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Foreign Capital Inflows and Stock Market Development in Pakistan

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Abstract

The study examines how foreign capital inflows affect stock market development in Pakistan for the period from July 2008 to June 2018. Several components of foreign capital inflows were used for empirical analysis, namely, foreign direct investment, foreign portfolio investment, and remittances. Further, market capitalization was used as a proxy for stock market development. The study uses an ARDL model for examining the long-run and short-run relationships between variables. We also analyze the bi-directional causality between the variables through the Granger causality test. Further, the presence of structural breaks was analyzed through the CUSUM and CUSUM Square test. The results suggest that in the long run, remittances have a positive and significant relationship with stock market development. However, foreign direct investment, foreign portfolio investment, and USD-PKR exchange rate do not have a significant impact on stock market development. The results also suggest that in the short run there is a negative relationship between FDI, USD-PKR exchange rate and market capitalization. Contrarily, we found a positive relationship between FPI and market capitalization. The results of Granger causality test suggest that remittances and USD-PKR exchange rate have a causal relationship with stock market development. Finally, we found no evidence of structural breaks in the dataset.

Keywords: Stock Market Development, Market Capitalization, Foreign Capital Inflow, Foreign Direct Investment, Remittances

JEL Classification Code: N20, F24, F31, D53

1. Introduction

The growth of capital markets is important for every developing economy (Ngare, Nyamongo, & Misati, 2014; Enisan & Olufisayo, 2009). Capital markets play a vital role for corporations that require long-term financing from both local and foreign investors (Nieuwerburgh,

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Beulens, & Cuyvers, 2006; Pradhan, Arvin, Hall, & Bahmani, 2014; Pan & Mishra, 2018). Capital markets of developing countries primarily rely on foreign investments for meeting their capital needs due to considerably low saving rates. Traditionally, studies suggest that investment flows between developed and developing countries would occur due to trade and financial liberalization. However, investors in developed countries are reluctant to invest in developing countries (Lucas, 1990). As a consequence, developing countries adopt various financial market liberalization policies to attract foreign capital, which not only benefits international investors in earning higher yields, but also provides local businesses with foreign investments.

A strong financial system facilitates foreign capital inflows and boosts the economic growth of a country (Alfara, Chanda, Ozcan, & Sayek, 2004; Baharumshah, Slesman, & Devadson, 2017). However, a strong financial system is only possible if stock markets are well-developed (Billmeier & Massa, 2009; Singh, 1997). The literature suggests a strong relationship between stock market development and economic growth (Atje & Javanovic, 1993; Levine & Zervos, 1998; Rousseau & Wachtel, 2000; Beck, Levine & Loayza, 2000). Therefore, developing countries should have

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a well-developed capital market as it provides a platform to equity traders. Well-developed capital markets reduce transactions costs and information asymmetries. Hence, it is important to examine the relationship between role of foreign capital inflows and stock market development in the context of Pakistan.

Foreign capital inflows usually arise through foreign direct investment (FDI) and remittances. In 2018, global foreign direct investment declined from USD1.96 trillion to USD1.20 trillion (World Bank, 2019). Contrarily, the remittances depicted a rising trend globally, increasing from USD583 billion to USD624 billion in 2018 (World Bank, 2019). In Pakistan, remittances from local citizens working abroad are the main source of foreign capital inflows and foreign exchange (World Bank, 2011). Past researchers have only considered FDI and remittances as the two main sources of foreign capital inflows. Recently, financial liberalization has facilitated the inflow of foreign portfolio investments and stock market development (Eurrenza, 2001). At the global level, equity portfolio investment declined from USD1.28 trillion to USD401.86 billion in 2018 (World Bank, 2019) causing a decline in economic activities of developed and developing countries. The high volume of global foreign portfolio investment transactions provide a basis for considering FPI a significant contributor to foreign capital inflows and stock market development. Thus, the study incorporates FPI as an important factor of foreign capital mobility neglected by past research and assesses the causal relationship between foreign capital inflow and stock market development in the context of Pakistan.

Due to the importance of stock market development for economic growth, we analyzed the relationship between foreign capital inflow and stock market development. Recently, financial globalization and better cross-border financial transaction mechanisms has driven foreign capital inflows. As a result, foreign capital inflows have become an integral source of investment in the Pakistan Stock Exchange. This study investigates the casual relationship between stock market development and foreign capital inflows for the period from July 2005 to June 2018. In this context, foreign capital inflows include foreign direct investment (FDI), foreign portfolio investment (FPI), and remittances (REM).

This study contributes to the existing literature in several ways. First, unlike any previous study in the Pakistani context, we analyze how FPI affects stock market development. Second, we used monthly data for the period 2008 to 2018 to analyze both the short-run and long-run effect of FPI, FDI, REM and USD-PKR exchange rate on stock market development. Third, we used a robust time series methodology in this study by employing an ARDL model, Granger causality test and also tested for structural breaks through the CUSUM and CUSUM Square tests. Fourth,

our study will benefit stock market investors by allowing them to develop profitable trading strategies that account for foreign portfolio investment, foreign remittances, USD-PKR exchange rate and foreign direct investment. Fourth, our study will benefit policy makers in understanding the role of foreign investments in deriving market valuations and its perceived benefits in long run.

The rest of the paper is organized as follows. The proceeding section provides a contextual background of financial liberalization reforms, foreign capital inflows and performance of Pakistan Stock Exchange. The subsequent section reviews the prior literature, which is followed by the methodology. The results and discussion are provided in the next section. The last section concludes by highlighting the limitations and implications of the study. Moreover, it also discusses recommendations for future researchers.

2. Contextual Background

2.1. Financial Liberalization Reforms in Pakistan

Financial liberalization refers to minimum government intervention in financial markets and transactions (Pill & Pradhan, 1997). Financial liberalization entails reduced restrictions on foreign capital inflows in the capital market, determination of interest and exchange rates (Qamruzzaman, Karim, & Wei, 2019). It is therefore suggested that capital mobility in developing economies is imperative for financial stability (Stiglitz, 2010). Prior studies suggest that stock market liberalization leads to higher private investments (Henry, 2000), lower cost of capital (Bekaert & Harvey, 2000), increased firm productivity (Kose, Prasad, & Torrones, 2009), market efficiency (Bae, Ozoguz, Tan, & Wirjanto, 2012) and better firm performance (Mitton, 2006). Financial reforms in Pakistan started in the mid-1970s with the nationalization of commercial banks and credit institutions. However, the desired results were not achieved amid political instability (Mujahid, Hashmi, & Abbas, 2014). Moreover, structural adjustment programs were initiated in the early 1990s to address deep-rooted issues of financial institutions (Goyal, 2014).

The liberalization process of Pakistan's financial sector commenced in the 1990s, with the privatization of various commercial banks. Many structural changes were made in 1997 to liberalize the capital markets through capital market development reforms in collaboration with the Asian Development Bank. In this regard, the government to boost stock market development and liberalization of the financial sector established several institutions such as Central Depository Company (CDC), National Clearing Company Pakistan Limited (NCCPL), Security and Exchange Commission of Pakistan (SECP).

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2.2. Foreign Capital Inflows in Pakistan and PSX Performance

The Pakistan Stock Exchange (PSX) is considered to be among the leading emerging capital markets in Asia. It has a market capitalization of USD52 billion and some of the listed companies are also part of MSCI small cap index. Amid political crisis and deteriorating economic growth, Pakistan Stock Exchange (PSX) lost approximately 3,400 points by the year ended December 2018. Due to weak economic policies and global economic fluctuations, the foreign capital inflows into Pakistan also declined substantially. FDI declined from USD2.78 billion in 2018 to USD1.36 billion in 2019 (SBP, 2021). In addition, the outflow of foreign portfolio investment rose from USD240 million in 2018 to USD415 million in 2019 (SBP, 2021). However, remittances increased from USD19.91 billion in 2018 to USD21.74 billion in 2019 (SBP, 2021). Furthermore, the market capitalization was approximately PKR9.63 trillion in 2016, which declined to PKR8.57 trillion and PKR7.69 trillion for the year 2017 and 2018, respectively. As of July 2018, there were 559 companies listed on PSX, with a trading volume of 45 billion shares.

3. Literature Review

A number of studies have examined the relationship between financial liberalization and stock market development. For instance, Claessens, Klingebiel, & Schmukler (2006) using the data for 20 emerging stock markets found that less financially liberalized stock markets have lower stock valuation. A recent study by Sin-Yo and Iyke (2017) observed that foreign private capital flows are important for promoting stock market development. It is contended that a country can attract foreign investment by enacting investment friendly policies, which will also promote stock market development. Henry (2000) uses a dataset of 11 financially-liberalized developing countries and argues that countries may enhance stock market development through market liberalization and foreign investment. Similarly, Chinn and Ita (2006) suggested that the presence of financial reforms support equity market development using a dataset of 108 countries. Calderon-Rossell (1991) was the first study that determines factors affecting stock market development using a dataset of 42 countries. It is argued that stock market liquidity and level of economic development are key determinants of stock market development. Based on the above discussion, we argue that financial liberalization is critical for stock market development.

Furthermore, there are several studies that have analyzed the relationship between foreign capital inflows and stock market development. Claessens, Klingebiel, & Schmukler (2006) suggested a positive relationship between FDI, stock

market capitalization and trading value using a dataset of 77 countries. On the contrary, Mandaci, Aktan, Gumuş, & Tvaronavičienė (2014) utilized a dataset comprising of 30 developed and developing countries in the pre and post financial crisis period. The study found that remittances and FDI has a favorable impact of market capitalization and stock market development.

In the Pakistani context, Ihtisham and Amjad (2013) found that FDI promotes stock market development. Similarly, Shahbaz, Lean, and Kalim (2013) adopted the ARDL bounds testing approach to analyze the relationship between FDI and stock market development in the short and long run. The study suggested a positive relationship between FDI and stock market development, which implies that FDI is critical for revitalizing equity market participation and growth. Similar results on the relationship between FDI and stock market development during the period 1988 to 2009 were reported by Raza et al. (2012).

Previous research from both developed and developing countries suggest that remittances and FDI play a crucial role in stock market development especially when remittances are channeled through official and legitimate ways (Mundaca, 2009; Banerjee & Majumdar, 2021; Le, Ngo & Nguyen, 2021). In a comprehensive study using nearly three decades of financial data, Raza, Jawaid, Afshan, & Karim (2015) found that short- and long-term equity market development substantially depend upon remittances, FDI and economic growth. Contrarily, Issahaku, Abor, & Harvey (2017) argued that stock market development is disproportionately low in countries with low foreign remittances. Further, Billmeier and Massa (2009) document a positive association between institutional quality, remittances and stock market development using a dataset of 17 emerging economies including Middle East and Central Asia. On the contrary, analyzing data from 18 Asian economies, Raza and Jawaid (2014) suggested that in the long run remittances have an insignificant impact on stock market development, while FDI has a positive impact on stock market development. In the short run, the study found that FDI has a negative impact on stock market development, while remittances have a positive impact on stock market development.

Recently, studies have focused on how foreign portfolio investment affects stock market development. For instance, El-Wassal (2005) employed a panel data model on a dataset from 40 emerging economies for the period 1980 to 2000 to analyze how foreign portfolio investment affects stock market development, which was largely ignored in the previous literature. The study found that foreign portfolio investment has a positive relationship with stock market development. The review of the literature indicates that studies have ascertained the relationship between FDI, remittances and stock market development. However, there has been limited attention given to the association between

foreign capital inflows and stock market development. Thus, this study investigates the relationship between foreign capital inflows (comprising of FDI, remittances and foreign portfolio investments) and stock market development using data from the Pakistan Stock Exchange.

On the basis of the above literature review, the following hypotheses were developed:

H1: *Foreign capital inflows have a positive association with stock market development.*

H2: *Foreign direct investment has a positive association with stock market development.*

H3: *Foreign portfolio investment has a positive association with stock market development.*

H4: *Remittances have a positive association with stock market development.*

4. Methodology

4.1. Data and Model Specification

This study uses monthly data on FDI, foreign portfolio investment, remittances, exchange rate and market capitalization of Pakistan for the period July 2008 to June 2018. The rationale for selecting this time duration is that it covers the period after the global financial crisis 2007–2008. In the period after the global financial crisis, the regulations of the Pakistani financial markets have substantially changed as a number of reforms were introduced by the Securities and Exchange Commission of Pakistan, State Bank of Pakistan and the Pakistan Stock Exchange. The data for foreign capital inflows was extracted from the website of the State Bank of Pakistan (SBP). Furthermore, monthly data for market capitalization and exchange rate was collected from the website of Business Recorder and investing.com, respectively. Therefore, to ascertain the relationship between FDI, foreign portfolio investment, remittances, exchange rate and stock market development, we have developed the following model:

$$CAP_t = f(FDI, FPI, REM, USD) \qquad (1)$$

Where, CAP represents market capitalization, FDI is the foreign direct investment, REM is the remittances and USD represents PKR-USD exchange rate.

4.2. Autoregressive Distributed Lag (ARDL) Model

The Autoregressive Distributed Lag (ARDL) model is a time series approach commonly applied to examine the long-run dynamic relationship between the variables. The ARDL model was applied to ascertain how current and

previous period FDI, foreign portfolio investment, remittances, exchange rate affect market capitalization. The empirical specifications of the ARDL model is presented below:

$$
\begin{aligned}
\Delta CAP_t = {} & \beta_0 + \beta_{FDI} FDI_{t-1} + \beta_{2FPI} FPI_{t-1} + \beta_{REM} REM_{t-1} \\
& + \beta_{USD} USD_{t-1} + \sum_{i=1}^{n} \alpha_i \Delta CAP_{t-i} \\
& + \sum_{i=0}^{n} \gamma_i \Delta FDI_{t-i} + \sum_{i=0}^{n} \delta_i \Delta FPI_{t-i} \\
& + \sum_{i=0}^{n} \varphi_i \Delta USD_{t-i} + \mu_t
\end{aligned} \qquad (2)
$$

4.3. ARDL Bounds Test

The ARDL bounds test is a relatively modern approach used to ascertain the long run relationship between variables. The null hypothesis of the bounds test is presented below:

$$H_0 = \beta_{FDI} = \beta_{FPI} = \beta_{REM} = \beta_{USD} = 0 \qquad (3)$$

The null hypothesis of the bounds test suggest that all the independent variables in the model, i.e., FDI, FPI, REM and USD are simultaneously equals to zero. The bounds test may be applied by calculating the *F*-statistic which is then compared with the upper and lower critical bounds (Pesaran, Shin, & Smith, 2001). A table containing the upper and lower critical bounds of the bounds test is provided by (Pesaran, Shin, & Smith, 2001). If the *F*-statistic exceeds the value of upper critical bound then we can conclude that co-integration exists between the variables. Co-integration implies that there is a long run stable relationship between the variables.

On the contrary, if the *F*-statistic does not exceed the lower critical bound then it implies that there is no long-run relationship between the variables. If the *F*-statistic lies between the upper and lower critical bounds then results are inconclusive. In such a scenario, the Error Correction model may be used to ascertain the dynamic relationship. The values of upper and lower critical bounds assume that data is integrated at *I*(1) and *I*(0), respectively. Optimal lagged values are calculated using Vector Autoregression (VAR) lag order selection criteria estimates using Akaike Information Criterion estimator (AIC). If the long-run relationship (cointegration) among variables is established, we will proceed by estimating the following error correction model.

$$
\begin{aligned}
\Delta CAP_t = {} & \beta_1 + \sum_{i=1}^{n} \alpha_i \Delta CAP_{t-i} + \sum_{i=0}^{n} \gamma_i \Delta FDI_{t-i} \\
& + \sum_{i=0}^{n} \delta_i \Delta FPI_{t-i} + \sum_{i=0}^{n} \varphi_i \Delta USD_{t-i} + \mu_t
\end{aligned} \qquad (4)
$$

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Furthermore, the short-term behavior among the variables may be analyzed through the error correction model presented below:

$$\Delta CAP_t = \lambda_1 + \sum_{i=0}^{n} \alpha_i \Delta CAP_{t-i} + \sum_{i=0}^{n} \gamma_i \Delta FDI_{t-i}$$
$$+ \sum_{i=0}^{n} \delta_i \Delta FPI_{t-i} + \sum_{i=0}^{n} \varphi_i \Delta USD_{t-i} \qquad (5)$$
$$+ \psi ECM_{t-1} + \mu_t$$

CUSUM and CUSUMSQ tests were also applied to check the goodness of fit of the ARDL models and assess the presence of structural breaks.

4.4. Granger Causality Test

The Granger causality test was proposed by Engle and Granger (1987) to assess the bi-directional causality between the variables. The test can be applied to ascertain if there is a causal relationship between the variables of the study. Granger causality test is usually applied prior to forecasting of one time series on the basis of another time series and useful to predict the long-run association between the variables. The Granger causality test entails estimating the following models:

$$Y_t = a_1 + \beta_i X_{t-i} + \gamma_j Y_{t-j} + \varepsilon_{1t} \qquad (6)$$

$$Y_t = a_2 + \varphi_i X_{t-i} + \eta_t Y_{t-j} + \varepsilon_{2t} \qquad (7)$$

5. Results and Discussion

5.1. Descriptive Statistics

This section will present the results and discussion of the study after applying the methodology discussed in the previous section. Table 1 contains the descriptive statistics of the variables. It reveals that the mean value for CAP is approximately USD1595.94 million with a maximum value of USD1558.89 million and a minimum value of USD869.80 million. The results suggest that there has been high volatility in the stock markets of Pakistan due to macroeconomic instability and political uncertainty. Moreover, the descriptive statistics suggest that the mean value of FDI is approximately USD179.59 million with a maximum value of USD886 million. Due to political uncertainty and other domestic issues, Pakistan has experi-enced a negative FDI of approximately USD30 million. Furthermore, the results suggest that the mean value of FPI is USD9.95 million with a maximum value of USD750.77 million and a minimum value of USD158.79 million. There has been a great deal of variation of FPI due to the lack of a consistently favorable investment environment.

Pakistan has received an average level of remittances of USD1237.29 million since 2008 with a peak value of USD2073.08 million. Remittances are very crucial for Pakistan as they are the primary source of foreign capital reserves. The USD-PKR exchange rate has also seen increased volatility over time. The volatility is primarily due to different monetary adjustment policies by political regimes and challenges in the foreign reserves management. The results suggest that the mean value of USD-PKR exchange rate is 96.03 with a maximum value of 121.74.

Table 1 also provides the Jarque-Bera normality test statistics. The results suggest that CAP, FDI and FPI are not normally distributed as the Jarque-Bera statistic is significant at the 5% level. However, REM and USD-PKR exchange rate are normally distributed as the Jarque-Bera statistic is insignificant at the 5% level. The non-normality of time series variables is common in the literature and is unlikely to seriously affect the predictability of statistical analysis.

Table 1: Descriptive Statistics

	CAP	FDI	FPI	REM	USD
Mean	1595.94	179.59	9.95	1237.29	96.03
Median	1558.89	153.42	6.78	1243.06	98.59
Maximum	3357.67	886.23	750.77	2073.08	121.74
Minimum	869.80	30.71	−158.79	466.13	71.50
Std. Dev.	565.19	143.35	93.38	381.53	10.48
Skewness	0.52	2.06	4.71	−0.07	−0.18
Kurtosis	2.57	9.30	36.90	1.93	2.07
Jarque-Bera	6.32	283.59	6188.69	5.79	4.97
Probability	0.04	0.00	0.00	0.06	0.08

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5.2. Correlation Analysis

Correlation represents the strength of relationship, among the variables in the model. Table 2 provides the correlations matrix. It is apparent that the highest positive correlation is between REM and USD-PKR exchange rate. The high positive correlation between the variables implies that high remittances would be associated with a strong USD-PKR exchange. This is in line with the predictions of the previous literature. On the contrary, the highest negative correlation is between CAP and FPI. This implies that countries with low foreign portfolio investment tend to have low market capitalization. This is in line with the previous literature, which suggests that foreign investment in the capital markets is a primary determinant of stock market development. Overall, all the correlation values are below 0.9, which implies that there is no serious issue of multicollinearity.

5.3. Unit Root Test

Unit root test is used to examine the stationarity of variables, which is usually performed prior to ARDL estimation. ARDL estimation technique does not require variables to be stationary. The model can be run without pre-testing for unit roots. The ARDL model can be applied even if the variables are stationary or integrated at the first order. Non-stationary time series may cause a spurious results problem, therefore it is recommended to use stationary data. Table 3 presents the unit root test results from the Augmented Dickey Fuller test. The results indicate that CAP, FDI and FPI are stationary while REM and USD-PKR exchange is stationary at the first difference. As the variables are integrated at different levels, we have applied the ARDL model for analyzing a long-run relationship among variables.

5.4. Auto Regressive Distributed Lag Model Results

Table 4 presents the result of ARDL bounds test, which is used to ascertain the long run relationship between the variables. The F-value is 7.319, which lies outside the lower

and upper bounds (i.e., 3.74 and 5.06, respectively) therefore, we reject the null hypothesis. This implies that there is a long-term co-integrating relationship between the variables.

The long-run and short-run estimates of the ARDL model are presented in Table 5. The long-run estimates in Table 5 suggest that only REM is statistically significant 1% level. However, FDI, FPI and USD-PKR exchange rate are statistically insignificant. The results imply that only REM has a positive, long run and stable relationship with stock market capitalization. This finding is in line with the existing literature, which suggests that remittances play a vital role in stock market development especially in the case of emerging markets (Raza, Jawaid, Afshan, & Karim, 2015; Issahaku, Abor, & Harvey, 2017; Billmeier & Massa, 2009; Raza & Jawaid, 2014). Remittances play a crucial role in maintaining foreign capital reserves as a large proportion of the domestic workforce is employed overseas and remit their income to Pakistan. Unlike, FDI, FPI and USD-PKR exchange rate we did not observe high volatility in remittances. On the contrary, the high volatility in FDI, FPI and USD-PKR exchange rate is visible from the descriptive statistics. This high volatility may be a reason behind the statistically insignificant long-run relationship between FPI, FDI, USD-PKR exchange rate and market capitalization.

The short-run estimates presented in Table 5 suggest that there is a negative relationship between FDI, USD-PKR exchange rate and market capitalization (Raza, Jawaid, Afshan, & Karim, 2015). Moreover, the results suggest a positive relationship between FPI and market capitalization. The results imply that FDI would reduce the market capitalization in the short-run perhaps because local investors adopt a short-term perspective and liquidate their investments to earn capital gains. The negative effect of USD-PKR exchange rate suggest that investors seeking short-term capital gains may liquidate their investments from capital markets in order to benefit from an appreciating USD-PKR exchange rate. On the contrary, a positive effect of FPI on the market capitalization may be because higher foreign investment in capital markets increases investors' confidence and the demand for stocks.

Table 2: Correlation Matrix

	CAP	FDI	FPI	REM	USD
CAP	1.0000				
FDI	0.2439	1.0000			
FPI	−0.2094	0.4671	1.0000		
REM	0.3558	−0.0281	−0.0188	1.0000	
USD	0.3187	−0.0840	−0.0480	0.8814	1.0000

Table 3: Unit Root Test

Variables	At Level		At First Difference	
	Intercept & Trend	Prob. Value	Intercept & Trend	Prob. Value
CAP	−4.010528[c]	0.0108		
FDI	−9.339621[a]	0.0000		
FPI	−9.735767[a]	0.0000		
REM	−0.704943	0.9697	−4.541428[a]	0.0021
USD	−2.288006	0.4368	−3.625625[b]	0.0319

[a,b,c]Represents level of significance at 1%, 5% and 10% respectively.

Table 4: Results of Bound *F* Statistic and Diagnostic Tests

Equation			Bound Testing Approach	
		Lag Order	**F-Value**	**Decision**
CAP = *f*(Cap, FDI, FPI, REM, USD)		(4, 2, 2, 1, 3)	7.319[a]	Reject null hypothesis of no cointegration
Critical Value Bounds				
Significance	**I_0 Bound**	**I_1 Bound**		
10%	2.45	3.52		
5%	2.86	4.01		
2.5%	3.25	4.49		
1%	3.74	5.06		

[a]Represents the 1% significance level.

Table 5: Results of Long-Run and Short-Run Estimates

Variables	Coefficient	Std. Error	*t*-statistic	Prob.
Long-Run Estimates				
FDI	434.00	1122.90	0.3865	0.7000
FPI	−1813.63	1823.56	−0.9946	0.3224
REM	991.22[a]	353.67	2.8026	0.0061
USD	16637.17	12117.18	1.3730	0.1728
C	−1332580.9	896936.79	−1.4857	0.1405
Short-Run Estimates				
D(FDI)	−34.14	221.180141	−0.1544	0.8776
D(FDI(−1))	−316.20[c]	174.652229	−1.8104	0.0733
D(FPI)	253.82	247.563946	1.0253	0.3077
D(FPI(−1))	402.32[c]	215.555839	1.8664	0.0649
D(REM)	−51.22	58.538376	−0.8750	0.3837
D(USD)	−15102.37	10104.8778	−1.4946	0.1382
D(USD(−1))	34529.132	21516.6915	1.6048	0.1117
D(USD(−2))	−27933.43[c]	15747.0072	−1.7739	0.0792
CointEq(−1)	−0.19[b]	0.072819	−2.5932	0.0109
Diagnostic Test				
R^2	0.93639			
DW	1.794526			
F-statistic	91.08532			
Prob(*F*-statistic)	0.00000			

[a,b,c]Represents level of significance at 1%, 5% and 10% respectively.

Table 6: Pairwise Granger Causality Test

FDI → CAP	11	1.86874	0.1212
CAP → FDI	6	1.48023	0.2133
FPI → CAP	11	0.82899	0.5096
CAP → FPI	6	1.49313	0.2094
REM → CAP	11	7.38957[a]	0.0000
CAP → REM	6	0.30677	0.8729
USD → CAP	11	7.85444[a]	0.0000
CAP → USD	6	0.52758	0.7157

[a,b,c]Represents level of significance at 1%, 5% and 10% respectively.

The high demand for securities will increase their prices and market capitalization.

5.5. Granger Causality Test Results

Table 6 presents the results of the Granger causality test. The test enables us to decide whether there is a bi-directional causal relationship between the variables. The results suggest that REM and USD-PKR exchange rate have a causal relationship with CAP as the F-statistic values of both relationships are significant at the 1% level (i.e., p-value is 0.000). However, the results suggest that there is no causal relationship between FDI, FPI and CAP.

5.6. Analysis of Structural Breaks: CUSUM and CUSUM Square Test Results

The study analyses the presence of structural breaks using the CUSUM and CUSUM Square test. The presence of structural breaks will indicate that the results are not stable and the parameters are not constant over time. The null hypothesis of both the tests is that the parameters are stable. If the null hypothesis is rejected, it implies that structural breaks are present and the parameters are not stable over time. The test results indicate that residuals are within the boundaries. Therefore, we can conclude that there is an absence of structural breaks in the model at the 5% level of significance.

6. Conclusion

The objective of this study was to ascertain the relationship between foreign direct investment, foreign portfolio investment, remittances, USD-PKR exchange rate and stock market development in Pakistan. An ARDL model was estimated to analyze the short-run and long-run dynamics between the independent and dependent variables. The results from the ARDL model suggest that in the long run, only REM has a positive and significant relationship

with stock market development. However, FDI, FPI and USD-PKR exchange rate do not have a significant impact on stock market development. Furthermore, the results suggest that in the short run there is a negative relationship between FDI, USD-PKR exchange rate and market capitalization. Moreover, the results suggest a positive relationship between FPI and market capitalization.

The study has several implications for policy-makers and investors. First, as remittances has a positive and long-run relationship with stock market development, we argue that the government should enact policies that encourage the flow of remittances through official channels and prevent remittances from illegal channels. Second, our results also imply that the State Bank of Pakistan should maintain a stable USD-PKR exchange rate by maintaining stable foreign exchange reserves, foreign remittances for promoting stock market development. We also argue that the State Bank of Pakistan should intervene in the foreign exchange market to prevent foreign exchange fluctuations, which disturb the country's overall debt obligations and other macroeconomic indicators. Third, as FPI has a short-run positive impact on stock market development therefore, we argue that the government should attract foreign portfolio investments from other countries to stimulate the development of Pakistani capital markets.

The study is limited to the Pakistani economy during the time-period 2008–2018. As a result, the sample size of the study is relatively small as compared to some other studies. Further, we have only analyzed how FDI, FPI, REM and USD-PKR exchange rate affects stock market development without considering other important variables that may influence stock market development. In view of these limitations, we suggest that future researchers may analyze the role of foreign capital inflows in promoting stock market development using cross-country data. Moreover, future researchers may explore how corruption moderates the relationship between foreign capital inflows and stock market development.

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