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

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ABSTRACT

The study focused on appraising the influence of exchange rates on returns in the share market: a case of Pakistan. Time-series data spanning 36 years (1980 to 2016) was utilized. To capture the impact of exchange rates on returns in the share market, a theory-based model consisting of six sub-models was planned and estimated through the recursive simultaneous-equations econometric estimation technique. As the data was time series, augmented Dickey-Fuller (ADF) tests were employed to assess the stationarity of the considered variables. The autoregressive distributed lag (ARDL) model was chosen due to some variables being found at different levels, such as me (0) and I (1). Bounds tests in the conclusion declared that the value of F-statistics expressed long-run associations among variables. The results revealed that share market returns were positively influenced by the exchange rate. The model also indicated that share market returns were significantly influenced by Foreign Portfolio Investment (FPI). Furthermore, National Savings (NS) demonstrated a positive and significant association with share market returns (SMR). The study's outcomes also illustrated that National Income (NI) had a positive and significant influence on SMR. The study encompassed well-expanded details and estimation techniques of various models and measures required in this type of research, especially when utilizing time-series data. Based on research findings, it was suggested that potential researchers reproduce this research to achieve a better and relatively well-conceived, well-estimated model on the topic. Additionally, it was recommended that public and private sector planners and researchers seek guidance not only on statistically significant exogenous variables but also on other explanatory variables for their effects on the endogenous variables.

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

I. INTRODUCTION

Various macroeconomic factors have been identified as significant influencers of stock prices and company market value, with exchange rates emerging as one of the most crucial (Maheen, 2013). Likewise, alterations in exchange rates exert an impact on foreign portfolio investment (FPI). While FPI does not directly affect the share market, returns in the share market can be influenced by various other factors, including predicted exchange rates. Several studies have explored the impact of exchange rates on share market returns. Using the traditional technique of Co-integration, Alam (2020) attempted to analyze the relationship between share market returns and exchange rates but found no significant association between the two variables. Similar results were reported by Maheen (2013), who observed independence between the two variables. Consequently, numerous research studies have investigated the influence of exchange rates on share market returns, with Maheen's (2013) Asset Market Approach revealing weak associations due to other predetermined variables affected by exogenous factors rather than econometrics/regression theory. In their evaluation of stock prices and India's

ISSN: 2583-4053

Volume-2 Issue-6 || December 2023 || PP. 156-164

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financial sector, Bhattacharya and Mukherjee (2001) discovered a negligible association between exchange rates and share market returns. Similarly, Pervaiz et al. (2018) found that exchange rates and other macro factors affected Kenya's stock market returns, with the exchange rate demonstrating an unfavorable relationship with the Nairobi Stock Exchange (NSE). Recent research has indicated favorable correlations between the outcomes of the two variables in the short run, attributing this to the usual strategy, while revealing little positive correlation in the long run. The classic method suggests a positive association between exchange rates and stock market returns, demonstrating causation from exchange rates to the stock market. Moreover, as domestic currency depreciates, local businesses become more competitive, leading to a positive relationship between exchange rates and share prices, stimulating increased exports and subsequent stock price rises. Recent studies have acknowledged the use of structural equation models (SMEs), incorporating multiple dependent variable equations (Maxim & Ashif, 2017). Rehman (2019) employed a 36-year time-series dataset spanning 1980 to 2016 in a study on Pakistan, aiming to comprehend the influence of interest rates and currency rates on the Pakistani economy. A theory-based model with eight sub-models was utilized, estimated through the Recursive Simultaneous-equations econometric estimation technique to analyze the impacts of interest rates and exchange rates on Pakistan's GDP.

However, the estimation model yielded partial results. Financial theories such as APT and Asset Portfolio Balance explain how exchange rates and interest rates significantly influence share market returns. Fluctuations in currency rates impact company values, and foreign direct investment, a critical component of share prices in Pakistan, can be drastically affected by exchange rate changes. The utility of structural equation models (SMEs) has been acknowledged in recent studies, incorporating multiple dependent variable equations (Maxim & Ashif, 2017). Rehman (2019) utilized a 36-year timeframe to investigate the influence of interest rates and currency rates on the Pakistani economy. Similarly, the Portfolio Balance Approach indicates an inverse relationship between the local and foreign currencies when the local currency appreciates against the foreign currency. Exchange rates, more impulsive than prices, serve as indicators of changes in the relative prices of imported items. This variation hampers foreign demand for domestic goods and domestic demand for imports, influencing a country's export and import dynamics. While numerous research projects have analyzed the influence of macro variables on share market results in various contexts, the quantity of studies in Pakistan remains limited. Therefore, the primary objective of this study is to examine the influence of exchange rates on share market returns in Pakistan's Karachi Stock Exchange.

II. PROBLEM STATEMENT

The stock exchange serves as a pivotal platform for investors to efficiently engage in the liquidation or investment in securities (Monther and Kaothar, 2010). In the realm of modern financial theory, there has been a concentrated focus on systematic risks, notably exchange rates, inflation, and interest rates, among other factors, as fundamental sources of risk. This emphasis suggests that, over the long term, the returns on individual assets are reflective of the impact of systematic economic fundamentals. The significance of elucidating these relationships for investors cannot be overstated, as the risks faced by investors are intricately linked to the dynamic values of these economic factors.

While numerous studies have been conducted in the past to examine the influence of exchange rates on share market returns, the scope of such investigations in the context of Pakistan is notably limited. Therefore, the primary aim of this study is to scrutinize the impact of exchange rates on share market returns within the context of KSE-100 in Pakistan. Employing the simultaneous-equations/Structural Equations Model (SEM), this research endeavors to comprehensively analyze the influence of exchange rates on various facets of the share market, including share prices, share returns, and firms' market value. This analytical pursuit is guided by the delineated research questions and objectives, as follows:

III. RESEARCH OBJECTIVES

1. To meticulously evaluate and dissect the impact of Exchange rates on Share Market returns within the ambit of the KSE-100 Index in Pakistan.
2. To systematically assess and scrutinize the influence of National Income on Share Market returns, specifically concerning the KSE-100 Index in Pakistan.
3. To methodically examine and analyze the effect of Foreign Portfolio Investment on Share Market returns, focusing on the KSE-100 Index in Pakistan.
4. To thoroughly investigate and comprehend the influence of Savings on Share Market returns, particularly in the context of the KSE-100 Index in Pakistan.
5. To construct a comprehensive simultaneous/Structural Equations Model (SEM) capable of capturing the intricate interplay between the aforementioned economic variables and their impact on Share Market returns.

IV. RESEARCH QUESTIONS

1. How does the Exchange rate exert influence on Stock returns within the KSE-100 Index in Pakistan?
2. What is the nature of the influence of National Income on Stock returns within the KSE-100 Index in Pakistan?
3. In what manner does Foreign Portfolio Investment impact Stock returns within the KSE-100 Index in Pakistan?

ISSN: 2583-4053
Volume-2 Issue-6 || December 2023 || PP. 156-164
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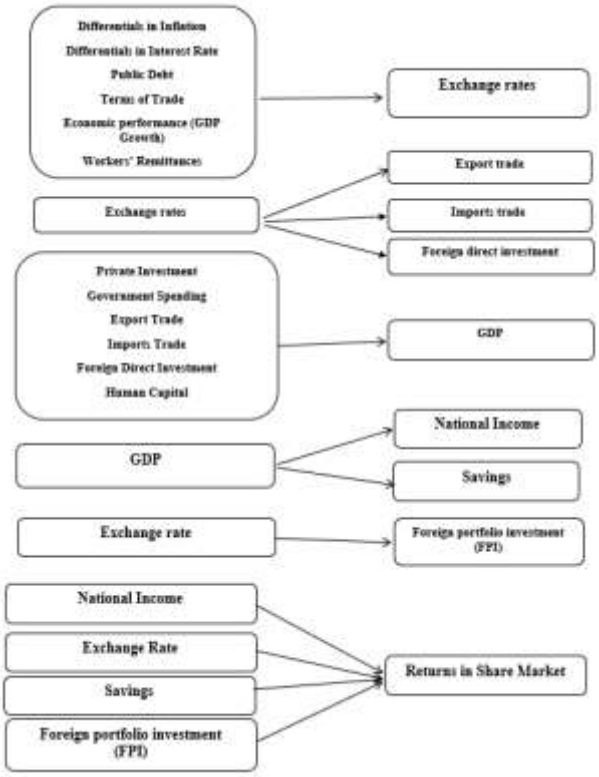
4. How does the factor of Savings contribute to the dynamics of Stock returns within the KSE-100 Index in Pakistan?

V. CONCEPTUAL FRAMEWORK

Based on the aforementioned 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.



VI. RESEARCH METHODOLOGY

Research Design

Research design, as per Cooper and Schindler (2003), denotes the strategic selection of data sources and the methodology for gathering and incorporating information into the study Jamali, A. (2023). It establishes the connection between research variables and the study's core topic. Raza and Fatima's (2016) study on macroeconomic variables and their impact on exchange rates, using OLS regression and Granger Causality Tests, is an illustrative precedent.

Research Type

This study employs a quantitative approach, utilizing time-series data analysis spanning 1980-2016. The research focuses on the entire population, omitting sample-based methodologies, and categorizes as a quantitative inquiry due to its numerical nature.

Data and Data Collection (Sources)

Utilizing secondary data, this research spans a 26-year period (1980 to 2016) and exclusively employs annual time-series data. Data sources include the Pakistan Stock Exchange, State Bank of Pakistan, World Development Indicator (WDI), and others, encompassing variables like GDP, FPI, FDI, inflation rate, interest rate, and returns on investment.

Data Analysis

The study employs Views for quantitative analysis, featuring regression and correlation analyses to assess the impact of exchange rates on share market returns. The Simultaneous Equation/Structural Model (SEM)/Recursive Model technique is applied to elucidate data patterns before summarizing them, employing a sequential evaluation of endogenous variables.

Simultaneous Equation/Structural Model (SEM)/Recursive Model Technique

This technique involves a sequential equation method, where endogenous variables are evaluated one by one. The system's structure illustrates a one-way relationship among endogenous variables, distinguishing it as a "diagonally recursive" model. The proposed regression/econometric model incorporates various macroeconomic variables, demonstrating the intricate interplay among factors influencing the exchange rate, GDP, and share market returns.

The researcher considers the exchange rate as a predetermined variable affected by both predetermined and exogenous factors. The SEM/Recursive model is utilized for estimation, supplemented by unit roots analysis to account for potential integration complexities within the time-series data.

Unit Root Analysis:

This research empirically examines the assumption that the data series are free of stationarity issues. Unit Root Tests were conducted to ascertain the presence of stationarity issues in the variables under consideration, utilizing the Augmented Dickey-Fuller (ADF) test. Stationarity is a critical aspect in time series data analysis, where stable data series simplify analysis, assuming that the series' mean and variance remain consistent over time.

Table 1: Unit Root Test at level

Variables	At level	Probability	At 1st Difference)	Probability	Integration Level
ER	-3.740837	0.0000			I(0)
EXP	-6.588337	0.0000			I(0)

ISSN: 2583-4053
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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 presents the results of the Unit Root Test at the level for various variables, indicating their integration levels.

The ADF test results indicate the integration status of various variables. Exchange rates (ER) are integrated at a level with a value of -3.740837 and a p-value of 0.0000. Similarly, exports (EXP) exhibit integration at a level with a value of -6.588337 and a p-value of 0.0000. Foreign Direct Investment (FDI) is integrated at a level, evidenced by a value of -4.590736 and a p-value of 0.0004. Foreign Portfolio Investment (FPI) is stationary at a level, as indicated by a value of -5.603217 and a p-value of 0.0035.

Gross Domestic Product (GDP) is stationary at the first difference, with a value of -4.445656 and a p-value of 0.0020. Government Savings (GS) exhibit integration at a level, with a value of -6.044891 and a p-value of 0.0000. Import Trade (IMPO) is stationary at the first difference, reflected by a value of -6.238591 and a p-value of 0.0000. Human Capital (HC) is integrated at the first difference, with a value of -6.238591 and a p-value of 0.0000.

Public Debt (PD) is stationary at a level, with a value of -4.178791 and a p-value of 0.0000. Remittances demonstrate integration at a level, evidenced by a value of -8.897654 and a p-value of 0.0000. Terms of Trade (TOT) are integrated at the level, with a value of -2.731975 and a p-value of 0.0872. Stock Market Return (SMR) is integrated at a level, as indicated by a value of -5.896040 and a p-value of 0.0000.

GDP Growth is integrated at the first difference, with a value of -3.585405 and a p-value of 0.0181. Inflation Rate (INF) is integrated at the first difference, supported by a value of -4.522600 and a p-value of 0.0026. Import Rate (INR) is integrated at the first difference, with a value of -3.799805 and a p-value of 0.0112. National Savings (NS) are integrated at the level, reflecting a value of -4.120050 and a p-value of 0.0059. Lastly, National Income (NI) is integrated at a level, with a value of -2.918998 and a p-value of 0.0627.

Model 1: Impact of GDP Growth, Inflation, Interest Rate, Public Debt, Terms of Trade, and Remittances on Exchange Rate

Bounds Test for Co-integration:

The Co-integration bounds test is employed to ascertain the presence of co-integration among the research variables. The null hypothesis, according to the ARDL test, posits no long-run association among variables.

Table 2: ARDL Bounds Test

H^0: No Long-Run Relationship Exist

Test Statistics	**Val**	**K**
F-stat	5.545058	4

Critical Value Bounds

Significance	**I0 Bound**	**II Bound**
10%	2.54	3.25

ISSN: 2583-4053
Volume-2 Issue-6 || December 2023 || PP. 156-164
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5%	2.68	4.10
2.5%	3.52	4.94
1%	3.47	5.60

Table 2 presented the outcomes of the bounds test for co-integration. The null hypothesis of no long-run relationship is rejected if the F-Statistics values exceed the specified value constraints. The ARDL bounds test will accept the null hypothesis if the F-statistics value falls below the I0 bound values. The test results are deemed inconclusive if the estimated F-statistics value lies between I0 bound and I1 bound.

The results of the bounds test indicate an F-statistics value of 5.545058, surpassing the I1 bounds values. Consequently, the null hypothesis of no long-run relationship is rejected at a significance level of 1 percent.

Long-Run Coefficients Using the ARDL Model:

In this section, the study delves into the findings of the long-run coefficients test employing the ARDL model. The estimated test values affirm the existence of a long-run link among GDP, Interest Rate, Inflation, Terms of Trade, Public Debt, and Remittances, as identified by the boundaries test for co-integration. The long-run impacts on dependent variables due to changes in independent factors are explicated in Table 3.

Table 3: Long-Run Coefficients

Table 3	**Long-Run Coefficients**			
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 represented the empirically examined the long-term coefficients' impact on Exchange Rate (ER). Results demonstrate the influence of GDP Growth, Interest Rate (IR), Inflation (INF), Terms of Trade (TOT), Public Debt (PD), and Remittances. The coefficients, standard errors, t-statistics, and probability diagnostics are provided.

The findings in table 3 revealed the significant long-term associations. GDP exhibits a positive and substantial impact on the exchange rate ($p = 0.0006$), while the interest rate also positively influences the exchange rate significantly ($p = 0.0009$). In contrast, inflation shows a negative and substantial relationship with the exchange rate ($p = 0.0033$). The Terms of Trade (TOT) have a positive and significant association with the exchange rate ($p = 0.0004$). Public Debt (PD) displays a negative impact on the exchange rate with statistical significance ($p = 0.0002$), while Remittances positively influence the exchange rate significantly ($p = 0.0005$).

Table 4: Error Correction Representation of ARDL Model

Table 4	**Dependent Variable: LN_ER**			
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

ISSN: 2583-4053
Volume-2 Issue-6 || December 2023 || PP. 156-164
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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
ƿ-val(F-statistic)	0.000000			

Table 4 represents the results of the short-run relationship using the ARDL model. The coefficients, standard errors, t-statistics, and probability diagnostics are provided. The error correction term is also included, indicating the speed of adjustment.

The error correction term coefficient, with a value of -1.011326 and a probability of 0.0006, indicates a significant negative relationship. This suggests a stable and long-term association between the variables, as per Banerjee et al. (1998). The R2 and Adj R2 values for the model are 0.9883 and 0.9780, respectively, indicating a strong explanatory capacity. The F-statistic of 95.43103 with a probability value of 0.000% confirms the model's significance, and the Durbin-Watson value of 2.317377 suggests no autocorrelation among the variables examined.

Table 5: Regression Analysis for Exchange Rate Dynamics

Table 5 Dependent Variable: LN_ER Method: OLS				
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 represented the results of the Ordinary Least Squares (OLS) model for Exchange Rate (ER). Coefficients, standard errors, t-statistics, and probabilities are reported. The R2 and Adj R2 values are 0.8048 and 0.7682, respectively, demonstrating high explanatory power.

The results indicate that Exports have a positive and significant influence on the exchange rate (Coefficient = 5.603301, Prob. = 0.0005). Conversely, Imports exhibit a negative and significant association with the exchange rate (Coefficient = -0.964091, Prob. = 0.0011). FDI demonstrates a negative and significant impact on the exchange rate (Coefficient = -0.194966, Prob. = 0.0085). The model is statistically significant with an F-statistic value of 21.99583 (Prob. = 0.000%), affirming its appropriateness in explaining exchange rate volatility. The Durbin-Watson value of 2.098083 indicates no autocorrelation among analyzed variables.

Model 3: Effect of GDP on Export, Import, FDI, Private Investment, Human Capital, and Government Spending

Table 6 Dependent Variable: LN_GDP 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**

ISSN: 2583-4053
Volume-2 Issue-6 || December 2023 || PP. 156-164
https://doi.org/10.55544/jrasb.2.6.23

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 summarized the Least Squares model results for the effect of GDP on Export, Import, FDI, Private Investment (PI), Human Capital (HC), and Government Spending (GS). Coefficients, standard errors, t-statistics, and probabilities are reported. The R2 and Adj R2 values are 0.9919 and 0.9676, respectively, indicating strong explanatory power.

The findings revealed positive and significant effects: PI (Prob. = 0.0000), FDI (Prob. = 0.0028), Export (Prob. = 0.0002), HC (Prob. = 0.0000), and GS (Prob. = 0.0013). Import negatively impacts GDP significantly (Prob. = 0.0009). The model is highly significant (F-statistic = 41.20504, Prob. = 0.023881%), and the Durbin-Watson value of 2.181183 suggests no autocorrelation. The model successfully explains 96.76% of GDP variance, meeting goodness-of-fit criteria.

Table 7 Dependent Variable: LN_GDP				
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-Statistics	273.6863	Durbin-Watson stat		2.001062
Probability(f-statistic)	0.000000			

Table 7 presents the outcomes of the Least Squares method examining the impact of National Income (NI) and National Savings (NS) on Gross Domestic Product (GDP). NI and NS both exhibit a positive and significant association with GDP, with coefficients of 1.194291 (Prob. = 0.0000) and 0.826198 (Prob. = 0.0145), respectively. The model demonstrates high explanatory power with R2 and Adj R2 values of 0.969878 and 0.966334, respectively, explaining 96.6334% of the GDP variance.

The model is statistically significant at the 1% level (F-statistic = 273.6863, Prob. = 0.0000), indicating its appropriateness in explaining GDP. The Durbin-Watson value of 2.001062 suggests no autocorrelation among the variables analyzed.

Table 8: Relationship between Exchange Rate and Foreign Portfolio Investment

Table 8 Dependent Variable: LN_ER				
Method: Least Squares				

ISSN: 2583-4053
Volume-2 Issue-6 || December 2023 || PP. 156-164
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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 summarizes the Least Squares results for the relationship between Exchange Rate (ER) and Foreign Portfolio Investment (FPI). FPI has a positive and significant association with ER (Coefficient = 0.759540, Prob. = 0.0001). The model demonstrates explanatory power with R2 and Adj R2 values of 0.591042 and 0.568322, respectively, explaining 56.8322% of the ER variance.

The model is statistically significant at the 1% level (F-statistic = 26.01429, Prob. = 0.000075), indicating its adequacy in explaining the exchange rate. The Durbin-Watson value of 2.293074 suggests no autocorrelation among the variables studied.

Table 9: Determinants of Stock Market Return

Table 9 Dependent Variable: LN_SMR				
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
LN_ER	0.308797	0.149957	2.059236	0.0034
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		2.435809
Prob(F-statistic)	0.000078			

Table 9 details the Least Squares analysis for the determinants of Stock Market Return (SMR). Foreign Portfolio Investment (FPI), National Savings (NS), National Income (NI), and Exchange Rate (ER) all show significant positive associations with SMR. The model exhibits high explanatory power with R2 and Adj R2 values of 0.991192 and 0.964769, respectively, explaining 96.4769% of the SMR variance.

The model is statistically significant at the 1% level (F-statistic = 37.51202, Prob. = 0.000078), indicating its suitability in explaining SMR. The Durbin-Watson value of 2.435809 suggests no autocorrelation among the variables under examination.

VII. CONCLUSION

In this study, we aimed to assess the impact of exchange rates on stock market returns in Pakistan using a theory-based model comprised of six sub-models estimated through Structural Equation Modeling (SEM)/Recursive model. Our empirical analysis assumed data series devoid of stationarity problems, substantiated through unit root tests, primarily the Augmented Dickey-Fuller (ADF) test. Variables, except for human capital, government savings, GDP growth, inflation, and interest rates, were identified at a level I(0) or I(1), prompting the utilization of the Autoregressive Distributed Lag (ARDL)

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model. We deemed the ARDL model suitable due to its alignment with the study's requirements and its effectiveness in examining short and long-run relationships.

Model-1: Long-Run Relationship Assessment

Table 3 presents estimates for factors influencing exchange rates. GDP, interest rates, terms of trade (TOT), state debt, and remittances exhibited significant impacts on exchange rates. Notably, GDP, interest rates, and TOT displayed positive correlations, while inflation, state debt, and remittances had negative or positive effects.

Model-2: Impact of Exports, Imports, and FDI

Table 4 highlights the positive influence of exports and the negative effects of imports and FDI on exchange rates. Results from the Least Squares model indicate the magnitude and significance of these associations.

Model-3: Effect of PI, FDI, Exports, Imports, HC, and GS on GDP

Least square techniques in Model-3 revealed positive impacts of private investment (PI), FDI, exports, human capital (HC), and government spending (GS) on GDP, whereas imports had a detrimental effect.

Model-4: Influence of National Income and National Savings on GDP

The Least Squares methods in Model-4 indicated positive associations between national income (NI), national savings (NS), and GDP.

Model-5: Relationship between Foreign Portfolio Investment (FPI) and Exchange Rate

Model-5 results demonstrated a positive and significant association between FPI and exchange rates.

Model-6: Impact of FPI, NI, and SMR

Model-6 outcomes emphasized the positive influence of FPI and NI on Stock Market Return (SMR).

RECOMMENDATIONS

1. The study underscores the policy implications of utilizing exchange rate data for predicting stock market performance. The Central Bank of Pakistan (CBP) is encouraged to proactively manage the exchange rate for favorable stock market outcomes.
2. Future research could expand on this study by incorporating additional factors such as gold rates and terrorism to further elucidate their relationships with stock market returns. Extending the study to other countries and time periods with larger sample sizes would enhance the generalizability of findings.
3. Investors are advised to consider both a country's stock market movements and its exchange rate when making investment decisions, leveraging insights from this study to inform their strategies.

REFERENCES

[1] Alam, Q. N. (2020). Impacts of Macroeconomic Variables on the Stock Market Returns of South Asian Region. Canadian Journal of Business and Information Studies, 2(2), 24–34. https://doi.org/10.34104/cjbis.020.24034

[2] Bhattacharya, B. M., & Mukherjee, J. (2001). Causal relationship between and exchange rate, foreign exchange reserves, value of trade balance and stock market: case study of India. Department of Economics, Jadavpur University, Kolkata, 12(2), 1–13.

[3] Cooper, D. R., & Schindler, P. S. (2003). Business research methods. In Business (Issue 2000, p. 38). http://130.209.236.149/headocs/31businessresearch.pdf

[4] Jamali, A., Lalzai, F., & Jamal, N. (2023). Marketing Constraints and Price Perspectives for Onion in Khost Province, Afghanistan. Journal for Research in Applied Sciences and Biotechnology, 2, 1-7.

[5] Maheen, M. (2013). Impact of Foreign Exchange rate on stock prices. IOSR Journal of Business and Management, 7(3), 45–51. https://doi.org/10.9790/487x-0734551

[6] Maxim, M. R., & Ashif, A. S. M. (2017). A new method of measuring stock market manipulation through structural equation modeling (SEM). Investment Management and Financial Innovations, 14(3), 54–61. https://doi.org/10.21511/imfi.14(3).2017.05

[7] Monther, C. and Kaothar, G. (2010). Macroeconomic and institutional determinants of stock market development. The international Journal of Banking and Finance, 7 (1):130-140.

[8] Pervaiz, J., Masih, J., & Jian-Zhou, T. (2018). Impact of Macroeconomic Variables on Karachi Stock Market Returns. International Journal of Economics and Finance, 10(2), 28. https://doi.org/10.5539/ijef.v10n2p28

[9] Raza, T., & Fatima, S. (2016). ECONOMIC VARIABLES ON EXCHANGE RATE : A Case of some Developed and Developing Countries.

[10] Rehman, A. (2019). Capturing Effects of Interest Rates and Exchange Rates in Pakistan's National Economy. M.Phil Scholar, City University of Science & Information Technology Peshawar - Pakistan.