Impact of Exchange Rate Movements on Foreign Direct Investment in Pakistan

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ARTICLE INFO	ABSTRACT
	Any large economy's macroeconomic performance is strongly influenced by exchange rate dynamics. Study analysis the effect of exchange rate on foreign direct investment inflows in Pakistan. In addition to exchange rate, this study considers macroeconomic indicators such as GDP per capita growth, broad money, inflation and external 0debt. This study utilized retrospective data from the years 1984 to 2024. Current study used ARDL model to address the integration of variables at different orders precisely one or zero. Autoregressive distributed lag model also serves as a tool for conducting limit tests in cointegration and estimating both in short and long run effects. Study findings indicate a strong negative connection between short and long-term fluctuations in currency rates and FDI inflows. GDP per capita, broad money, inflation, and external debt all significantly and positively influence FDI both in short run and long run analysis. It is imperative to address the underlying issues that are causing Pakistan to experience substantially lower growth in foreign direct investment inflows than the region. Still, this study can have a major impact on areas including public finance, world economics, global commerce and foreign direct investment policy-making.

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1. Introduction

Investment is a crucial aspect of every economy, as it stimulates the necessary factors that determine demand, ultimately leading to improved economic growth and development in an economy. FDI is a financial element of a country's economy that pertains to investments made by foreign investors in the domestic market (Sultana, Rahman, & Zimon, 2024). Foreign direct investment bolsters a nation's economy. It contributes to improving social and financial conditions by increasing the rate of economic growth, developing productive capacities, and promoting economic activities (Boburmirzo & Boburjon, 2022). Foreign Direct Investment refers to allocating resources to domestic machinery, infrastructure, and enterprises. It does not, however, include overseas stock market investments. FDI, or foreign direct investment, refers to the transfer of capital that involves acquiring control over a business or property in

another country. This is critical for the investor's home country's economic development and plays a significant role in globalization. According to this study's problem statement, the analysis of FDI flows demonstrates their role in the development of strong economic relations between developing and developed countries (Kumari & Sharma, 2017). The FDI is important in stimulating world economic development because it provides a large portion of the overall private investments. The FDI has the following economic advantages in the following ways: Capital, foreign exchange, competition, technology, and globalization of the market. Yesterday, most of the FDI flows were between developed countries, while today, the majority of FDI flows from emerging countries (Zhang & Zhang, 2018). Economic gains are the main reason foreign investors take their money into a host country despite the risks associated with the activity. These risks include political instability, legal uncertainties, currency exchange rate fluctuations, the invested country's external debt, and the inflation rate (Sunde, 2017). Foreign investors are highly interested in investing their funds if the host nation can create a favorable business environment, ensure secure investments, lower tax burdens, stabilize exchange rates, control inflation, and minimize economic debt (Moraghen, Seetanah, & Sookia, 2020; Shafiq, Bhatti, Bashir, & Nawaz, 2022; Shittu, Hassan, & Nawaz, 2018).

A few studies, e.g. Abonazel, Shafik, and Abdel-Rahman (2023); Ang (2008); Bhatti and Khan (2023); Jin and Zang (2013); Majumder, Rahman, and Martial (2022) find that country trade rates assume an essential stochastic part of the time spent on FDI inflows. Exchange rate volatility affects each critical part of the economy, including worldwide exchange viability, accumulated results, expansion and FDI in host country. The connection between FDI and exchange rate has provoked curiosity among market analysts, scientists, and policymakers for several years. Since the immediate and roundabout result of foreign direct investment inflows on the host nation is self-evident, FDI nations have endeavored to maintain an ideal macroeconomic climate, most strikingly, a steady conversion standard. Sultana et al. (2024) finds a positive connection between FDI inflow and conversion scale development. Nonetheless, the charge assortment system is critical for attracting monetary support in a country (Jardet, Jude, & Chinn, 2022). Perhaps the most recognizable impediment to the cross- limit hypothesis is the two-fold expense evaluation of unfamiliarly obtained pay (Ang, 2008). A twofold duty assortment arises if the comparative cost base (e.g. pay or wealth) of a specific resident (i.e. an individual or undertaking) is troubled in no less than two wards. Two-sided charge deals, addressing typical settlements on the meaning of expense liabilities, the task of burdening privileges, or the assurance of keeping charge rates, are the main methods for avoiding two-fold tax assessment from endeavors. Foreign direct investment in an economy directly results from external debt. However, it has two phases: first is for short term and second is for long term. Government takes money as a loan from external sources and invests it in several public projects. When the government invests in many public projects, it creates a demanding situation that looks attractive to invest inconsequently, foreign stockholders are attracted to and invest in an economy. However, in the long term, this creates problems. High-debt services hamper the flow of resources needed for economic development. This limits capital expenditure, which can discourage foreign investors from investing. The high interest rate in external debt discourages foreign investment investors and reduces the flow of foreign investment (Ahmad & Bhatti, 2024; Degong, Ullah, Ullah, & Arif, 2023).

Pakistan occasionally faces discrepancies between the amount of money it has saved domestically and the amount needed to meet its investment obligations. Capital inflows such as portfolio investment and FDI partially close this imbalance. The State Bank of Pakistan, statistics reveal that foreign direct investment experienced a little increase in the previous fiscal year. In June 2022, foreign direct investment surged by 92%, reaching a total of $270 million, with an increase of $130 million. This stands in opposition to the $141 million recorded in June 2021. However, despite the rise in net foreign direct investment it still needs to be significantly below the necessary level of investment for Pakistan's expanding economy. Political instability and economically unsustainable policies have significantly contributed to a

decrease in foreign direct investments throughout the last fiscal year (Kumari and Sharma, 2017).
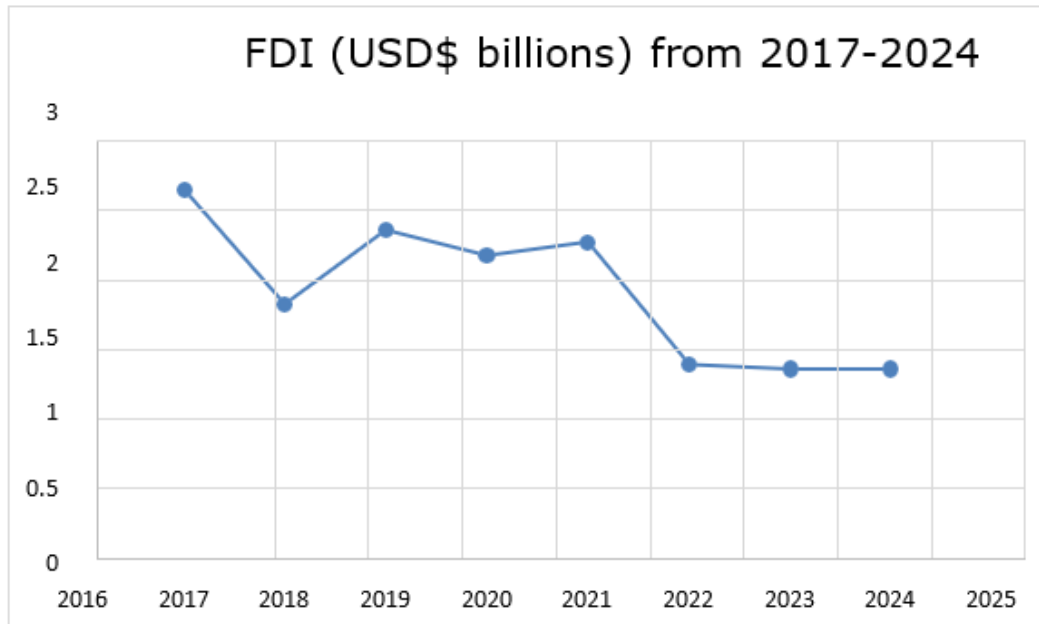
Figure 1: Foreign Direct Investment inflows in Pakistan (2017-2024)
Source: State Bank of Pakistan

Figure 1 shows that the instability of exchange rates has continually been a key worry in the economic environment of Pakistan, posing challenges for policymakers, investors and scholars It is essential to understand how changes in exchange rates affect important economic indicators like trade balance, FDI and portfolio investment in order to create policies that effectively support economic stability.

Primary aim of this research is to examine the effects of fluctuations in exchange rates, GDP per capita growth, broad money, inflation and external debt FDI in Pakistan. This study substantially contributes to our understanding of Pakistan's economic nuances. This paper examines the intricate relationships between currency rates, taxation and foreign direct investment using a thorough ARDL technique. This work offers fresh and insightful discoveries that are important from a theoretical and practical standpoint.

This study makes a remarkable contribution by utilizing the ARDL data analysis method with the latest data set, which enables a thorough investigation of the long-term connections and immediate changes between the variables under scrutiny. It offers customized insights that improve our understanding of the investment dynamics in various economic environments. Adding foreign debt as a variable of interest is another noteworthy contribution. The economic literature has expressed concern about external debt, but there needs to be more exploration of its relationship with FDI especially in Pakistan. Relationship between these economic variables and their impact on FDI is intricate.

This study contributes to the current body of knowledge by providing data on nature of these interactions in Pakistan. These research findings are of practical significance for policymakers, investors and other stakeholders in Pakistan. Findings of this study can offer treasured understandings for establishing economic policies and investment strategies, which can help build a favorable environment for attracting foreign investment, efficiently managing external debt, and optimizing tax frameworks. This study significantly enhances the scholarly

understanding of determinants that impact FDI in Pakistan. Current study's rigorous methodology and examination the effects of exchange rates, GDP growth rate, broad money, inflation, and external variables substantially contribute to the existing research on international economics and investment dynamics. Findings can impact governmental decisions and investment plans, fostering sustainable economic development in Pakistan.

2. Literature Review
2.1. Exchange Rate Movements and Foreign Direct Investment inflows in the world

There are still several issues about foreign direct investment that are crucial to consider when discussing public and international finance. As an example, the benefits of FDI on economic growth, existence of market imperfections, license or invest in FDI, influence of portfolio investments, role of public and private investment in infrastructure and effect of exchange rate fluctuations on investment. Lots of empirical studies has published in last 20 years to address the difficulties associated with foreign direct investment (Canh, Binh, Thanh, & Schinckus, 2020).

Effect of currency rate fluctuations on FDI has been the subject of several studies, including (Cushman, 1988; Jehan & Hamid, 2017; Zongo, Diarra, & Ouedraogo, 2024). According to Cushman (1988) and Agrawal (2000) market defects may be the cause of foreign direct investment. The practice of portfolio diversification allegedly drives foreign direct investment (Munir & Iftikhar, 2021).

In addition, a considerable deal of research has examined a variety of questions, including why foreign businesses invest in their host nations (Buckley, 1979; Buckley & Dunning, 1976). Why does the world of foreign direct investment exist rather than depending on exporting or licensing? The literature on this topic includes works by Contractor (1984), Buckley and Dunning (1976), Buckley and Mathew (1979, 1980), and Lall (1980). Aqeel and Nishat (2004) investigated how variations in exchange rates affected FDI in Pakistan (Moraghen et al., 2020).

Regarding causes of FDI, academic literature has discovered and examined various factors influencing foreign direct investment. Several empirical studies, including Tient et al. (2022), Ikpesu & Okpe, (2019) assist in identifying a substantial and commonly employed collection of explanatory factors for analysing FDI inflows. Rafi & Ramachandran (2018) Barrel (2007) Chakrabarti and Scholnick (2002) have reported several significant factors that influence foreign direct investment (FDI) (Rathnayaka Mudiyanselage, Epuran, & Tescașiu, 2021).

Mawutor et al. (2023) examined the influence of FDI, real exchange rate, payments and imports on Ghana's growth. Study found that these factors are cointegrated with economic progress, remittances having a positive and substantial effect. (Jehan and Hamid, 2017) investigated the effect of uncertainty on FDI from 1995 to 2019, revealing that global ambiguity has the most significant influence on FDI inflows. According to Buthelezi (2023), when investment actions are relatively low, there is a poor correlation between investment and EXR. However, there is a substantial correlation when the movements are very high or excessive. Adegoriola Adewale and Comfort (2022) have identified negative connection between FDI and exchange rate risk in Nigeria. AKINTOYE (2021) analyzed the impact of FDI and portfolio investment on Nigeria's exchange rate. Findings indicate that both variables have a minimal but favourable impact. Chupryhin (2021) examined the factors affecting foreign direct investment in Europe, identifying three significant determinants: productivity per worker, the size of the labor force, and revenue generated from natural resources. Alves Da Silva (2021) observed the impact of financial development, foreign investment and institution quality on the current account balance, finding that financial crises had a positive impact on the balance of

payments in industrialized nations and East Asian countries, particularly those with open trade policies and encouraging FDI. Nawaz, Ahmad, Hussain, and Bhatti (2020); Qamruzzaman, Karim, and Wei (2019) and Albulescu and Ionescu (2017) conducted studies on the impact of exchange rate volatility and monetary uncertainty on foreign direct investment in Nigeria, EU member countries, India, and China. Study found inverse relationship between FDI inflows and monetary uncertainty, while foreign investment positively influences banking stability and business cycles. Kunal and Phani (2017) investigate the link between FDI, stock market performance and exchange rate using Indian from 1992 -2009. Khandara (2016) also examined the influence of exchange rate volatility on FDI in China and India, finding a positive association between FDI and exchange rate in India, with negative correlation in China. The study concluded that the Chinese government should adopt a flexible exchange rate policy similar to India's (Hniya, Boubker, Mrad, & Nafti, 2021).

2.2. Exchange Rate Variations and Foreign Direct Investment (FDI) in Pakistan

Sohail and Mirza (2020) study on Pakistan's economic growth from 1996 to 2015 found that factors like foreign capital, domestic capital, human capital, and exports influence the country's growth. Meanwhile, Nilofer & Qayyum's study found that public and private investment, mainly FDI and public consumer spending, negatively impacted country's economic development. Study suggests that government should improve security, law enforcement, and regulatory frameworks to encourage FDI. Ullah, Haider, and Azim (2012) establish positive relationship between FDI and Rupee depreciation but discouraged by the variations in exchange rate. Trade openness expressively impact FDI but not inflation. Akram and Alam (2017) investigate the relationship between exchange rate and FDI inflows in Pakistan. Study found that exchange rate significantly correlates with short-term and long-term FDI inflows, while depreciation in recipient country decreases FDI incursions. Market size positively impacts both inflows. The study also explores the impact of external indebtedness, showing positive long run and negative short run relationship.

Extant body of research has comprehensively documented a multitude of studies investigative correlation between fluctuations in exchange rates and FDI entries. This research looks at how fluctuations in exchange rate affect foreign direct investment influxes into Pakistan in an effort to add to the current empirical discussion. The outcomes of the research that has already been done on this subject are contradictory and ambiguous. And in addition there is a requirement of right method and right variable for different countries so that right outcomes are attained. Other independent variables which were used include the exchange rate, GDP per capita growth, the broad money, inflation rate as well as the external debt. The objective of various estimate models employed in this study is the ARDL estimating method with date period of 1984-2024. Therefore, aim of this study is to add into current empirical literature about variation in exchange rates on FDI with reference to Pakistan. This paper aims to evaluate how exchange rate volatilities impact on Foreign Investment by increasing vulnerability and cost Boards of investment. It also focuses on what could be destructive to FDI inflows in the country they referred to as 'external debt'.

From the literature, casting studies formulate a macroeconomic model that explains the link between the FDI as a macroeconomic factor and other factors such as exchange rate, broad money supply, per capita GDP growth, current account, and foreign debts. This association is described in figure 2 shown below.
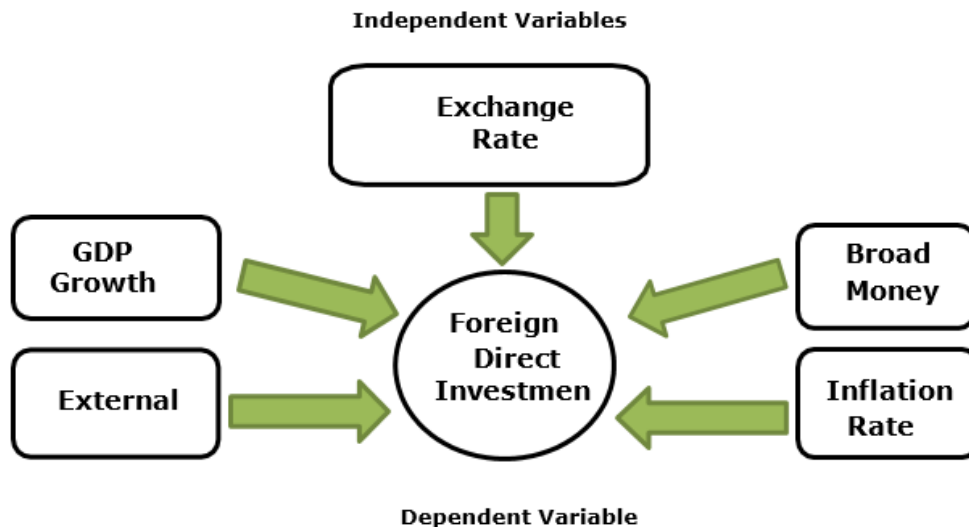
Figure: 2 Conceptual Framework on foreign direct investment
Source: Authors own elaboration

There are several macroeconomic factors that affect FDI and these include the exchange rates and the change in GDP per capita, broad money supply, inflation and the external debt. This is an important factor in assessing the opportunities for investment in the foreign country because an exchange rate has a direct impact over the costs of such investments. Similarly to belonging to the Gross Domestic Product an increase in GDP per capita is necessary for assessment of the condition and created by a state's economy, investment attractiveness for generating profitable investment opportunities. Measuring the broad money supply in an economy helps to identify the availability of liquid money as well as credit making it favourable to attract investors (Jardet et al., 2023).

Inflation affects the economic stability and certainty, moderate level of inflation represent the growing economy. Nonetheless, high amount of external debt raise issues concerning ability and stability of the country, and its capacity in managing and bearing risks. It reveals that the changes of the foregoing variables are critical in the industry for investors with regard to the international economic environment and serves a vital role in stimulating FDI progress. Requirements that surround international investors are crucial in the improvement of FDI flow (Malik, Abbas, Shabbir, & Ramos-Meza, 2024).

3. Method
3.1. Data sources

This study encompasses the time frame from 1984 to 2024. The study used foreign direct investment (FDI) as dependent variable. In contrast, independent variables include exchange rate (ER), GDP per capita growth (GDPg), broad money (M2), inflation (INF) and external debts (ED). These variables are selected based on empirical and theoretical justifications, which will be described below. The study obtained data from World Development Indicators (WDI) and Central Bank of Pakistan both reputable secondary data sources

3.2. Model Specification

Based on current study used the modified version, whereas original model of Sultana et al. (2024) was as:

$$FDI = (ER, EG, INF, ED, TR) \tag{1}$$

Based on Sultana, (2024) model current model is as:

$$FDI = f(ER, GDPg, M2, INF, ED)$$ (2)

In Econometric form, it can also be written as

$$FDI = \beta_0 + \beta_1 ER + \beta_2 GDPg + \beta_3 M2 + \beta_4 INF + \beta_5 ED + \mu$$ (3)

3.3. Unit root

It is crucial to test for unit root processes and data. Augmented Dickey-Fuller (ADF) and PP tests are frequently employed to measure Stationarity. The ADF test is employed for situations involving higher- order correlation, while the DF test is exclusively utilised for AR (1) processes. In addition, we employ the Durbin- Watson test once there is no autocorrelation in the residuals and ADF test when there is auto- interdependence. Dickey-Fuller assessment incorporates the necessary parameters for model estimation.Phillips Perron (PP) test as a statistical method for finding presence of unit roots. In time series analysis, it is frequently used to evaluate first-order time series integration's null hypothesis (Zongo et al., 2024).

3.4. Co integration

Cointegration is a technique for simulating time series preserving their long-run information. First offering official cointegration definitions were Engle and Granger (1987). Cointegration is a certain stationary linear combination of separately integrated non-stationary variables integrated to an order of I (d). Perron and Campbell (1993) define co-integration as an econometric concept that approximates the existence of a long-run equilibrium among underlying economic time series converging with time. Cointegration thus provides a stronger statistical and financial basis by including both short- and long-term data in modelling variables, so providing the empirical error correction model. In order to find whether a model shows significant long-term links in tests, co-integration testing is required.

On the other hand, lack of long-term evidence raises serious concerns (Hendry, 1986). In addition to the method described by Engle and Granger (1987), other cointegration tests are available. One is bound cointegration testing approach also called ARDL (Hniya et al., 2021).

However, there will be a lack of long-term data. In addition to the Engle and Granger (1987) method, other cointegration tests may be used (Heroja, 2022).

3.5. ARDL Model Specification

ARDL model is used in the study for empirical analysis. Long run associations between variables of several integration orders are produced using the co-integrating technique. It offers approximations of connections between designated variables in long and short term. Unlike Johansen and Juselius' (1990) co-integrating technique ARDL produces unique long-run connection equations for every variable (Heroja, 2022). By controlling variables with different assimilation orders at level, first difference or at mix, this method guarantees realistic results. Finding a co-integrating vector lets ARDL model be reparametzed into Error Correction Model (Ullah et al., 2012).

The general ARDL equation can be written as follows when two variables are used, each having "n" delays for the independent and dependent variables:

$$\Delta y_t = C_0 + a y_{t-1} + \beta x_{t-1} + \sum_{i=1}^{n-1} a_j \Delta y_{t-j} + \sum_{i=0}^{m-1} bj \Delta x_{t-j} + \mu_t$$ (4)

The general ARDL equation, which establishes a relationship between ER & FDI is as follows:

$$\Delta(FDI) = \alpha + \beta_1(FDI)_{t-1} + \beta_2(ER)_{t-1} + \beta_3(GDPg)_{t-1} + \beta_4(M2)_{t-1} + \beta_5(INF)_{t-1} + \beta_6(ED)_{t-1} + \sum_{i=1}^{\alpha 1}\delta_1\Delta(FDI)_{t-i}$$
$$+ \sum_{i=0}^{\alpha 2}\delta_2\Delta(ER)_{t-i} + \sum_{i=0}^{\alpha 3}\delta_3\Delta(GDPg)_{t-i} + \sum_{i=0}^{\alpha 4}\delta_4\Delta(M2)_{t-i} + \sum_{i=0}^{\alpha 5}\delta_5\Delta(INF)_{t-i} + \sum_{i=0}^{\alpha 7}\delta_6\Delta(ED)_{t-i} +_+\varepsilon_t$$
(5)

The following equation can be used to determine the long-run parameters of the model on (Exchange Rate and Foreign Direct Investment).

$$\Delta(FDI) = \alpha + \sum_{i=1}^{\alpha 1}\eta_1(FDI)_{t-i} + \sum_{i=0}^{\alpha 2}\eta_2(ER)_{t-i} + \sum_{i=0}^{\alpha 3}\eta_3(GDPg)_{t-i} + \sum_{i=0}^{\alpha 4}\eta_4(M2)_{t-i} + \sum_{i=0}^{\alpha 5}\eta_5(INF)_{t-i} +$$
$$\sum_{i=0}^{\alpha 7}\eta_6(ED)_{t-i} + \varepsilon_t$$
(6)

Following can be used to estimate the short-term dynamics of (Exchange Rate and FDI) model.

$$\Delta(FDI) = \alpha + \sum_{i=1}^{\alpha 1}\lambda_\lambda\Delta(FDI)_{t-i} + \sum_{i=0}^{\alpha 2}\lambda_2\Delta(ER)_{t-i} + \sum_{i=0}^{\alpha 3}\lambda_3\Delta(GDPg)_{t-i} + \sum_{i=0}^{\alpha 4}\lambda_4\Delta(M2)_{t-i} +$$
$$\sum_{i=0}^{\alpha 5}\lambda_5\Delta(INF)_{t-i} + \sum_{i=0}^{\alpha 7}\lambda_6\Delta(ED)_{t-i} + \omega ECM_{t-1} + \varepsilon_t$$
(7)

4. Results
4.1. Descriptive Statistics and Correlation Matrix Results

In this part of the study, an analysis of empirical data will be presented.

Table 1
Variables' of Descriptive Statistics and Correlation Summaries

	FDI	ER	GDP	M2	INF	ED
Mean	0.9079	80.1557	1.9730	46.5642	9.2180	35.8951
Median	0.6727	59.8299	1.8349	45.4791	8.8379	34.7000
Maximum	3.6683	279.5300	5.4478	58.8676	29.2456	60.2000
Minimum	0.1781	15.3600	-2.9702	34.7994	2.5293	21.4000
Std. Dev.	0.76900	65.4273	1.9550	5.7395	5.8848	9.6167
Skewness	2.3828	1.5564	-0.2288	0.0416	1.9471	0.9073
Kurtosis	8.1434	5.1714	2.7861	2.2241	7.4533	3.1436
Jarque-Bera	83.9933	24.6082	0.4359	1.0401	59.7888	5.6613
Probability	0.0000	0.0000	0.8041	0.5944	0.000	0.0589
FDI	1					
ER	-0.1233	1				
GDP	-0.0206	0.0898	1			
M2	0.5494	0.2917	-0.0206	1		
INF	0.1260	0.5911	-0.1255	0.0449	1	
ED	0.1594	-0.1740	-0.0694	-0.3804	-0.1408	1

Source: Calculations by using Eviews

Statistical data for the factors collected from 1984 to 2024 has been presented in table 1. The Jarque-Bera test shows that foreign direct investment, exchange rate, external debt, GDP per capita, inflation and broad money follow a normal distribution. Correlation matrix shows positive and negative relationship between two variables.

4.2. Unit root

ADF and PP test are used to check the stationarity of variables. Results are presented in Table 2. Analysis demonstrates that all the variables in model, namely FDI, ER, INF and ED, exhibit Stationarity at I (1). This indicates that they possess both an intercept and a trend. P-values of the two coefficients indicate that the data is primarily stationary. However, GDP and M2 exhibit Stationarity at I (0), which means they are at the same level. When examining a unit root, every variable rejects the null hypothesis.

Table 2
Results of Stationarity Test

Variables.	At Level I (0)		At First Difference I(1)		Integration order
	ADF test	**PP test**	**ADF test**	**PP test**	
Foreign Direct Investment	-3.009006	-2.014046	-4.197471	-3.942732	I(1)
	0.1428	0.2799	0.0021	0.0042	
Exchange Rate	3.389835	3.554877	-4.158098	-4.194574	I(1)
	1.0000	1.0000	0.0023	0.0020	
GDP Per Capita	-4.828505	-4.828505	-7.715464	-11.87151	I(0)
	0.0003	0.0003	0.0000	0.0000	
Broad Money	-5.076014	-5.028470	-7.742547	-21.93146	I(0)
	0.0001	0.0002s	0.0000	0.0001	
Inflation	-3.061620	-3.201049	-7.449372	-7.434078	I(1)
	0.0376	0.0271	0.0000	0.0000	
External Debt	-1.578142	-1.707823	-5.728540	-5.728540	I(1)
	0.4842	0.4197	0.0000	0.0000	

Source: Calculations by using Eviews

4.3. Co integration Test

When upper bound of the assigned significant level corresponds to F-statistic or W-statistic, cointegration test was used. Different statistics are presented in Table 3 below. Limits tests as presented in Table 3 concisely summarize a cointegration connection FDI and all the regressors at significance levels of 1%, 5%, and 10%. Trace test data point to a rejection of null hypothesis, therefore implying lack of cointegration in the model.. Trace statistics and maximal eigenvalues exceeded the critical values.

Table 3
ARDL Bounds Test for Cointegration Results

Null Hypothesis (Ho) : No long run association		
Test Statistic.	**Value**	**K**
F-statistic value	10.3205	5
Bounds Critical Values		
Level of Significance	Lower Bound I(0)	Upper Bound I(1)
10%	2.180	3.00
5%	2.390	3.381
2.5%	2.701	3.731
1%	3.060	4.151

Source: Calculations by using Eviews

In Table 3, study utilized bound test to determine if there exists a correlation between existing variables. The estimated F- value from table 3 is 10.3205 which is greater than the upper and lower bound value of all the level of significance. Hence study reject the null hypothesis which was there exist no cointegration among the variables and accept the alternatives which shows that their long term association among variables.

Table 4
Long Run Analysis Results

Dependent Variables: Foreign Direct Investment				
Ind. Variables	**Coefficients.**	**Standard Error**	**T-Ratio**	**P-values**
ER.	-0.010151	0.002655	-3.823249	0.0015
GDPg	0.154742	0.058654	2.638215	0.0179
M2.	0.134718	0.019023	7.081806	0.0000
INF	0.042676	0.016411	2.600364	0.0193
ED	0.056357	0.005093	11.06660	0.0000
C	-7.393140	0.881740	-8.384714	0.0000

Source: Calculations by using Eviews

Long run association between dependent variable and independent variables (ER, INF, GDPg, ED, M2, ED) is displayed in Table 4.Long run results shows that GDP per capita growth, size of the money supply, inflation, and external debt all have positive impact on FDI in Pakistan; that is, FDI rises in tandem with these factors. The development of GDP per capita consumes a favorable effect on foreign direct investment since it indicates economic stability and an expanding market, which in turn attracts foreign investors (Sultana et al., 2024). Similarly, an expansion in the overall money supply indicates a higher level of available funds in the economy, which might improve investment prospects and draw foreign direct investment (Akram & Alam, 2017). Inflation, despite its negative perception, can have a positive impact on FDI in long term if it is a result of price increases driven by demand, indicating strong economic activity (Akram & Alam, 2017). Favorable correlation between external debt and FDI suggests that borrowed money are efficiently utilized in infrastructure and development initiatives that appeal to international investors (Sultana et al., 2024). Nevertheless exchange rate has a notable adverse effect on FDI indicating that when currency depreciates, it becomes more expensive for foreign investors to make investments, resulting in a decrease in FDI inflows (Haider et al., 2012). The inverse correlation suggests that volatile or declining exchange rates can discourage foreign investors who are worried about the risks associated with exchange rates and the potential decrease in investment returns (Warren, Seetanah, & Sookia, 2023).

Table 5
Short-Run Analysis Results

Dependent Variables: Foreign Direct Investment				
Regressors	Coefficient.	S.E	T.Ratio	P value
D .(FD (-1))	0.595973	0.087334	6.824037	0.0000
D(ER)	-0.010229	0.003341	-3.061191	0.0108
D(ER.(-1))	0.019309	0.004497	4.293394	0.0013
(ER.(-2))	0.015110	0.005635	2.681283	0.0214
(ER(-3))	0.012729	0.007628	1.668741	0.1234
D(GDP)	0.078068	0.020117	3.880667	0.0026
D(GDP(-1))	-0.232219	0.035272	-6.583585	0.0000
D.(GDP(-2))	-0.184277	0.029828	-6.178013	0.0001
D.(GDP(-3))	-0.081930	0.021410	-3.826642	0.0028
D(M2)	0.076375	0.011785	6.480946	0.0000
D(M2(-1))	-0.088505	0.013792	-6.416945	0.0000
D(M2(-2))	-0.071089	0.011239	-6.325018	0.0001
D(INF)	0.058753	0.010430	5.632997	0.0002
D.INF(-1)	-0.102342	0.012987	-7.880176	0.0000
D.INF(-2)	-0.059423	0.014006	-4.242858	0.0014
D.INF(-3)	-0.039383	0.013290	-2.963382	0.0129
D(ED)	0.012691	0.006954	1.824916	0.0953
D(ED(-1))	-0.030045	0.007412	-4.053419	0.0019
D(ED(-2))	-0.025088	0.007512	-3.339799	0.0066
CointEq(-1)*	-1.008704	0.098231	-10.26871	0.0000

Source: Calculations by using Eviews

Presence of cointegration connection between variables necessitates the use of an error correction model. Table 5 shows, findings of the short-run dynamic growth equation. ECM value in this study is -1.00, showing a statistically significant negative connection. The existence of statistical significance and a negative sign indicates that short-run (SR) is approaching the long-run equilibrium (Sultana et al., 2024)

4.4. Diagnostic Test

Reliability and validity of our estimation findings are validated by the diagnostic tests.

4.4.1.Heteroscedasticity Test

The residuals' equal variance at every level of the predictor variable is essential to linear regression. We refer to this assumption as heteroscedasticity. We designate the residuals as heteroscedasticity when we depart from this presumption. The results' credibility is undermined by regression. The probability of the models is not significant at 5% significance level, according to the Chq statistic. This suggests that models do not contain heteroscedasticity. This supports the econometric presumption that heteroscedasticity should not be a problem for a model (Sari et al. 2008).

Table 6
Heteroskedasticity Test: (Breusch Pagan Godfrey)

Ho: Homoscedasticity			
F-stat.	1.611394	Prob. F(21,16)	0.1669
Obs*R square	25.80078	Prob. Chi-Square(21)	0.2141
Scaled explained SS.	2.846771	Prob. Chi-Square(21)	1.0000

Source: Calculations by E-views

4.4.2.Serial Correlation Test

Breusch and Godfrey are involved in a serial relationship. The autocorrelation of a regression model's mistakes may be assessed using the LM test. We refer to it as serial correlation for time series data. There is no serial association, according to the null hypothesis. This LM test's result indicates that the probability value of the Chi-square statistic, 0.0862, is more than 5%, indicating that the null hypothesis—that there is no serial correlation—can be reasonably accepted (Warren et al., 2023).
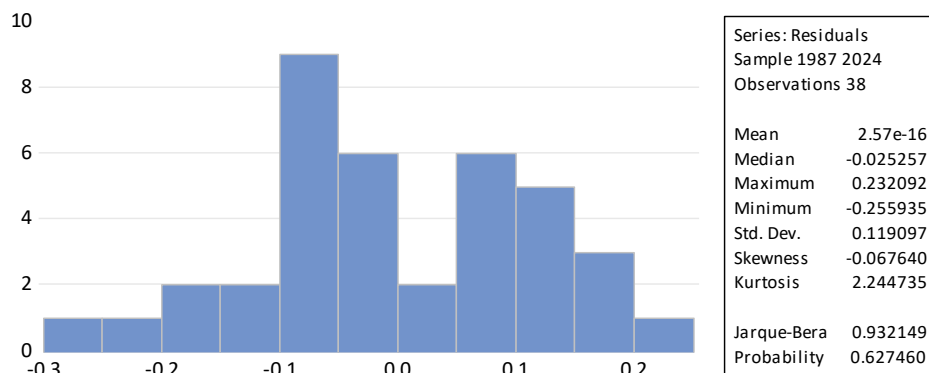
Table 7
Breusch Godfrey Serial Correlation Test

Ho: There exists no serial correlation			
F-stat.	2.271276	Prob. F(2,27)	0.1218
Obs*R square	16.37336	Prob. Chi-Square(2)	0.0862

Source: Calculations by E-views

4.4.3.Normality Test

Jarque-Bera test is used to determine if the residuals are normal. With Jarque-Bera statistics and computed P values, you may assess the null hypothesis concerning a normal distribution. Given the P-values showing each variable's normal distribution, we accept the null hypothesis for each one (Nadine, Ashraf, & Nagia, 2021).

Series: Residuals	
Sample 1987 2024	
Observations 38	
Mean	2.57e-16
Median	-0.025257
Maximum	0.232092
Minimum	-0.255935
Std. Dev.	0.119097
Skewness	-0.067640
Kurtosis	2.244735
Jarque-Bera	0.932149
Probability	0.627460

Figure 3: Normality Test
Source: Calculations by E-views

Table 8
Summary of (Diagnostics and Stability Test Results)

Test	X² (p value)	Results
Breusch-Pagan-Godfrey	0.1669	No heteroscedasticity issue
Ramsey RESET Test	0.2056	Model is specified correctly
Jarque-Bera Test	0.6374	Residuals are normal
CUSUM	Stable	Estimated coefficients are stable
CUSUMSQ	Stable	Estimated coefficients are stable

Source: Calculations by E-views

5. Conclusion and policy recommendations

FDI has been widely acknowledged as a significant means of capital inflow in many countries, especially in developing economies such as Pakistan, over the past few decades. Foreign Direct Investment is crucial for a country's economic advancement. Foreign Direct Investment provides immediate advantages and enables exchanging innovation, information, expertise, skills, and other resources across countries. FDI is an important element of nation's balance of payments. When a country gets FDI from a foreign nation, it is documented as a debit in nation's records. Conversely, when a country invests in foreign nation, it is documented as a credit (Sultana et al., 2024).

This study observes the influence of exchange rate, money supply, external debt GDP growth and inflation rate on FDI in Pakistan. It analyzes the relationship between dependent and independent and control variables. This study examines retrospective data from 1984 to 2024. The unit root test evaluates multiple criteria to determine the presence of a unit root in specified factors. Based on the concept of unit root, certain variables exhibit stationarity at I (0), whereas others exhibit stationarity at I(1). This study utilized ARDL model to analyze mixed orders. Main discovery of this study is that the external debt coefficient positively affects determining FDI.

Volatility is disadvantageous in long run and this is because broad money, inflation rate and external debts are balance of payment instruments that usually increases FDI.

This work enables the understanding of the flow and direction of FDI in emergent countries. Conclusion and recommendations made in this paper are as: These realities have considerable bearings for policymakers, investors, and scholars in order to improve knowledge and authority over FDI in Pakistan. These are the ones that the policymakers in Pakistan have to concentrate on In the first place, improvements to the macroeconomic situation in the country should be made by increasing the efficiency of both the external debts and the unstable rates of the exchange. Thankfully, there are ways to mitigate the negative impacts of high external debt, including debt sustainability frameworks and responsible borrowing mechanisms. Furthermore, it is established that volatility of the exchange rates or the acquisition of adequate tools will help in the management of exchange rate risks, improve credibility, and reduce volatility. Recommendation: Policymakers within civil service should focus on aspects that will enhance the investment climate and the two nations' legal systems to attract foreign investment. This could even entail reducing paperwork, specifying the number of legalказ measures, and increasing safeguards even for the investors.

Secondly, drawing from the empirical evidence as provided in the paper, there should be government intervention in the exchange rate mechanism so as to reduce the fluctuation and hence encourage foreign investors. There is a need to preserve the harmonization of the policy, governance, and legislation because the measure aids in attracting global investors, as it provides a business environment. As the infrastructure of the country deteriorates further, the FDI is returning and dragging on the GDP. For this purpose, the government should use preventive measures that include increased integration of airports and seaports, renewable

power continuity, construction of highways, and Security. A dumpy foreign exchange rate policy impedes FDI. It is essential to reduce both external debt and inflation rates simultaneously In order to attract FDI in Pakistan economy.

Authors' Contribution
Sadia Mustafa: started the fundamental concept of executed data analysis, manuscript droughting and writing.
Suraya Ismail: Provided guidance for data analysis, reviewed, supervised.
Farah Roslan: She has provided the guidelines for empirical work.

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