employed and revealed no causal relationship.

Tsagkannos and Siriopoulos (2013) used radical models of structural non-parametric Co-integration test to investigate if there is a long-run relationship between exchange rates and share prices in the European and US markets (Wang, & Peter 2009). Their findings suggested that exchange rates and stock prices have a substantial relationship in the long run, but that in the short term, only the US market has a meaningful relationship.

From January 1998 to May 2014, Umer et al. (2015) used Autoregressive Distributed Lag (ARDL) and causality models to study the dynamic relationship between stock prices and currency rates for nine emerging markets. The sample period was divided into segments.

To account for the interplay of these scenes throughout the passive and crisis phases, the story was split into two episodes. The findings reveal that during times of crisis, the co-movement between exchange rates and stock prices develops significantly, and the interconnection track starts from stock prices to exchange rates during the calm era, and from exchange rates to stock prices during the crisis period. The study demonstrates that financial markets are sensitive to the amount of consistency.

Maxim and Ashif (2017) introduced a new model for estimating an idle variable, financial exchange control, in their study. The text on financial prosperity seems similar to the model. It deciphers the control of a stock as an inactive variable, using the MIMIC (many markers, multiple causes) paradigm. This method makes use of efficient relationships between distinct indicators of control and between control and a variety of causes, allowing it to detect both the determinants of control and a control file at the same time. The basic justification for securities exchange regulation stems from the fact that data accessibility is not always equal. As a result, the control is primarily linked to the development, presentation, and dissemination of data or reports/deception. As a result, the immediate impact of control is on.Or overflowing returns, from a resource and the excessive instability of earnings in excess of the unpredictability indicated by the basics. These two parameters were used as indicators of financial exchange control in this crucial agreement. The MIMIC methodology's core insight is that a few parameters, or measures, associated with harmony are markers of control, while others denote the consequences or outcomes of causative factors, or contributions to control. At the end of the day, there is a distinction to be established between reasons for control and control marks. The causative variables in this model are organized into five distinct spaces: pure monetary components as

control determinants, work economic conditions, worldwide elements, character of administration factors, and efficient gamble aspects.

The goal of the study, according to Sahoo and Dash (2018), was to examine the link between share market movement and macro-variables. Multi-regression approaches, on the other hand, were applied. In addition, from 2000 to 2018, 18 years of data were collected. The findings revealed that FDI and FII are following a trend, aided by the Sensex and Nifty, and that macro-variables are used to judge the share market trend. Cetiner et al. (2018), on the other hand, wanted to look at the exchange rate risk and stock market indices return volatility of 22 emerging countries. Exchange rate movements, on the other hand, have a negative influence on share index returns, according to the findings.

Rehman's study (2019) attempted to capture the impact of interest rates and currency rates on the Pakistani economy. Data from time series were utilized for 36 years, from 1980 to 2016. A theory-based model, consisting of eight sub-models, was planned with the intention of estimating through Recursive Simultaneous-equations econometric estimation technique to capture the effects of interest rates and exchange rates on Pakistan's GDP; however, the estimation model only yielded partial results. Based on the findings, it was suggested that future researchers replicate this research using this research as a guide base in order to achieve a better and relatively well-conceived, well-estimated model on the topic; it was also suggested that public and private sector planners and researchers take guidance, not only from this on the statistically significant exogenous factors, as well as the impact of the other explanatory variables on the endogenous variables.

Kirui et al. (2014) investigated the relationship between GDP, inflation, conversion scale, Treasury charge rate, and offering a market return in Nairobi protections trade restrictions. Every large-scale element that influences and determines stock returns was subjected to a shock in the study. To develop a co-ordinating relationship between stock exchange returns and macroeconomic conditions, Engle-two-venture Granger's technique was adopted. The relapse model's empirical results revealed that the switching scale had a key association with stock returns. For example, a 1% drop in local cash resulted in a 1.4 percent drop in share prices. Similarly, Hassani (2014)'s study yielded two significant findings for the review. To begin with, none of the variables were in sync. I'd want to express my gratitude to (0). Second, there was a positive relationship between the two parameters in the unique circumstances of financing costs.

Mumo (2017) used Johansen's Co-reconciliation philosophy to investigate the effects of macroeconomic uncertainty on share prices through selected large-scale variables. For the years 1998 through 2015, time series data was used. Since the information observed the unit foundations of request I (1), the information was examined using Johansen technique and the Vector Error Correlation Method (VECM). The findings revealed a long-run harmonious link between stock costs and macroeconomic parameters, as well as a positive association between exchange rates and loan fees and stock costs. Similarly, Laichena and Obwogi (2015) conducted research to determine a focus on the eastern African stock market. To determine the effects of trade rates on financial exchange returns, purchasing power parity (PPP), and purchasing power parity (PPP)

APT (exchange valuing hypothesis) was presented. Clear investigation and board information relapse examination were used to assess the effects. In east Africa, the research discovered a substantial link between macroeconomic indicators and stock exchange results.

In the instance of Pakistan, Ilahi et al. (2015) aimed to capture the effects of macroeconomic variables (investment cost, conversion scale, and inflation) on the Karachi Stock Market's securities exchange results. Loan cost, expansion rate, and swapping scale were used as exogenous elements, whereas the KSE 100-Index was used as an endogenous variable. With the objective of information evaluation, period series data was employed with the help of different straight relapse models; in any event, the results revealed a feeble association between large-scale financial elements and stock exchange returns. Aremo et al. attempted a

similar effect. (2020), by using the Autoregressive Distributed Lag (ARDL) to capture the short- and long-run relationship between macroeconomic determinants and financial exchange rates, as well as yearly time-series data from 1985 to 2014. Despite the fact that the results demonstrated a positive relationship between the exogenous and endogenous components, a fragile association was found among them over time.

Issahaku et al. (2013) attempted to capture the presence of causation between macroeconomic factors and stock market performance in Ghana, according to them. For the years 1995 through 2010, monthly time series data was collected. The ADF, PP, and KPSS tests are used to find the unit root. The Vector Error Correction (VECM) model was used to determine the long-run and short-run relationships between stock performance and macroeconomic factors. The Granger Causality test is used to determine causality or existence. The findings revealed a link between stock market returns, exchange rates, and inflation rate. Similarly, HAMAD AMEEN et al. (2020) looked at the link between exchange rates and stock market returns using the USD/TL and the BIST-100 index in the Turkish Stock Market; till March 2020 The findings demonstrated a one-way causal relationship between the two variables.

Sudhamathi and Ganeshwari (2018) looked into a study that attempted to look into the link between the stock market and the foreign exchange rate marketplaces. Using monthly data from April 1992 to March 2002, the study used the Granger Causality test and the Vector Auto regression approach. The analysis discovered that the exchange rate and share return had no causal link. Furthermore, the Forecast error variance decomposition demonstrated that share return is affected by exchange rate return. Another research found the same thing.

Pakistani origin At the KSE 100 Index in Pakistan, Kibria et al. (2014) looked at the relationship between share market returns and five key international economic variables: inflation, GDP per capita, GDP savings, money supply, and exchange rate. In addition, yearly data from the previous 23 years was used to explore the study; in addition, several tests and models, such as Descriptive Analysis, Regression Analysis, Granger Causality Test, and Correlation Analysis, were employed to achieve the study's goal. In Regression Analysis, however, GDP Per Capita, GDP Savings, Money Supply, and Exchange Rates all have statistically significant effects on the KSE 100.

Jeon et al. (2002) used an unconstrained bivariate GARCH-M model of stock market returns to assess the impact of daily currency depreciation on Korean share market returns and found substantial findings. Currency depreciation may have a big impact on stock market performance through three different avenues. First, exchange rate depreciation has a significant impact on stock market results. Second, more volatility in exchange rate depreciation leads to larger stock market returns. Third, exchange rate depreciation volatility increases the volatility of stock market returns. Zhao also contacted another research group (2010), Using monthly data from 2003 to 2012, evaluate the causal link between stock returns and currency rates. The All Share Price Index (ASPI) in the Colombo Stock Market was used to calculate stock returns; similarly, the Augmented Dicky Fuller (ADF) test was used to determine stationarity of the data series, and the Granger Causality test was used to determine the causality relationship between exchange rate and stock market returns. The findings demonstrated that there is a one-way causal link between variables, i.e. stock returns cause exchange rate but exchange rate does not cause stock returns. The same findings were discovered by (Mehta, 2012; Lau & Go, 2018; Sulku, 2011).

By analyzing short-run and long-run associations among the variables, Attari et al. (2013) investigated the link between share prices and exchange rates in Pakistan. As a result, the daily data of share prices (KSE-100 Index) and exchange rate for the period of January 1995 to October 2012 in Pakistan were subjected to Unit Root Test (ADF), Co-integration tests and Vector Error Correction Model (VECM), and Granger Causality tests. Long-run and short-run relationships have been discovered between the two variables, as well as a flow from share prices to exchange rates, according to Cointegration studies.

Kalam (2020) investigated the impact of macroeconomic factors on stock market performance. Gross Domestic Product (GDP), Interest Rate (IR), Inflation (INF), Exchange Rate (ER), and Foreign Direct Investment (FDI) were considered as five significant international economic factors (FDI). Using multiple regression analysis and the Autoregressive Distributive Lag (ARDL) test in the long run and short run by assessing the coefficient, the study took twenty-year data from 2000 to 2019. The findings revealed that all five foreign economic factors had a substantial influence on the long and short term returns of the Malaysian stock market.

The main goal of Mureithi et al(2019) .'s study was to look into macroeconomic factors that influence the performance of firms listed on the Nairobi Stock Exchange. The study focused on all NSE-listed companies, and it was bolstered by the use of the flow oriented model, Mckinnon and Shaw theory, and Keynesian economic theory. Furthermore, the study's major goal was to see how these worldwide economic issues, i.e. Money supply, exchange rate, interest rate, and inflation can all have an impact on the Nairobi Stock Exchange's listed companies (NSE). The study was analyzed using descriptive and inferential statistics, with data testing using regression analysis and correlation analysis. The study's findings revealed that in the case of exchange rates, Exchange rate depreciation can lead to a drop in share returns, whereas stable exchange rates motivate and reassure investors.

According to Phylaktis and Ravazzolo (2005), the study looked into the long- and short-run dynamics of stock prices and exchange rates, as well as the conduits through which exogenous tremors affect these markets; it also used Cointegration methodology and Multivariate Granger causality tests. For the years 1980 to 1998, the analysis was applied to a set of Pacific Basin nations. The findings of the study revealed a positive correlation between stock and exchange rate markets, with the US stock market acting as a dynamic link between them. Furthermore, exchange rate restrictions were not found to be a factor in these connections. Using recursive estimation, the study found that the financial crisis had an impermanent effect on the co-movement of these two markets.

The goal of Parab and Reddy's (2020) research was to look at the impact of specific macroeconomic variables on Indian stock market returns. The study used the Bai-Perron approach and time series data for analysis, and it also looked into a causal relationship between them. The findings demonstrated that some macroeconomic variables have a considerable influence on stock market returns; additionally, the impact discovered varies among structural eras.

There are several financial theories that explain how exchange rates and interest rates can dramatically influence a firm's value, according to Maheen (2013). The upward and downward movements in exchange rates determine the value of a company. Foreign direct investment is a critical component of share prices in Pakistan, and its trend can be dramatically influenced by exchange rates, whether they appreciate or depreciate. Similarly, changes in stock prices have an impact on exchange rates. If asset prices rise, investors would prefer to invest more in their domestic products; however, if asset prices fall, investors would prefer to invest more in their domestic products. As a result, demand for domestic currency rises, and concentration to sell foreign assets rises. If there is a growing demand to buy more local currency, interest rates will rise, attracting foreign investors to invest in our country and earn the highest possible returns. Similarly, if the local currency appreciates against the foreign currency, the two currencies will have an inverse relationship, as explained by the Portfolio Balance Approach.

josep (2013) investigated the effects of targeted macroeconomic factors on the Stockholm Stock Exchange's share prices (OMXS30). Unit root test, multiple regression model evaluated on Standard Ordinary Linear Square (OLS), and Granger Causality test were also employed to investigate the association. In addition, monthly data was utilized to create a time series. The study found that inflation and currency depreciation had a considerable negative impact on stock prices, based on calculated regression coefficients and t-statistics.

Ahmad et al. (2012) used multiple regressions to investigate a study, finding that interest rate and exchange rate have a positive impact on stock market returns with an alpha of 10%; similarly, the study found an inverse correlation between interest rate and stock market returns, but a positive relationship between exchange rates and stock market returns.

According to Zaiane and Jrad (2020), from January 2004 to April 2017, the dynamic linkages between Tunisia's exchange rate (against the US dollar) and the stock market (local currency) were examined. The study's main goal was to see if there was any correlation between the two variables and how they reacted during periods of high volatility. The unidirectional relationship between the two variables was investigated using the VEC model and Granger causality tests. (from share prices to exchange rate). For further examination of the study, estimated the dynamic correlations between the two variables; moreover, DCC-FIAPARCH model was utilized due to persistent long memory and the presence of asymmetric effect in both markets. The outcomes showed that abrupt changes in the dynamic correlations are created due to volatility shocks. But, this influence is short-term in nature and the sustainability will not be persistent between high volatility regimes.

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Gazioglu (2008) used the Box-Jenkins ARIMA model to investigate the time series relationship between macroeconomic elements such as swapping scale and oil costs for Brazil, Russia, India, and China (BRIC) and share market file costs. The findings revealed that while there was no significant relationship between exchange rate and oil costs on share market file costs in each BRIC country, this could be due to the impact of other global macroeconomic variables on share market file costs; additionally, there was no discernible relationship between current and past offer market returns. Muriu's investigation is also ongoing (2014), Despite the fact that the Granger causality test for causation was used to examine the effect of selected macroeconomic factors on Ghana share market returns, the results revealed a negative relationship between swapping scale and offer market returns. Furthermore, another study from Ghana, Asravor and Fonu (2020), found a similar negative relationship between macro factors and share market returns using the ARDL Cointegration approach for long-run and short-run connections between exogenous and endogenous factors.

Masduzzaman (2012) used Johansen co-integration, error correction model, variance decomposition model, and impulse response functions to investigate the short-run and long-run dynamics between macroeconomic variables such as exchange rates, inflation rates, money supply, and industrial productions; and stock market returns of the two countries, Germany and the United Kingdom, over an eleven-year period from 1999 to 2011. The results revealed cointegration between stock returns and selected macroeconomic variables, according to Johansen co-integration tests. The data also revealed that the dependent variable and independent factors had a short- and long-run causal connection.

Nurasyikin et al. (2017) used panel least square regression techniques to examine the impact of macroeconomic variables such as inflation, exchange rate, and money supply on both conventional and Islamic stock market returns in the three ASEAN countries of Singapore, Malaysia, and Indonesia. From January 2005 to December 2015, monthly data was collected. The data show that exchange rates and inflation rates have a significant impact on stock market performance. Similarly, Altin (2014) looked at the link between exchange rate and stock market returns, although the results showed a substantial correlation between the two.

The study's goal, according to Araghi and Pak (2012), was to look at the impacts of the Iranian Rial's exchange rate on stock prices in Iran. For the period of March 2004 to March 2010, time series data was used. The Generalized Autoregressive Conditional Heteroskedasticity (GARCH) model was used to examine the association between exchange rate volatility and stock market volatility, since it has been shown to produce superior findings. The findings demonstrated that the data series was in a stationary state, and that there was a positive correlation between the exchange rate and share market prices, as well as causation between the two variables. The GARCH model indicated that the volatility exchange rate and share market prices had a substantial link, which was supported by the aforementioned model.

Ali et al. (2014) used Econometric models such as Dicky Fuller and Johansen Co-integration tests to investigate the link between rates of exchange and share returns of two south Asian nations, Pakistan and India. The study's findings indicated that there is no long-term association between exchange rate and share market returns/prices for both economies. The Portfolio Balanced model, on the other hand, revealed an inverse link between both. As a result, it was established that exchange rates in Pakistan had little impact on stock return swings.

E. Effects of Exchange Rates on Gross Domestic Product (GDP)

Conversion rates are influenced by a number of factors, including inflation differentials between the two nations, interest rate variations between the two countries, current account deficits, and public debt, term of trade and political security, and financial execution. For example, when a country's balance of payment account is in deficit or trade deficits, it means that its foreign expenditure (imports) exceeds its foreign exchange earnings (exports), and as a result, its demand for foreign currency exceeds its supply, causing its currency to depreciate and its foreign exchange rate to appreciate. Interest rate level: the cost and profit of borrowing capital are calculated using interest rates. The interest rate rises in comparison to the interest rate of a foreign nation. Similarly, the need for local/do If a country's economy is robust, capital inflows may be easy to come by. Inflationary factor: Inflation may have a significant impact on a country's currency. When a country's inflation rate rises, the buying value of its currency falls; similarly, the paper currency depreciates. On the other hand, foreign currency appreciates, which boosts exports and demand for local goods. If a speculator believes a local currency will gain, demand for domestic currency in the foreign exchange market will rise. If speculators believe the local currency will appreciate, they will sell all of their currency at a higher rate in the foreign exchange market. However, when the value of the currency falls, they write a letter.

Government intervention: When a country's central bank floods the foreign exchange market with foreign currency supplies in response to demand for its domestic currency, the value of its domestic currency rises. Central banks, on the other hand, can devalue their own currency by issuing more of it in exchange for foreign currency. Exchange rates are constantly changing as a result of the foreign exchange supply and demand pressures. When a country's currency depreciates, demand for local items rises, and other countries choose to swap their currencies for your local currency in order to acquire more and more things at a lower price. However, there comes a point when demand for a currency exceeds supply, and the currency becomes more costly.link to nations with higher revenues He categorized the reasons in two ways: institutional flaws are the first, and product-market failure is the second. The relationship between economic growth and the real exchange rate is explained by a traditional model.

Undervaluation of currency, according to Rodrik (2008), encourages economic progress. This is particularly true for emerging nations. Growthit = + lnrgdpchit-1 + lnundervalit + xt + ft + fi + it, where the key variable is annual GDP per capita growth, was utilized to conduct comprehensive study. The standard convinced term (beginning income per capita, RGDPCHi,t1), as well as a wide number of nation and time models, were constructed as a consequence of this equivalency (fi and ft). The retrieval is unaffected by a variety of real exchange rate measures and estimation methods. He also claimed that the size of the tradable sector is the operative channel (particularly industry). These findings show that government or market failures that connect poor nations disproportionately affect marketable goods.

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Rapetti et al. (2011) used the following model to investigate the relationship between real exchange rates and economic growth: growthit = + lnrgdpchit-1 + lnundervalit + xt + ft + fi + it, where the dependent variable is the standard of yearly growth rate of real GDP per capita, and RGDPCHit-1 catches the junction term, (ft) time-specific effects, (fi) country-specific effects, X is the standard control They utilized UNDERVAL as a proxy for the undervaluation index and discovered that currency undervaluation had a substantial impact on GDP. They discovered that the effect of currency undervaluation on GDP is actually higher and stronger for advanced economies when they used UNDERVAL as a proxy for undervaluation index.

Mohammed et al. (2018) proposed that, due to the stability element that must be present in the regime, there would be a positive link between fixed exchange rate and GDP growth. A positive and significant association was predicted between the fix exchange rate and GDP growth using the control variables model, $Y = 1 + 2 \text{ Exchange Rate Type} + 1 \text{ Price Rises Rate} + 2 \text{ Govt. spending} + 3 \text{ Gross Capital Creation (percent GDP)} + 4 \text{ Human Capital} +$.

Avdjiev et al. (2019) discovered a "triangular" link between the US dollar's strength, actual investment, and cross-border bank movements. There are two different types of practical situations. They began with steering a macro SPVAR lesson. They then looked at a collection of micro (firm) group regressions. They discovered evidence of three crucial relationships. First, there was a strong negative link between cross-border bank lending denominated in US dollars and the US currency. Second, increases in US dollar-denominated cross-border bank loans to a certain EME are linked to higher real asset levels in that EME. Finally, a reduction in the value of aThe conditions are stringent.

Babatunde et al. (2016) used data from 1978 to 2014 to analyze the association between exchange rate and economic development in Nigeria. The study discovered a substantial association between exchange rate and economic development using the Ordinary Least Square approach. S The requirements are strict. Similarly, the co-integration tests demonstrated that the series data were in a long-term equilibrium. The short-run directional link between exchange rate and economic development was further underlined by the Pairwise granger causality tests. As a result, the study concluded that both the exchange rate and economic growth had an impact on each other.

Okorontah and Odoemena (2016) investigated the effects of exchange rate fluctuations on economic growth in Nigeria, using annual data from 1986 to 2012. The results showed that there is no strong relationship between exchange rate and economic growth in Nigeria, using the Ordinary Least Square Method, Johansen Co-integration tests, and the error correction mechanism (ECM).

Morina et al. (2020) set out to investigate the impact of real effective exchange rate volatility on economic development in Central and Eastern European nations. Annual data was collected from 2002 to 2018, and fixed effects estimate for panel data was used to indicate that exchange rate volatility has a considerable negative impact on real economic growth. Ozata (2020) recently published another research in which the same exchange rate influence on economic development in Turkey was explored. The data was collected over a forty-year period, and the Autoregressive Distributive Lag (ARDL) model was used to

examine the impact of exchange rate fluctuation Turkey's economic expansion has had a detrimental and statistically significant impact.

According to Isola et al. (2016), the impacts of exchange rates on economic growth in Nigeria were explored using four powerful economic theories: Purchasing Power Parity (PPP), Monetary Model of Exchange Rates, Portfolio Balance Approach, and the optimum currency area theory. The Autoregressive Distributive Lag (ARDL) model was used to estimate the findings. Inflation rate, exchange rate, interest rate, and money supply were utilized as proxies for other macroeconomic variables in the model, with GDP (RGDP) serving as a proxy for economic growth. The analysis shows that there is no long-run association between the two variables, although there is a short-run relationship.

F. Factors Influencing Exchange Rates

a) Interest Rate

Using an Enter and Stepwise multiple regression model to examine the effects of market fundamentals on exchange rates, Quang My and Sayim (2016) investigated the impact of international macroeconomic variables on foreign exchange rates between the United States and four major emerging countries: India, Mexico, Brazil, and China from 2005 to 2014. The study's findings demonstrated that macroeconomic factors such as inflation, interest rate, gross domestic product, and capital movement had a considerable impact on the USD/CNY (US dollar/Chinese Yuan) and USD/INR (US dollar/Indian Rupee) exchange rates.

USD/MNX (US dollar/Mexican pesos), USD/BRL (US dollar/Brazilian real), and USD/BRL (US dollar/Brazilian real). Similarly, Mirchandani (2013) attempted to analyze the influence of macro variables on currency rates in his study. Over the decades, the most important reason driving exchange rate fluctuations has been the interest rate differential (the difference in interest rates between several large nations). Higher interest rate currencies entice a big number of investors to invest in financial markets. This is how the currency becomes more appealing to investors, shifting the demand curve for the currency to the right side. When interest rates fall, the currency depreciates, hence lower interest rates typically mean lower exchange rates. Mohd et al. (2016) made another attempt, investigating the impacts of different macroeconomic factors on exchange rate fluctuations. However, the results indicated that the interest rate and inflation rate have statistically negligible relationships with exchange rates after testing the hypothesis. It was discovered that exports had a significant impact on exchange rates.

PAN (2017) used theoretical models and empirical data to analyze the link between real interest rate and real exchange rate. According to theoretical models, there is a close relationship between the real exchange rate and the real interest rate; however, empirical analysis revealed different results, i.e. some empirical evidence found to support the relationship, while other empirical evidence found to contradict the relationship. As a result, the majority of research have shown that the real interest rate is linked to real exchange rates (PAN, 2017).

Raza and Fatima (2016) conducted a study to investigate the link between macroeconomic indicators such as Gross Domestic Product (GDP), Consumer Price Index (Inflation), Interest rate, and exchange rate in a number of countries, both developed and developing. The results demonstrated that the three macroeconomic variables GDP growth, inflation, and interest rate had a positive and substantial effect on exchange rate in both developed and developing nations, using the OLS regression estimation approach and Granger Causality Tests. The results of the panel data analysis further demonstrated that all macro factors had a considerable and statistically favorable influence on the exchange rate.

According to Si and Li (2018), the study used wavelet analysis to analyze co-movement and causation between exchange rate and interest rate differential in the BRICS nations. Data was collected from 1996M1 to 2015M9. The empirical findings indicated that co-movement and causation between currency rates and interest rate differentials fluctuate across time, but are particularly prominent in these nations during the current global financial crisis. In the near run, the currency rate and interest rate disparity in BRICS nations move in lockstep. Positive causation flows from interest rate differentials to exchange rates in South Africa and Russia in the long term. Brazil. Thus, in distinct sub-phases, bidirectional causalities between interest rate differentials and exchange rates were discovered (Si & Li, 2018).

The impacts of macroeconomic factors on currency rates in Kenya were explored in Moheddin's (2018) study, which used an explanatory research approach. Furthermore, with the help of Correlation of Variables, explanatory study was used to find causal relationships between variables. Similarly, the data period was 2000 to 2016; also, the multiple regression approach was used to capture the link between macro parameters in Kenya, such as interest rate, inflation rate, GDP, and currency rate. The Pearson Correlation study demonstrated a favorable relationship between interest rate and exchange rate ($r=0.231$, $p=0.372$) in terms of the influence of interest rate. This suggests that both the interest rate and the exchange rate are positively connected, but there is no substantial association between them. According to the adjusted-R value of 0.054 obtained from regression analysis of interest rate and exchange rate, 5.4 percent variations in exchange rate were generated by a 1% change in interest rate (Moheddin, 2018). Mariah, I., Ghulam, Y., and Mah (2012) investigated which macroeconomic factors influence the nominal exchange rate of the Pakistani rupee versus the US dollar from 1982 to 2008. However, using the Ordinary Least Square and Johansen Cointegration approaches, the results revealed that interest rates and inflation rates had a long-run link with the Pak-rupee exchange rate.

b) Inflation

The rate of inflation is an important macroeconomic element that determines the exchange rate. A low inflation rate should, in principle, result in a rising currency rate. The currency's purchasing power will increase when compared to other currencies (Ramamany & Abar, 2015). In most circumstances, the inflation rate is used to determine the price stability of an economy. Demand side inflation (also known as demand pull inflation) and supply side inflation are the two forms of inflation that exist in principle (also called cost push inflation). Internal and external pressures generate inflation in open economies, with internal pressure referring to local factors and external Exchange rate movements and global commodity prices are regarded to be the sources of volatility.

Extrinsic influences are those that occur outside of a person's control. The impact of the exchange rate on the direction of inflation is determined by the exchange rate regime of the country. The exchange rate system is crucial in reducing or eliminating the danger of exchange rate volatility, which has a negative impact on the economy. Exchange rate fluctuations will have a huge impact on the economy (Eichengreen, 2004).

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Are inversely connected. It illustrates that every rise in inflation causes a fall in the exchange rate, i.e. every unit increase in inflation causes a 0.470 decrease in the exchange rate. According to regression study between inflation rate and exchange rate, the adjusted-R value was 0.177, indicating that a 1% change in inflation rate induced 17.7% variances in exchange rate (Moheddin, 2018). Mariah, I; Ghulam, Y; and Mah (2012) discovered that inflation has a positive and long-run association with the Pakistani rupee exchange rate.

Another research from Pakistan, by Raza and Afshan (2017), looked at the variables that influence the PAK-rupee exchange rate in the long and short term, using data from 1972 to 2013. Several tests, methodologies, and models were used to investigate the long and short term impacts of a variety of macroeconomic factors on the exchange rate. Inflation and money supply have both been demonstrated to have a favorable impact on exchange rates. Granger Causation tests verified the presence of unidirectional causality between inflation, money supply, and terms of trade, all of which run from the explanatory variable to the country's exchange rate (Raza & Afshan, 2017).

Raza and Fatima (2016) conducted a study to investigate the relationship between macroeconomic variables such as Gross Domestic Product (GDP), Consumer Price Index (Inflation), Interest rate, and exchange rate in a number of countries, both developed and developing. The results showed that all three macroeconomic variables GDP growth, inflation, and interest rate have a positive and strong influence on exchange rate in both developed and developing countries, using the OLS regression estimation technique and Granger Causality Tests. The results of the panel data analysis further demonstrated that all macro factors had a considerable and statistically favorable influence on the exchange rate.

Raut (2018) failed to create a link between currency rates and inflation in BRICS countries in his research. The study discovered that the inflation rate is typically used to gauge the economy's price stability. (Duarte and Stockman (2002) focused on the effects of real exchange rate volatility and misalignment on international commerce and investment (FDI). RER volatility had a detrimental and significant influence on foreign trade and investment (FDI) from 1993 to 2001, according to the findings. Finally, according to the findings of Raza and Fatima (2016), all three macroeconomic factors, GDP growth, inflation, and interest rate, have a positive and considerable effect on exchange rates in both developed and developing nations.

c) GDP

In the case of Pakistan, Mohsin et al. (2018) used annual data from 1995 to 2016 to examine the impact of macroeconomic factors such as Gross Domestic Product (GDP), Unemployment (UN), and Current Account Balance (CAB); additionally, the Ordinary Least Square (OLS) method was used to examine the relationship, which is used by many researchers; however, the empirical results showed that GDP has no relationship with unemployment. According to Venkatesan and Ponnamma (2017), utilizing Autoregressive Distributive Lag (ARDL) to forecast the exchange rate produced significant results.

Raza and Fatima (2016) conducted a study to investigate the link between macroeconomic indicators such as Gross Domestic Product (GDP), Consumer Price Index (Inflation), Interest rate, and exchange rate in a number of countries, both developed and developing. The results demonstrated that the three macroeconomic variables GDP growth, inflation, and interest rate had a positive and substantial effect on exchange rate in both developed and developing nations, using the OLS regression estimation approach and Granger Causality Tests. The results of the panel data analysis further demonstrated that all macro factors had a considerable and statistically favorable influence on the exchange rate.

The impacts of macroeconomic factors on currency rates in Kenya were explored in Moheddin's (2018) study, which used an explanatory research approach. Furthermore, with the help of Correlation of Variables, explanatory study was used to find causal relationships between variables. Similarly, the data period was 2000 to 2016; also, the multiple regression approach was used to capture the link between macro parameters in Kenya, such as interest rate, inflation rate, GDP, and currency rate. The Pearson Correlation study demonstrated a favorable relationship between GDP and exchange rate ($r=0.637$, $p<0.05$) in terms of the influence of Gross Domestic Product. This suggests that the variables GDP and exchange rate are both positively connected, but there is a strong correlation between them. According to a regression study between interest rate and exchange rate, the adjusted-R value was 0.406, implying that a 1% change in GDP caused 40.6 percent fluctuations in exchange rate (Moheddin, 2018).

According to Fernandes (2017), the study's goal was to figure out what macroeconomic variables influence the exchange rate of the Indian rupee versus the US dollar, and six important macro variables were considered: GDP, interest rate, inflation rate, export, import, and foreign currency reserves. However, data from the previous 26 years was used.

Johansen Cointegration tests, multiple regression analysis, and Granger Causality tests Inflation, forex reserve, and interest rate are the variables that have a statistically beneficial influence on the exchange rate, according to the multiple regression approach. Rupee of India The Indian rupee, on the other hand, was determined to have no negative influence on GDP, exports, or imports.

G. Theoretical Review

a) Efficient Market Hypothesis (EMH)

According to Fama (1970), who introduced the Efficient Market Hypothesis (EMH), commonly known as random walk theory, it is difficult to attain uncommon earnings/high abnormal profits among investors by profit-maximizing conduct. The weak form, the semi-strong form, and the strong form of the Efficient Market Hypothesis (EMH) were defined by Fama (1970). This is the semi-strong version of EMH, however, that has laid the groundwork for empirical investigation. The Efficient Market Hypothesis (EMH) assumes that all economic players have all relevant knowledge, and that stock prices fully represent all available information about macroeconomic conditions.

Several macroeconomic factors, such as inflation, exchange rate, money supply, and other macroeconomic factors, are regarded by various academics to be the route of stock price changes (Ouma and Muriu, 2014; Chen et al., 1986). The EMH allows us to conclude that changes in key macroeconomic factors have a direct impact on stock prices. The study's goal is to figure out what the predicted link is between exchange rates and stock market returns in Pakistan's KSE-100 Index.

b) Capital Asset Pricing Model (CAPM)

In the financial literature, valuing common stocks has become a major topic. Sharpe (1964), Lintner (1965), and Mossin (1966) developed the first and widely recognized asset pricing model, known as the Capital Asset Pricing Model, based on Markowitz's (1952) mean variance portfolio model (CAPM). In order to explain a given stock market performance, CAPM uses only one element, namely the stock market index. The CAPM model makes several basic assumptions, such as that investors are rational and risk averse. Second, all economic markets are flawless, third, investors may simply borrow and lend a limitless amount at the risk-free rate, and so on. Each of these assumptions has been roundly disputed by a number of experts.

however, academics Later, the Model was upgraded by incorporating additional CAPM features. Multifactor models emerged as a result of the addition of additional variables to the model.

$$sr_j = rf + \beta_j (rm - rf)$$

The study on multifactor models was forged, according to King (1966) and Merton (1973). Despite the fact that their research contributed significantly to asset pricing models, the market index remained the primary component in the model, despite the addition of other factors. With the use of APT theory, Ross (1976) was able to link macroeconomic factors to common stock returns.

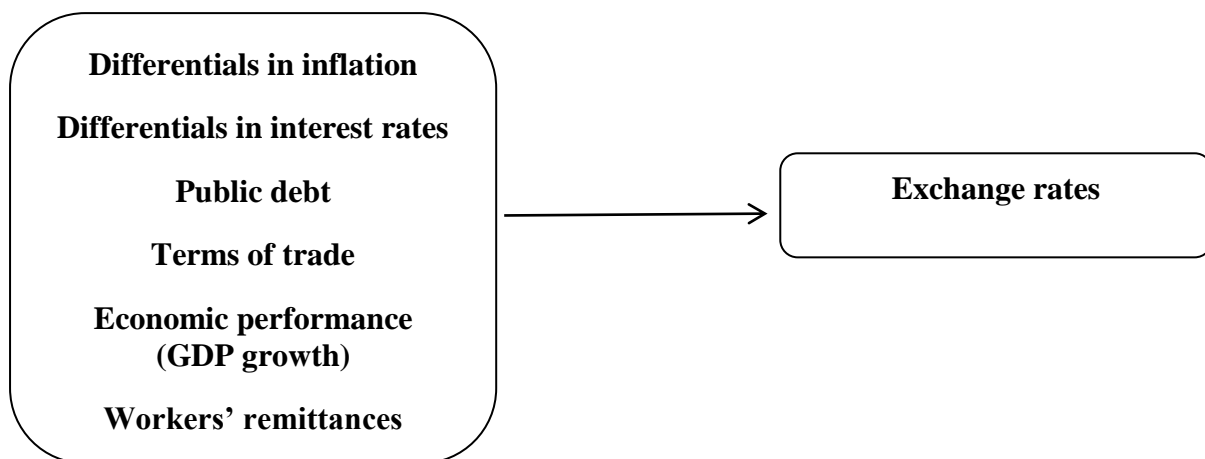
c) Arbitrage Pricing Theory (APT)

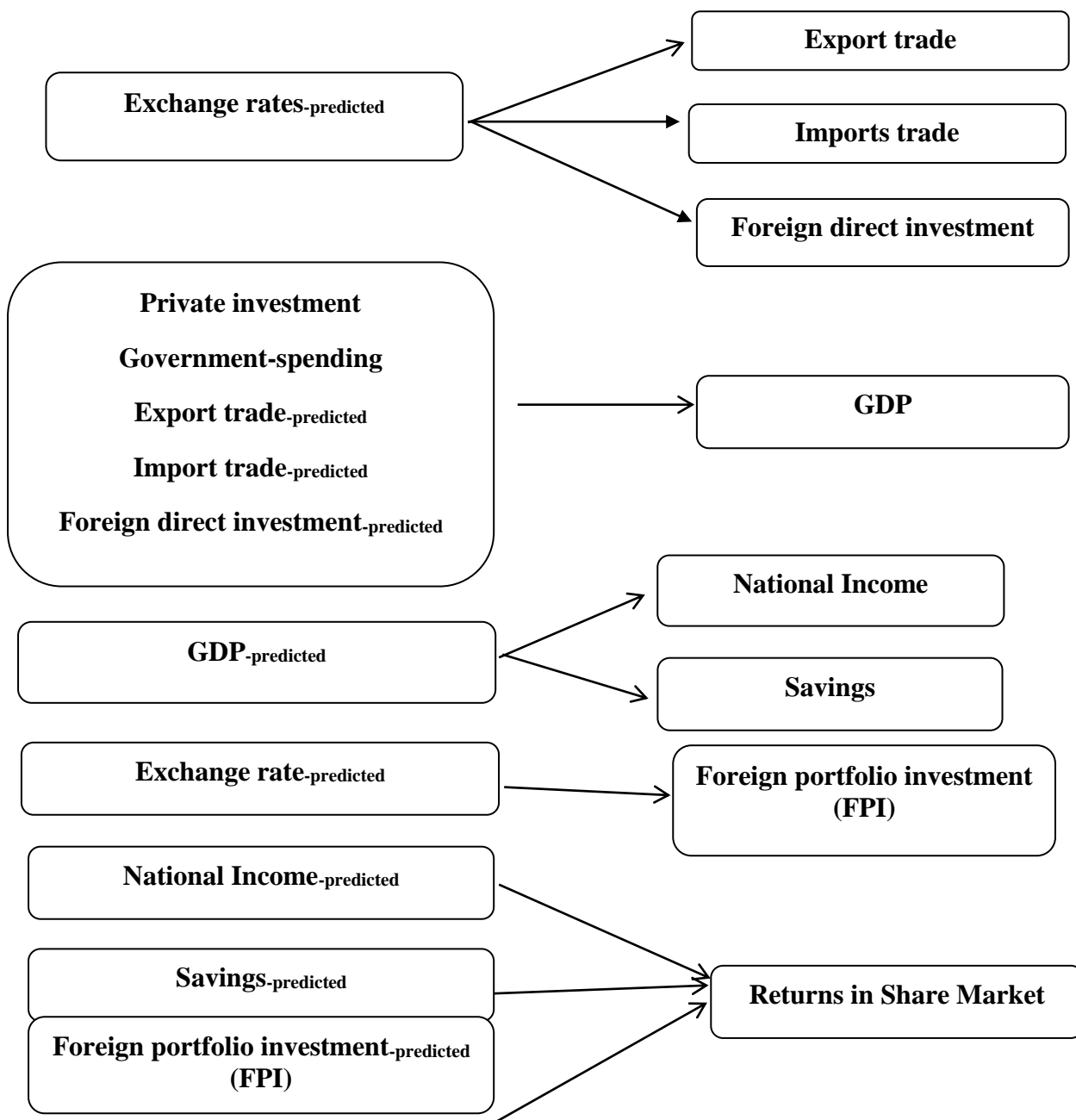
This theory is based on the assumption that the returns on an asset may be anticipated by looking at the relationship between that asset and a number of fundamental risk variables. A linear combination of numerous explanatory factors predicts a link between the returns of a portfolio and the returns of a single asset in this theory (Ross, 1976).

There is a plethora of research presently accessible that examines the link between share market returns and a variety of macroeconomic parameters; nonetheless, we chose exchange rate as one of these macroeconomic components in our study. The APT hypothesis, which is supported by empirical evidence, shows a short-run relationship between macroeconomic factors and stock prices in terms of initial differences, anticipating trend stationary. While examining the likelihood of Arbitrage pricing theory, Fama and French (1996) establish that share returns and macroeconomic factors are only tangentially related.

H. Conceptual Framework

Based on the afore mentioned theories, the study designed a conceptual framework that elaborates that the exchange rate itself is not an exogenous variable; it is a pre-determined variable, affected and influenced by a number of other factors referred below. In addition, it further influences GDP with the assists of other influencing macroeconomic factors, which further affects the factors as per the pattern explained in the conceptual model provided below.





CHAPTER THREE

RESEARCH METHODOLOGY

A. Introduction

This chapter presents the design that was used in the study, the techniques of data collection and how data was analyzed in the study.

B. Research Design

According to Cooper and Schindler (2003), research design is described as a strategy for selecting data sources. It is a type of strategy that a researcher uses to determine how he would gather information and, more importantly, how he will incorporate the selected data into the study. It also identifies the different sorts of statistics utilized to answer the study questions. The major goal of the research design is to show that there is a link between the research variables and the study's topic.

In a research published in 2016, Raza and Fatima investigated the relationship between macroeconomic variables such as Gross Domestic Product (GDP), Consumer Price Index (Inflation), Interest rate, and exchange rate in a variety of developed and developing nations. Using the OLS regression estimation technique and Granger Causality Tests, the results showed that the three macroeconomic variables GDP growth, inflation, and interest rate all had a positive and significant influence on exchange rates in both developed and developing countries. The panel data analysis revealed that all macro variables influenced the exchange rate in a significant and statistically advantageous way.

C. Data and Data Collection (Sources)

The research was based on secondary data. Cooper and Schindler (2003) define secondary data as information that has already been gathered by others. For a period of twenty years, annual time-series data was collected and analyzed (1980 to 2016). Because the study focused on the KSE-100 Index, all of the companies used to calculate the index for the time period were included (1980 to 2016). The key independent variable, the exchange rate, was given by the State Bank of Pakistan. Other independent variables in the analysis were obtained from a range of sources, including the World Development Indicator (WDI), the State Bank of Pakistan, and others, and included GDP, FPI, FDI, Inflation rate, Interest rate, and other observable factors (SBP). Returns on investment are.

A dependent/endogenous variable is an example. The Pakistan Stock Exchange, for example, gave share returns (PSX). The KSE-100 index was chosen because it was related to blue-chip companies with better profitability and dividends in their stock returns.

D. Data Analysis

The study used statistics analysis software Eviews to conduct quantitative analysis. In addition, to check that whether share market return was affected by Exchange rate, the study established regression and correlation analysis which carried out on computed share return. The share return was considered regressed against Exchange rate (USD/PKR) that observed a pre-determined variable affected by other exogenous variables.

The Simultaneous Equation/Structural Model (SEM)/Recursive Model approach aided in explaining the patterns and general trends of the observable data before summarizing it into a single value to make conclusions.

a) Simultaneous Equation/Structural model (SEM)/Recursive model technique:

The Simultaneous Equation/Structural Model (SEM)/Recursive Model technique is a type of equation method in which the endogenous variables are evaluated one by one in a sequential manner.

$$Y_1 = \beta_1 x + \varepsilon_1$$

$$Y_2 = \beta_2 x + \gamma_1 y_1 + \varepsilon_2$$

$$Y_3 = \beta_3 x + \gamma_1 y_1 + \gamma_2 y_2 + \varepsilon_3$$

As a result, only exogenous variables are used on the right-hand side of the equation for the first endogenous variable. Similarly, we noticed that the endogenous variable in the second equation contains exogenous variables but only the first endogenous variables. Finally, the endogenous variable in the third equation contains both exogenous and endogenous variables.

be zero if the system was strictly deterministic and mathematical).

As a result of the system's structure, it's evident that the endogenous variables have a sequential one-way relationship rather than a simultaneous (two-way) interaction. As a result, Y1 has an effect on Y2, while Y2 has no direct or indirect effect on Y1. Similarly, Y1 and Y2 influence Y3, while Y3 has no effect on Y1 and Y2.

The following system uses just one exogenous variable and three endogenous variables (y 1, y 2, and y 3). (x). The t describes stochastic disturbances (all of the t t would be t

The endogenous variables in this system have a sequential (one-way) rather than a simultaneous (two-way) connection, as evidenced by the system's structure. "Recursive" or "triangular" models are the names given to these forms of equation systems. The system is considered to be "diagonally recursive" if there is no relationship between the stochastic disturbances. Ordinary Least Squares (OLS) is a good estimator for each individual equation in a diagonally recursive system because it gives accurate and (asymptotically) efficient estimates.

E. Proposed Regression/Econometric Model

The conceptual model that we have developed in the preceding section, assisted to design the following statistical/econometric model, mentioned below.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon_t \quad (\text{Model 1})$$

Where,

Y= Exchange rate

X₁= Differentials in inflation

X₂= Differentials in interest rates

X₃= Public debt

X₄= Terms of trade

X₅= Economic performance (GDP growth)

X₆= Workers' remittances

β₀= Intercept

β₁ β₂ β₃ β₄ β₅ β₆= macroeconomic variables co-efficient in the model

ε_t = normally distributed error term

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon_t \quad (\text{Model 2})$$

Where,

Y= Exchange rate _{predicted}

X₁= Exports Trade

X₂= Imports Trade

X₃= Direct Foreign Investment

β_0 = Intercept

$\beta_1 \beta_2 \beta_3$ = macroeconomic variables co-efficient in the model

ε_t = normally distributed error term

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon_t \quad (\text{Model 3})$$

Y= GDP

X₁= Private investment

X₂= Government spending

X₃= Export trade-_{predicted}

X₄= Import trade-_{predicted}

X₅= foreign direct investment-_{predicted}

X₆ = human capital (Education)

β_0 = Intercept

$\beta_1 \beta_2 \beta_3 \beta_4 \beta_5 \beta_6 \beta_7$ = macroeconomic variables co-efficient in the model

ε_t = normally distributed error term

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon_t \quad (\text{Model 4})$$

Y= GDP-_{predicted}

X₁= National Income

X₂= Savings

β_0 = Intercept

$\beta_1 \beta_2$ = macroeconomic variables co-efficient in the model

ε_t = normally distributed error term

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon_t \quad (\text{Model 5})$$

Y= Exchange Rate-_{predicted}

X₁= Foreign Portfolio Investment (FPI)

β_0 = Intercept

$\beta_1 \beta_2$ = macroeconomic variables co-efficient in the model

ε_t = normally distributed error term

First the KSE-100 index was converted into Annual stock return as follows:

$$R_t = \frac{(KSE - KSE_{t-1})}{KSE_{t-1}}$$

Where R = Annual Stock Market Return

KSE_{t-1} = KSE-100 index at beginning of the period

KSE_t = KSE-100 index at end of the period

After the KSE-100 index had been converted into stock market return, the following linear model.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon t \quad (\text{Model 6})$$

Y= Share Market Returns

X₁= National Income_{-predicted}

X₂= Savings_{S-predicted}

X₃= FPI_{-predicted}

β₀= Intercept

β₁ β₂ β₃ β₄ β₅ β₆ β₇= macroeconomic variables co-efficient in the model

εt = normally distributed error term

F. Terminologies

Model (1-6) is considering as a simultaneous equation/Structural model (SEM)/recursive model, whereas the exchange rate itself is not an exogenous variable, it is a pre-determined variable, affected and influenced by a number of factors including predetermined and other exogenous variables. For the estimation of this model, the researcher used SEM/Recursive model. Since time series data was used, the researcher also additionally applied the appropriated suggested contemporary methods/methodologies/statistical tools, in case variables happened to be I(0), I(1), I(2) or mix of these integration, on the basis of unit roots analysis.

a) Exchange rates:

The exchange rate is the value of one country's currency in terms of another; it is the rate at which one currency is exchanged for another. The market-based exchange rate fluctuates when the two nations' currency values fluctuate. When demand exceeds available supply, money becomes more costly. Bergen (2017) highlighted six factors that impact exchange rates: inflation differentials between nations, interest rate differentials between countries, current account deficits, public debt, terms of trade, political stability, and economic performance.

Exchange rates, which are more volatile than prices, serve as a pointer to changes in the relative pricing of foreign items. Domestic demand for imports is caused by changes in comparable pricing, whereas foreign demand for domestic goods is caused by changes in comparative prices. A country's imports and exports are both affected by changes in the currency rate.

For the majority of emerging nations, price stability over lengthy periods of time has become an essential socioeconomic benchmark. The deregulation of financial markets and changes in stabilization policies are the primary causes of inflation system fluctuations. Pakistan embraced rupee convertibility in 1993, during the mid-1990s currency rate crisis, and opened its domestic market to global financial flows with more exchange rate flexibility. Pakistani policymakers have also begun targeting inflation with a flexible exchange rate in order to maximize the benefits of financial deregulation. This put SBP in a difficult position due to its strong fiscal position, lack of institutional credibility, and the remarkable influence of exchange rate changes on domestic inflation, which has been documented in other economies.

b) Share market return

A change in price of an asset, investment or in a share price is called return. Return may be positive or negative, positive returns means when your investment earns extra on your invested capital. Conversely, negative returns mean when your invested capital bring losses due to several factors.. Mun, Siong, and Thing (2008) defined share market return as a measurement used to evaluate gains from an investment throughout the course of a term of ownership of shares. Furthermore, it might be in the form of a financial gain or dividend yield gained by a stock market investor. According to Jordan and Fischer (2002), share market gains are the driving force and the primary reward in the investing process. This driving factor (share market return) is used by investors to assess different investments in which they want to invest. They further defined that the share market returns have two components first, in the form of dividends and second, in the form of capital gain/loss from investment. It has been conferred by Simiyu (1992), that there are so many parameters which affect

equity market returns such as stock turnover, share market capitalization and indexing of the share market. Therefore, KSE-100 Index, Pakistan is usually used to analyze the returns for the collective market performance so that to identify the performance of an investment over a period of time.

c) Gross Domestic Product (GDP)

The Gross Domestic Product (GDP) is the monetary worth of all completed products and services produced inside a country over a certain time period (GDP). GDP is a measure of a country's economic health that is used to estimate the size and rate of growth of a country's economy. GDP may be determined using a variety of methods, such as spending, output, or revenues. GDP may be utilized to obtain more information. To acquire greater information, GDP might be adjusted for inflation and population. Despite its shortcomings, GDP has become an important tool for governments, investors, and businesses when making strategic choices.

d) Interest rate

According to Oxford Dictionary (2017), interest rate is defined as a term that refers to the agreement of a loan that is indicated as interest to the borrower. It is a percentage that a bank or other financial institution charges a borrower when he or she borrows money or that a bank pays when someone retains money in a bank account, according to Cambridge Dictionary (2017); the bank has its own plans to decrease or boost interest rates.

Interest is the cost of persuading persons with money to keep it rather than spend it, and to invest it in long-term assets rather than holding it as cash. Interest rate and level changes have an impact on the link between the supply of savings and the demand for capital, or the supply of money and the demand for money.

When interest rates rise in relation to corporate earnings, individuals prefer to save in banks rather than invest in enterprises; this act promotes saving while simultaneously raising the cost of capital, which reduces investment. People choose to consume more and save less when interest rates fall in relation to corporate earnings. Increased consumption leads to inflation, which is pro-growth at low rates and anti-growth at high rates. Low saving is also anti-growth since it reduces the amount of money available for investment. As a result, maintaining interest rates at a level that both stabilizes inflation at a fair level on the one hand and stimulates adequate saving and investment on the other is a difficult task given to central banks in open economies. State Bank of Pakistan is a financial institution in Pakistan. The State Bank of Pakistan (SBP) has been entrusted with the responsibility of establishing interest rates.

e) Inflation rate

Inflation is described as a decrease in the value of a currency, resulting in an increase in the total level of prices for goods and services. Three types of inflation are sometimes used to describe it: demand-pull inflation, cost-push inflation, and built-in inflation. The two most often used inflation indices are the Consumer Price Index (CPI) and the Wholesale Price Index (WPI) (WPI). Inflation can be seen positively or badly depending on one's perspective and rate of change. Inflation benefits those with physical assets, such as real estate or stored products, since it increases the worth of their holdings. Inflation may be disliked by currency holders because it reduces the value of their money. In a perfect world, the highest level would be Inflation would encourage individuals to spend instead of save, resulting in economic development.

f) Public Debt

Government debt, also known as public interest, public debt, national debt, and sovereign debt, is the total amount of debt owing by a government or state to lenders at any one moment. Government debt may be due to domestic (commonly known as internal) or international (sometimes known as external) lenders (also known as external debt). On the other hand, the yearly government budget deficit is a flow vector that equals the difference between government income and expenditures for a particular year. All prior deficits are included in the debt. The government is usually compelled to pay interest on its debt.

Another common method of assessing government debt is to consider how long it will take to pay it off. Debt that is due in one year or less is classified as short-term debt, while debt that is due in 10 years or more is classified as long-term debt. Medium-term debt resides in the space between these two locations. Short-term debt should not be confused with debt that is about to mature; short-term debt is typically utilized for emergency finance and is hence riskier and more expensive. Any current pension accounts and all legally binding commitments for goods and services due by a specified deadline, both locally and internationally, would be included in a broader definition of government debt.

Debt will be generated by governments. Bonds and bills are sold to the general population. Any country can borrow directly from supranational or international financial organizations (e.g., the World Bank).

g) Term of trade

The terms of trade are the ratio of a country's export prices to its import prices (TOT). How many units of exports are required to purchase a single unit of imports? To calculate the ratio, divide the price of exports by the price of imports and multiply the result by 100. When a country's TOT goes below 100%, it means that more money departs than enters. When the TOT is more than 100 percent, the country is saving more money than it is spending on imports.

When a country's TOT improves or rises, it typically indicates that export rates have risen while import prices have stayed steady or fallen. Export prices, on the other hand, may have fallen slightly, but not nearly as much as import prices. Prices for exportIt's possible that export prices stayed unchanged while import prices declined, or that export prices simply rose faster than import prices. All of these possibilities might result in a higher TOT.

h) Workers' Remittance

The Balance of Payments and International Investment Position Manual (BPM5) defines workers' remittance as a transition made by migrants working and resident in the compiling economy to their families in their home country. Workers' remittances provide cash and in-kind payments from one family to another. Migrants' funds sent back to their home country to buy real estate or invest in local businesses are registered as foreign direct investment transfers, not remittances.

i) Economic Performance (GDP Growth)

Economic growth, in its most basic form, is an increase in the overall output of a country's economy. Higher average marginal productivity is generally, but not always, linked to cumulative productivity improvements. As a result, people's salaries improve, prompting them to open their wallets and spend more, resulting in a greater standard of life.

In economics, physical resources, rational resources, labor force, and technology are all utilized to model development. Simply said, increasing the quantity or quality of working-age people, their

resources, and the rules they have for combining labor, money, and raw materials will result in improved economic productivity.

j) FDI

A financial investment made by a corporation or individual from one nation into a firm in another country is known as a foreign direct investment (FDI). In general, FDI happens when a foreign firm creates or buys foreign business activities or assets. Portfolio transactions, in which an investor merely buys equity in foreign-based enterprises, are not the same as FDIs.

When it comes to FDIs, open markets are more active than closed markets for purchasers. Horizontal, vertical, or conglomerate FDIs are all possible. Horizontal refers to establishing the same type of business in a new location, vertical to a comparable but unique business endeavor, and conglomerate to a separate business enterprise. The Bureau of Economic Analysis keeps track of foreign direct investment into the United States. On a regular basis, I travel to the United States. Apple's investment in China is an example of FDI.

k) Government Spending

The amount of money spent by the government on purchasing commodities and delivering services such as education, healthcare, social security, and safety is known as government costs. When the government acquires goods and services for current use to directly fulfill the individual or mutual wants and requirements of the population, this is referred to as state final consumption spending in national income accounting. The government purchases commodities and resources for future use, which is referred to as economic expenditure. This protects government expenditure, savings, asset transfers, and transfer fees.

l) Human Capital

Human capital is an intangible product or attribute that is not recorded on a company's balance sheet. It's the monetary value of a worker's capability, experience, and competencies. Learning, groundwork, intelligence, proficiency, capability, and other qualities valued by employers, such as reliability and timekeeping, are all included. Human capital recognizes that not all labor is created equal. Employers, in the other hand, will upsurge the productivity of that money through engaging in employees—employees' education, expertise, and talents all deliver economic benefits for both employers and the overall economy.

Human capital is valued because it is believed to uplift production and thus profits. As a result, the more an organization invests in its workforce (through education and training), the more proficient and thriving it would be.

m) FPI

Securities and other financial instruments owned by investors in another country are referred to as foreign portfolio investment (FPI). It does not give the investor full control of a company's securities and, based on market volatility, is relatively liquid. FPI is one of the most popular ways to invest in an overseas economy, alongside foreign direct investment (FDI). For most countries, FDI and FPI are also essential sources of finance.

Person investors who choose to invest in prospects outside of their home country are more likely to choose an FPI. In a larger scale, foreign portfolio investment is a component of a country's capital account and is reflected in its balance of payments (BOP). Over the course of a monetary year, the BOP calculates the amount of capital flowing from one country to another.

CHAPTER IV

RESULTS AND DISCUSSION

A. Introduction

This chapter is divided into three parts. Theoretical associations involving interest rates and GDP and exchange rates and GDP are revisited merely for the sake of remembering in Section 4.1, along with a conceptual perspective (to be assessed). In section 4.2, important variables are included based on the preceding causal connection, and the specific empirical model (to be evaluated) is described. The model previously specified is estimated in the third section 4.3. Section 4.3 is divided into eight sub-sections each of which contains information on how the eight elements of the empirical models defined for this study were evaluated.

B. Government Savings reintroduces the theoretical link between interest rates, currency rates, and GDP., Human Capital, National Income, National Savings, FDI, Foreign Portfolio Investment, Public Investment, Public Debt, Terms of Trade, Stock Market Return

In Chapter 2, the explicit theoretical association Between Interest Rates, Exchange Rates, And GDP, Government Savings, Human Capital, National Income, National Savings, FDI, Foreign Portfolio Investment, Public Investment, Public Debt, Terms of Trade, Stock Market Return, was thoroughly examined and described in Subparagraph. The mentioned association in the manner of the hypothetical model in Figure 2.1 is also presented in this sub-paragraph following are the model used for the analysis of data of the prevailing study.

Model 1 Exchange rates = f (Differentials in inflation, Differentials in interest rates, Public debt, Terms of trade, GDP growth, Workers' remittances, e) (1a)

Model 2 Exchange rates = f (imports, exports, FDI, e) (1b)

Model 3 GDP = f (Private investment_{-predicted}, Government spending_{-predicted}, Export trade_{-predicted}, import trade_{-predicted}, foreign direct investment_{-predicted}, human capital, e) (1c)

Model 4 GDP = f (National Income, Savings, e) (1d)

Model 5 Exchange rates = f (, FPI, e) (1e)

Model 6 Market Share Return = f (National Income, Savings FPI) (1f)

C. Introducing relevant variables and econometric model specified

The names of variables that related concepts have identified as variables impacted or being affected by the variables included are depicted in the aforementioned statistical model 4.1 (a – f). While collecting data on the variables included in the aforementioned model, it was discovered that some variables' data was not available, and as a result, some proxies were chosen to re-present such factors. The following are the concern models of the study.

Model 1 Exchange rates = f (Differentials in inflation, Differentials in interest rates, (1a)
, Public debt, Terms of trade, GDP growth,
Workers' remittances, e)

Model 2 Exchange rates = f (imports, exports, FDI, e) (1b)

Model 3 GDP = f (Private investment_{-predicted}, Government spending_{-predicted}, (1c)
Export trade_{-predicted}, import trade_{-predicted}, foreign direct investment_{-predicted},
human capital, e)

Model 4 GDP = f (National Income, Savings, e) (1d)

Model 5 Exchange rates = f (, FPI, e) (1e)

Model 6 Market Share Return = f (National Income, Savings FPI) (1f)

Where

IR = Interest rates

ER = Exchange rates

PB = Public debt

TOT = Terms of trade (Index of EX price /Index of IM price) x 100

WRs = Workers' remittances

FPI = Foreign Portfolio investment

IR_{-predicted} = Interest rate_{-predicted}

GS = Government Savings

EX = Export trade

IM = Import trade

FDI = Foreign direct investment

GDP = Gross domestic products

HC = Human Capital

IM_{-predicted} = Import trade_{-predicted}

EE = Education Enrollment (enrollment at university & professional colleges level)

PI = Private Investment

INF = Inflation Rate

NI = National Income

NS = National Savings

SMR = Stock Market Return

D. Estimating econometric model

Each of the six sub-components of the econometric model 1, as stated in section 4.2, is estimated, analyzed, and conclusions derived in the eight crucial sub-sections.

a) Estimating model 1

• **Exchange rates = f (inflation differentials, interest rate differentials, government debt, terms of trade, GDP growth, workers' remittances,)**

Because an estimate of the aforementioned model requires the use of time-series data, we collected/downloaded secondary data on three parameters involved over 36 years (1980-2016) from various sources specified in Chapter 3. We must first run a unit root analysis of the three parameters to determine if they are stable or non-stationary, and then pick an appropriate measure of estimation because we are using time-series.

• Unit root analysis

The empirical analysis of the research is based on the assumption that the data series is free of stationarity issues, hence unit root tests are utilized to see if stationarity issues exist in the variables under consideration. The Augmented Dickey-fuller (ADF) test was used to determine the stationarity of the studied variables. A series of data is considered to be stationary when a change in time has no effect on the structure of the distribution. To put it another way, a data series is deemed stationary if its statistical features, such as variance and mean, do not change over time (Gerald Musiega Maniagi, 2018). Because stable data series are easier to analyze in time series analysis, it is vital that your data series be stationary. forecasting and anticipating future values For projecting future values, it is acceptable to assume that the series' mean and variance will be the same as they were in the past.

Variables	At level	Probability	At 1 st Difference)	Probability	Integration Level
ER	-3.740837	0.0000			I(0)
EXP	-6.588337	0.0000			I(0)
FDI	-4.590736	0.0004			I(0)
FPI	-5.603217	0.0035			I(0)
GDP	-4.47428	0.0052			I(0)
GS	-1.901847	0.8022	-4.445656	0.0020	I(1)
IMPO	-6.044891	0.0000			I(0)
HC	-0.678921	0.8859	-6.238591	0.0000	I(1)
PD	-4.178791	0.0000			I(0)
RIMITTANCES	-8.897654	0.0001			I(0)
SMR	-5.896040	0.0000			I(0)
TOT	-2.731975	0.0872			I(0)
GDP GROWTH	-2.073995	0.2561	-3.585405	0.0181	I(1)

INF	-2.008705	0.2808	-4.522600	0.0026	I(1)
INR	-2.010666	0.2801	-3.799805	0.0112	I(1)
NS	-4.120050	0.0059			I(0)
NI	-2.918998	0.0627			I(0)

Table 1: Unit root test at level

The result of the ADF test revealed that ER is integrated at a level with a value of -3.740837 and a p-val of 0.0000. the test also revealed that EXP is integrated at a level with the value of -6.588337 and with a p-val of 0.0000. the ADF test displays that FDI is integrated at a level with a value of -4.590736 with a p-val of 0.0004. The test also illustrates that FPI is stationary at a level with the value of -5.603217 with a p-val of 0.0035. The ADF test shows that GDP is stationary at 1st difference with the value of -4.445656 with a p-val of 0.0020. The test also revealed that GS is integrated at a level with the value of -6.044891 and with a p-val of 0.0000. The test results revealed that IMPO is stationary at 1st difference with the value of -6.238591 with the p-val of 0.0000. The ADF test revealed that HC is integrated at 1st difference with the value of -6.238591 with the p-val of 0.0000. The result of the ADF test displays that PD is stationary at a level with the value of -4.178791 and with a p-val of 0.0000. The result of the ADF test shows that remittances are integrated at a level with the value of -8.897654 with the p-val of 0.0000. The ADF test results indicate that TOT is integrated at LEVEL with a value of -2.731975 and a p-val of 0.0872. The ADF test indicates that SMR is integrated at a level with a value of -5.896040 and a p-val of 0.0000. GDP GROWTH is integrated at the first difference, according to the ADF test, with a value of -3.585405 and a p-val of 0.0181. With a score of -4.522600 and a p-val of 0.0026, the ADF test likewise confirmed that INF is integrated at the first difference. With a score of -3.799805 and a p-val of 0.0112, the ADF test shows that INR is integrated at the first difference. With a value of -4.120050 and a p-val of 0.0059, NS is likewise integrated at the level. The result of the ADF test shows that NI is integrated at a level with the value of -2.918998 with a p-val of 0.0627

• Selection of Statistical model.

The strategy or guideline for selecting a statistical model based on the stationarity of variables will be discussed in this portion of the research. According to Pesaran and Shin (1995), the statistical model selection is influenced by the amount of stationarity of the studied variables. There are a few criteria to consider while selecting a statistical model. When all of the dependent and independent variables become stable at level form or I, we may employ a basic regression model and trust on the findings (0). The autoregressive distributed lag (ARDL) model may be employed if sections of your research variables become stable at various levels, such as order-zero or order-one.

When all of your variables become stable at the initial difference I, the VAR and ECM models are applicable (1).

According to the data stationarity findings reported in unit root test tables 1, variables in our study become stationary in two ways: some become stationary at the level form, while others become stationary after their initial difference is taken into consideration. When the difference form was converted to the second, there is no indication that any variables became stable. As a consequence, the study fits the data stationarity assumptions of the ARDL model.

• Autoregressive distributed lag (ARDL) model.

In both the short and long term, the ARDL model will be used to experimentally study the connection between the selected variables of interest. Other widely used methods to analyze long-run co-integration among variables, according to Ilyas et al. (2010), include the Johansen Juselius (1990), Engle and Granger (1987) tests, and maximum likelihood-based Johansen tests. Each of these models has its own assumptions and limitations in terms of data stationarity and other assumptions. Each of the statistical models covered previously has its own set of drawbacks. One of them is that when the sample size is small, the performance of these models is poor. The proposed Autoregressive distributed lag was chosen due to the short sample size and level of stationarity of the variables. The (ARDL) model overcomes some of the drawbacks of other regularly used techniques, such as sample size and stationarity. As a consequence, the ARDL model is deemed suitable for the current research.

Pesaran and Shin (1995) invented the autoregressive distributed lag (ARDL) model, and the properties of this model were further elucidated in 2001. This method offers three significant benefits over prior models. The first advantage of the ARDL model is that it can yield accurate findings whether the study variables are integrated in order one or order zero, as the model does not need that they be integrated in the same order. The ARDL model also has the advantage of producing reliable findings even when the sample size is small. The ARDL method's third benefit is that it produces objective results for estimating long-term models. Our study has a small sample size, with only a few people participating. There are 33 observations. The ARDL model will be the optimum model to employ to explore long-run Cointegration among the variables of interest since the variables are stationary at different levels, such as order-zero I(0) and order-one I(1). Before applying tests to examine short and long-run estimations, the Boundary test for Cointegration will be done.

• Model 1 Effect of GDP growth, Inflation, Interest Rate, Public Debt, Terms of Trade and Remittances on Exchange Rate

• Bounds test for co-integration

The Cointegration boundaries test is used to determine whether or not there is co-integration between the research variables. The ARDL limits test's null hypothesis states that there is no long-run link between variables.

H⁰: No long-run relationships exist

Test Statistic	Val	k
F-stat	5.545058	4

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.54	3.25
5%	2.68	4.10
2.5%	3.52	4.94
1%	3.47	5.60

Table 2: ARDL Bounds test

Table 2 shows the results of the boundaries test for co-integration. The null hypothesis of no long-run relationship is rejected if the F-statistics values are larger than the upper critical value constraints. The ARDL limits test will accept the null hypothesis when the resulting value of F-statistics is less than I0 bound values. If the projected F statistics value is between the I0 bound and I1 bound values, the test results will be deemed inconclusive.

The results of the boundaries tests show that the value of the F-statistics is 5.545058, showing that there are long-term associations between the variables because it is greater than the I1 limits values. As a consequence, we can rule out the null hypothesis of this test at a significance level of 1 percent.

•long-run Coefficients using the ARDL model

In this section of the study, the findings of the long-run Coefficients test utilizing the ARDL model will be discussed. The estimated test values indicate the existence of a long-run link between GDP IR, INFLATION TOT, PD, and REMITTANCES as defined by the boundaries test for Cointegration. The long-run impacts on dependent variables owing to changes in independent factors are explained in Table 3.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNGDP_G	0.887498	0.226006	3.926878	0.0006
LNIR	0.777112	0.206385	3.765351	0.0009
LNINF	-0.946587	0.300896	3.145894	0.0033
LNTOT	5.231218	1.252136	4.177835	0.0004
LN_PD	-0.564293	0.116733	4.834048	0.0002
LN_REMITTANCES	6.299350	1.440336	4.373528	0.0005
C	13.400115	24.825186	0.539779	0.6061

Table 3: Long Run Coefficients

Table 3 for the long-term coefficient empirically examines the influence of GDP growth on IR, INFLATION TOT, PD, and REMITTANCES. The results for long-run coefficients of independent variables, as well as their related t-statistics and probability diagnostics, are shown in the table above. Individual effects for return on assets will be examined using estimated coefficients and outcomes of explanatory factors.

Table 3 shows the outcome of a long-run connection between the variables. The results show that GDP, with a value of 0.887498 and a -val of 0.006, has a positive and significant impact on the exchange rate. The interest rate has a positive and significant impact on the exchange rate, according to the research, with a value of 0.777112 and a -val of 0.0009. The long-run coefficient test findings reveal that inflation has a negative and substantial relationship with the exchange rate, with a value of -0.946587 and a -val of 0.0033. With a value of 5.231218 and a -val of 0.0004, the TOT has a positive and substantial association with the exchange rate. With a -0.564293 score andThe test reveals that public debt has a negative and substantial influence on the exchange rate, with a -val of 0.0002. Remittances have a positive effect on the currency rate, according to the test.

Method: ARDL

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LN_ER(-1)	-1.011326	0.234078	-4.320465	0.0006
LNGDP_G	-0.720646	0.364600	-1.976539	0.0955
LNINF	-0.136125	0.041502	-3.279988	0.0168
LNINF(-1)	-0.101958	0.063760	-1.599073	0.1443
LNIR	0.442931	0.136688	3.240461	0.0177
LNTOT	-1.486265	0.391996	-3.791527	0.0091
LNTOT(-1)	-0.311575	0.287554	-1.083536	0.3067
LN_PD	0.350127	0.083522	4.192054	0.0023
Remittances	-0.742446	0.277753	-2.673046	0.0203
C	1.443089	1.416043	1.019100	0.3348
R ²	0.988349	Mean dependent var		4.426642
Adj R ²	0.977992	S.D. dependent var		0.291254
S.E. of regression	0.043208	AIC criterion		-3.138742
Sum squared resid	0.016802	Schwarz criterion		-2.693556
Log-likelihood	37.24868	Hannan-Quinn criteria.		-3.077357
F-statistic	95.43103	Durbin-Watson stat		2.317377
p-val(F-statistic)	0.000000			

Table 4: Dependent Variable: LN_ER

• Error Correction Representation of ARDL Model

Table 4 of error correction presents The exchange rate, GDP growth, IR, INF, TOT, PD, and remittances short-run relationships were studied. The ARDL co-integration form, which additionally shows the value for the error correction term, represents the short-run relationship of chosen variables. The short-run co-integration in the table below displays the results for the error correction model or speed of adjustment in the form of (CointEq-1).

Table 4 shows The findings were calculated using the ARDL Co-integrating form, which accounts for changing delays for dependent and independent variables. Shrestha and Bhatta claim that (2018), The current value of a variable can be calculated from its past values or a one-period lag value with certain adjustment factors, and time series data with autoregressive characteristics. The model in table 4 calculates the value of return on asset using two-period delays, meaning that the present value of the dependant variable is used. Two previous numbers, denoted as ER, can be used to estimate the exchange rate (1). Using long-run coefficients, other explanatory factors and their connections to the dependent variable are GDP, IR, INF, TOT, PD, and remittances.

How fast the variables will reach equilibrium in a dynamic model is determined by the result of the Cointegration equation or error correction term. Additionally, it shows how quickly a variable will move closer to the center. The value of the coefficient should be notably negative since the ECT or speed of adjustment value represents the amount of time it takes for a variable to return to equilibrium following a shock in the data series. The calculated model's coefficient for the error correction term has a consequent value of (-1.011326) and a probability value of 0.0006, showing a negative relationship and statistical significance for the -val. The typical value of the error-correction term's coefficient is given by Shrestha and Bhatta (2018) claim that their probability value must be statistically significant and less than -1. A

substantially significant CointEq (-1) value, according to Banerjee et al. (1998), denotes a stable and long-term relationship between the study's variables. Based on the ECT result, we may infer that the studied variables have a long-term link because the consequent value of the error correction term in table 3 is negatively signed and statistically significant.

Table 4 summarizes The R2 and Adj R2 values for the model are 0.9854 and 0.9705, respectively. The findings in the table indicate that the regression model has a good capacity for explanation. According to the modified R square value, changes in the independent variables (CGDP, IR, INF, TOT, PD, and Remittances) account for 0.97 (97%) of the variance in the exchange rate (dependent variable), leaving the remaining percentage of variation to be explained by factors outside the scope of the study. The adjusted R square value implies that predictor variables have high powers since changes in explanatory factors account for 94.05 percent of the change in return on assets.

The model is significant at the 1% level according to the F-statistics value of 95.43103 and the related probability value of 0.000%. The estimated model is sufficient for explaining fluctuation in the exchange rate, according to the computed likelihood of F-statistics, which shows that the model fulfills the goodness of fit criteria at a significance level of 1%. The Durbin-Watson value is used to evaluate the autocorrelation between the relevant variables. According to the requirements for the normal value of Durbin-Watson statistics, the expected value of the Durbin-Watson test (DWT) should be close to 2. Our findings' Durbin-Watson score of 2.317377 demonstrates that there is no autocorrelation among the variables examined.

• Model 2: The Effect of Exchange rate on Export, Imports and FDI

The results of the ADF test as shown in table 1 revealed that the Exchange rate, Exports, Imports, and FDI are integrated at a level, therefore according to Gujrati (2004) the study utilized the Least Square method for further analysis.

Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_EXPORT	5.603301	1.379999	4.060365	0.0005
LN_IMPORT	-0.964091	0.242634	-3.973431	0.0011
LN_FDI	-0.194966	0.064958	-3.001433	0.0085
C	-0.911741	1.235051	-0.738221	0.4711
R ²	0.804848	Mean dependent var		4.446389
Adj R ²	0.768257	S.D. dependent var		0.326446
S.E. of regression	0.157150	AIC Criteria		-0.686374
Sum squared resid	0.395139	Schwarz criterion		-0.487228
Log-likelihood	10.86374	Hannan-Quinn criteria.		-0.647499
F-statistic	21.99583	Durbin-Watson stat		2.098083
Prob(F-statistic)	0.000006			

Table 5: Dependent Variable: LN_ER

The results of the Least square model as shown in table 4 revealed that Exports have a positive and significant influence on the exchange rate with a value of 5.603301 with a p-val of 0.0005. The results also display that Imports has a negative and significant association with the exchange rate. -0.964091 with a p-val of 0.0011. The results also illustrate that FDI has a negative and significant influence on the exchange rate with a value of -0.911741 with a p-val of 0.0085.

The model is summarized in Table 4, which shows the R^2 and Adj R^2 values of 0.8048 and 0.7682, respectively. The results in the table indicate that the regression model has high explanatory power. Changes in the independent variables (export, imports, and FDI) explain 0.7682 (76.82 percent) of the variance in the exchange rate (dependent variable), leaving the remaining percentage of variation to be accounted for by variables not included in the study.

The model's F-statistics value is 21.99583, and the related probability value is 0.000%, indicating that it is significant at the 1% level. At a significance level of 1%, the calculated probability of F-statistics shows that the model meets the goodness of fit criterion, meaning that the estimated model is appropriate for explaining exchange rate volatility. The Durbin- Watson value is used to determine whether or not the variables of interest are auto correlated. According to the requirements for normal Durbin-Watson statistics, the expected value of the DWT should be close to 2. Our Durbin-Watson value is 2.098083, indicating that there is no autocorrelation among the variables analyzed.

•Model 3: The Effect of GDP on Export. Imports and FDI, Private Investment, Human Capital and Government Spending's

The results of the ADF test as shown in table 1 revealed that **GDP on exports, Imports and FDI, Private Investment, Human Capital, and Government spending** are integrated at a level, therefore according to Gujrati (2004), the study utilized the Least Square method for further analysis.

Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_PI	1.314222	0.203812	6.448207	0.0000
LN_FDI	1.364135	0.423121	3.223983	0.0028
LN_EXPORT	1.445065	0.330811	4.368249	0.0002
LN_IMPORT	-3.426148	0.908897	3.769566	0.0009
LN_HC	2.450234	0.442948	5.531651	0.0000
LN_GS	6.506215	1.818621	3.577554	0.0013
C	25.56950	9.652940	2.648882	0.1179
R-squared	0.991975	Mean dependent var		16.31969
Adjusted R-squared	0.967901	S.D. dependent var		0.793760
S.E. of regression	0.142211	Akaike info criterion		-1.011529
Sum squared resid	0.040448	Schwarz criterion		-0.858132
Log-likelihood	11.55188	Hannan-Quinn criteria.		-1.342559
F-statistic	41.20504	Durbin-Watson stat		2.181183
Prob(F-statistic)	0.023881			

Table 6: Dependent Variable: LN_GDP

With a value of 1.314222 and a p-val of 0.0000, the least square methods revealed that PI had a positive and significant effect. With a score of 1.364125 and a p-val of 0.0028, the results show that FDI has a positive influence on GDP. Exports had a positive influence on GDP, with a value of 1.445065 and a p-val of 0.0002, according to the results of the least square test. The test likewise revealed that imports have a negative impact on GDP, with a value of -3.426148 and a p-val of 0.0009. The findings of the least square methods revealed that HC has a positive relationship with GDP, with a value of 2.450234 and a p-val of 0.0000. With a value of 6.506215 and a p-val of 0.0013, GS has a positive influence on GDP.

Table 6 displays the model's R2 and Adj R2 scores, which are 0.9919 and 0.9676, respectively. The regression model has a high amount of explanatory power, as seen in the table. Changes in the independent variables (exports, imports, and FDI, as well as HC, GS, and PI) explain 0.9676 (96.76 percent) of the variance in GDP (the dependent variable), leaving the remaining percentage of variation to be explained by factors not explored.

The F-statistics value for the model is 41.20504, and the probability value is 0.023881 percent, indicating that it is significant at the 1% level. The calculated probability of F-statistics demonstrates that the model meets the goodness of fit requirement at a significance level of 1%, indicating that the estimated model is acceptable for explaining GDP. The Durbin-Watson value is used to see if the variables of interest are auto-linked or not. The expected value of the DWT should be close to 2 according to the parameters for normal Durbin-Watson statistics. Our Durbin-Watson value is 2.181183, indicating that the variables studied have no autocorrelation.

• Model 4: Effect of GDP on National Income and National Savings

The results of the ADF test as shown in table 1 revealed that **GDP on National Income and National Savings** are integrated at level, therefore according to Gujrati (2004) the study utilized the Least Square method for further analysis.

Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_NI	1.194291	0.051980	22.97608	0.0000
LN_NS	0.826198	0.303689	2.720543	0.0145
C	15.89119	1.058315	15.01557	0.0000
R-squared	0.969878	Mean dependent var		16.50875
Adjusted R-squared	0.966334	S.D. dependent var		0.735312
S.E. of regression	0.134917	Akaike info criterion		-1.030838
Sum squared resid	0.309443	Schwarz criterion		-0.881478
Log-likelihood	13.30838	Hannan-Quinn criteria.		-1.001681
F-statistic	273.6863	Durbin-Watson stat		2.001062
Prob(F-statistic)	0.000000			

Table 7: Dependent Variable: LN_GDP

Table 7 displays the outcomes of the least squares methods. The findings demonstrate that NI and GDP have a positive and substantial association, with a value of 0.969878 and a -val of 0.0000. The results show that NS has a positive impact on GDP as well, with a value of 0.826198 and a -val of 0.0145.

The R^2 and Adj R^2 values for the model are 0.969878 and 0.966334, respectively, as shown in Table 7. The regression model has a high amount of explanatory power, as seen in the table. Changes in the independent variables (National Income and National Savings) account for 0.966334 (96.6334 percent) of the variance in the GDP (dependent variable), leaving the rest to be explained by variables not explored.

The model's probability value is 0.0000 percent and F-statistics value is 273.6863, indicating that it is statistically significant at the 1% level. The estimated model is suitable for explaining GDP, according to the computed likelihood of F-statistics, which indicates that the model fulfills the goodness of fit criteria at a significance level of 1%. To ascertain if the variables of interest are auto-related, the Durbin-Watson value is utilized. The projected value of the DWT should be close to 2 according to the criteria for typical Durbin-Watson statistics. There is no autocorrelation among the variables we investigated, according to our Durbin-Watson score of 2.001062.

• Model 5: Effect of Exchange Rate on Foreign Portfolio Investment

The results of the ADF test as shown in table 1 revealed that **Exchange Rate on FPI** are integrated at level, therefore according to Gujarati (2004) the study utilized the Least Square method for further analysis.

Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_FPI	0.759540	0.148917	5.100420	0.0001
C	2.109362	0.460706	4.578543	0.0002
R-squared	0.591042	Mean dependent var		4.446389
Adjusted R-squared	0.568322	S.D. dependent var		0.326446
S.E. of regression	0.214482	Akaike info criterion		0.146539
Sum squared resid	0.828049	Schwarz criterion		0.046965
Log-likelihood	3.465387	Hannan-Quinn criteria.		0.127101
F-statistic	26.01429	Durbin-Watson stat		2.293074
Prob(F-statistic)	0.000075			

Table 8: Dependent Variable: LN_ER

The results of the least square approach revealed that FPI has a positive and significant association with ER with the value of 0.759540 with a p-val of 0.0001.

The R^2 and Adj R^2 values for the model are 0.591042 and 0.568322, respectively, as shown in Table 7. The regression model has a high amount of explanatory power, as seen in the table. Changes in the independent variables (FPI) account for 0.568322 (56.8322percent) of the variance in the Exchange Rate (dependent variable), leaving the rest to be explained by variables not explored.

The F-statistics value for the model is 26.01429, and the probability value is 0.0000 percent, indicating that it is statistically significant at the 1% level. The calculated probability of F-statistics demonstrates that the model meets the goodness of fit criteria at a significance level of 1%, indicating that the estimated model is acceptable for explaining the exchange rate. To establish whether or whether the variables of interest are

auto-linked, the Durbin-Watson value is utilized. The expected value of the DWT should be close to 2 according to the parameters for typical Durbin-Watson statistics. Our Durbin-Watson value is 2.293074, indicating that the variables evaluated have no autocorrelation.

•Model 6: Effect of Foreign Portfolio Investment, National Savings, and National Income on Stock Market Return

Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_FPI	0.284864	0.068776	4.141909	0.0008
LN_NS	0.843564	0.079754	10.577074	0.0000
LN_NI	3.039655	0.967629	3.141343	0.0067
C	4.409302	3.336377	1.321584	0.4124
R-squared	0.991192	Mean dependent var		7.798872
Adjusted R-squared	0.964769	S.D. dependent var		0.417294
S.E. of regression	0.078326	Akaike info criterion		2.265315
Sum squared resid	0.006135	Schwarz criterion		2.577765
Log-likelihood	9.663287	Hannan-Quinn criteria.		3.103899
F-statistic	37.51202	Durbin-Watson stat		2.835809
Prob(F-statistic)	0.000078			

Table 9: Dependent Variable: LN_SMR

Table 8 summarized the outcomes of the least squares method. The methodology's outcomes showed that FPI, with a value of 0.284864 and a -val of 0.0008, significantly positively influences SMR. The method also reveals a substantial and positive correlation between NI and SMR, with a value of 0.843564 and a p-value of 0.0000. The study's findings also demonstrate that, with a value of 3.039655 and a -val of 0.0067, NI has a positive and substantial impact on SMR.

The R2 and Adj R2 values for the model are 0.991192 and 0.964769, respectively, as shown in Table 9. The regression model has a lot of explanatory power, as demonstrated in the table. The variation in the stock market return (the dependent variable) can be explained by changes in the independent variables (NI, NS, and FPI) to the extent that they account for 0.964769 (96.4769%) of the variance.

The model is statistically significant at the 1% level with an F-statistics value of 37.51202 and a probability value of 0.0000 percent. The estimated model is suitable for describing the exchange rate, according to the computed likelihood of F-statistics, which indicates that the model fulfills the goodness of fit requirement at a significance level of 1%. To establish whether or not the variables of interest are auto-linked, the Durbin-Watson value is utilized.

The predicted value of the DWT should be close to 2 if the assumptions for typical Durbin-Watson statistics are correct. Our Durbin-Watson result of 2.835809 demonstrates that the variables under investigation do not autocorrelate.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

A. Introduction

The study's summary is presented in this chapter, followed by conclusions and recommendations. The study's overall results are summed up in the conclusion section. While the study's suggestions are included in the recommendations section.

B. Summary

- The study employed time-series data, where first performed a unit root analysis of the three parameters to confirm that they are stable or non-stationary, and then chose an acceptable measure of estimate. The study's empirical analysis is predicated on the premise that the data series is devoid of stationarity problems, hence unit root tests are used to determine whether stationarity concerns exist in the variables being studied. The stationarity of the analysed variables was tested using the Augmented Dickey-fuller (ADF) test.
- The result of the ADF test revealed that ER is integrated at a level with a value of -3.740837 and a p-val of 0.0000. The test also revealed that EXP is integrated at a level with the value of -6.588337 and with a p-val of 0.0000. The ADF test displays that FDI is integrated at a level with a value of -4.590736 with a p-val of 0.0004.
- The test also illustrates that FPI is stationary at a level with the value of -5.603217 with a p-val of 0.0035. The ADF test shows that GDP is stationary at 1st difference with the value of -4.445656 with a p-val of 0.0020. The test also revealed that GS is integrated at a level with the value of -6.044891 and with a p-val of 0.0000.
- The test results revealed that IMPO is stationary at 1st difference with the value of -6.238591 with the p-val of 0.0000. The ADF test revealed that HC is integrated at 1st difference with the value of --6.238591 with the p-val of 0.0000. The result of the ADF test displays that PD is stationary at a level with the value of -4.178791 and with a p-val of 0.0000. The result of the ADF test shows that remittances are integrated at a level with the value of -8.897654 with the p-val of 0.0000. The ADF test results indicate that TOT is integrated at LEVEL with a value of -2.731975 and a p-val of 0.0872.
- The ADF test indicates that SMR is integrated at a level with a value of -5.896040 and a p-val of 0.0000. GDP GROWTH is integrated at the first difference, according to the ADF test, with a value of -3.585405 and a p-val of 0.0181. With a score of -4.522600 and a p-val of 0.0026, the ADF test likewise confirmed that INF is integrated at the first difference. With a score of -3.799805 and a p-val of 0.0112, the ADF test shows that INR is integrated at the first difference. With a value of -4.120050 and a p-val of 0.0059, NS is likewise integrated at the level. The result of the ADF test shows that NI is integrated at a level with the value of -2.918998 with a p-val of 0.0627.

C. Conclusions

For capturing the impact of Exchange rates on returns in share market: A case of Pakistan, a theory based model, consisting of six sub-models was planned with intention to estimate through SEM/Recursive model: since the study's empirical analysis is predicated on the premise that the data series is devoid of stationarity problems, Therefore, unit root tests are utilized to ascertain whether stationarity issues with the variables under investigation exist. The Augmented Dickey-fuller (ADF) test was used to determine if the variables under analysis were stationary. Except for human capital, government savings, GDP growth, inflation, and interest rates, most variables were identified at level I(0) (1). Because some of the study's variables were discovered at various levels, such as order-zero or order-one, the autoregressive distributed lag (ARDL) model was utilized. The link between the chosen variables of interest in the short and long runs was empirically investigated using the ARDL model. The Johansen Juselius (1990), Engle and Granger (1987), and maximum likelihood-based Johansen tests are further commonly used techniques for examining Each of

these models has its own limitations and assumptions, such as data stationarity. For the current investigation, the ARDL model is deemed suitable.

- **Model-1:** The result of a long-run relationship between Table 3 provides estimates for the factors. The results show that GDP, with a value of 0.887498 and a -val of 0.006, has a positive and significant impact on the exchange rate. The results also revealed that the interest rate, with a value of 0.777112 and a -val of 0.0009, has a positive and significant impact on the exchange rate. The long-run coefficient test findings reveal that inflation has a negative and substantial relationship with the exchange rate, with a value of -0.946587 and a -val of 0.0033. With a value of 5.231218 and a -val of 0.0004, the TOT has a considerable and positive association with the exchange rate. The test results reveal a score of -0.564293 and a -val of 0.0002.that the exchange rate is negatively and significantly impacted by state debt. Remittances have a positive effect on the currency rate, according to the test.
- **Model-2:** The results of Exports have a positive and substantial impact on the exchange rate, according to the Least Squares model, as shown in table 4, with a value of 5.603301 and a -val of 0.0005. The findings also show a negative and substantial correlation between imports and the currency rate. -0.964091, 0.0011 for the -val With a value of -0.911741 and a -val of 0.0085, the data further demonstrate that FDI has a strong negative impact on the exchange rate.
- **Model-3:** With a value of 1.314222 and a p-val of 0.0000, Least square techniques demonstrated that PI had a favorable and substantial impact. The data demonstrate that FDI positively affects GDP with a score of 1.364125 and a -val of 0.0028. The findings of the least square test showed that exports had a positive impact on GDP with a value of 1.445065 and a -val of 0.0002. With a result of -3.426148 and a -val of 0.0009, the test also demonstrated that imports had a detrimental effect on GDP. The results of the least square techniques showed that, with a value of 2.450234 and a -val of 0.0000, HC has a positive connection with GDP. GS has a positive impact on GDP with a value of 6.506215 and a -val of 0.0013.
- **Model-4:** The results of Table 7 displays the least squares methods. The findings demonstrate that NI and GDP have a positive and substantial association, with a value of 0.969878 and a -val of 0.0000. The results show that NS has a positive impact on GDP as well, with a value of 0.826198 and a -val of 0.0145.
- **Model-5:** The results of the least square approach revealed that FPI has a positive and significant association with ER with the value of 0.759540 with a p-val of 0.0001.
- **Model-6:**the results of the least-squares method The methodology's outcomes showed that FPI, with a value of 0.284864 and a -val of 0.0008, significantly positively influences SMR. The method also reveals a substantial and positive correlation between NI and SMR, with a value of 0.843564 and a p-value of 0.0000. The study's findings also demonstrate that, with a value of 3.039655 and a -val of 0.0067, NI has a positive and substantial impact on SMR.

D. Recommendations

- The findings of this study have some significant policy repercussions. First, the exchange rate contains certain important data that may be used to predict stock market performance and returns. In order to maintain a healthy exchange rate, the Central Bank of Pakistan (CBP) should make an effort.
- The future scholars can include gold rate and terrorism to catch the association with stock market returns. This study can also be applied in other countries and time periods to check its rationality. The data can also be taken for larger sample sizes to upsurge the generalizability of the outcomes.
- This study might help the investors to take better decisions by a
- country's stock market's movements as well as the exchange rate of the relevant nation should be taken into consideration.

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