Nexus of Economic Misery, Interest rate, Exchange rate and Foreign Direct Investment in Pakistan

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Abstract:
This study investigates the impact of economic misery, exchange rate and interest rate on foreign direct investment (FDI) in case of Pakistan over the period of 1972- 2013. The time series data for all variables is collected from various issues of Economic Surveys of Pakistan, State bank of Pakistan and WDI. This study has used Augmented Dickey-Fuller (ADF) and Philips Perron (PP) unit root tests for stationarity of the variables and Autoregressive Distributive Lag (ARDL) is used for co-integration among the variables of the model. The results show that there is negative and insignificant impact of economic misery and political instability on FDI in Pakistan. Exchange rate has positive and significant relationship with FDI over the selected time period. Exports have a negative and insignificant impact of FDI. Interest rate and GDP has a positive and significant relationship with FDI in case of Pakistan.

I. Introduction

Foreign direct investment (FDI) is defined as "form of international inter-firm cooperation that involves a significant equity stake in, or effective management control of, foreign enterprises" (De Mello, 1997). The FDI is also consisted of capital flows resulting from the behavior of multinational companies (Agiomirgianakis, 2003). The economic theory behind international capital mobility is that FDI move towards the countries that generate high rate of return as compared to others. Thus developing countries like Pakistan are offering security and comfort to their investors to attract FDI in the country. Foreign direct investment helps a country to come out of a poverty circle. FDI brings various advantages to host countries such as along with capital, advanced technology comes which increases the technological capability of host country, in the process of generating long-term economic growth. Foreign direct investment is mostly invested in open economies which have skilled workforce and more growth prospects for the investors. Along with that it is the interest rate and exchange rate which makes path for FDI. There are many factors that affect FDI in a country and they play a vital role is the attracting FDI in a country. Although, there are number of factors which affect FDI but foreign investors keep a very close eye on interest rate of the host country. Interest rate is the proportion of a loan that is charged as interest to the borrower, typically expressed as an annual percentage of the loan outstanding. Interest rate in a country is of vital importance in attracting FDI in a country. If interest rate is relatively high in a country, then the locals will not invest in that country but it will attract the foreign direct investment in that country. FDI attracted under such interest rate will definitely bring satisfaction and comfort to investors and provide incentive for further FDI in a country. Exchange rate is the price of a nation's currency in terms to another nations currency. Exchange rate also plays an important role in determining FDI in a country. Empirical studies result show that there is mostly a positive relationship between exchange rate on case of host country (Bilawal et. al, 2014). In the developing country like Pakistan the government has made efforts to attract FDI by introducing reforms in the interest rate and exchange rate along with privatization. However, certain problems like political instability and economic misery also have an effect on the FDI in a country. The purpose of this study is to examine the relationship of exchange rate and interest rate with FDI in case of Pakistan. This type of study is hardly done in case of Pakistan. So this study will be a healthy contribution towards respective literature.

II. Literature Review

There are vast body of literature which examine the determinants of FDI, here some of the most important studies are selected as literature review. Urata and kiyota (2001) examine the relationship between exchange rate, exchange rate volatility and foreign direct investment. The study is based on the monthly data of inward FDI and level RMB/USD exchange rate from July 2005 to December 2010. The results show that FDI inflow would be increase by the appreciation of RMB exchange rate, and the great amount of FDI inflows will bring appreciation pressure to the exchange rate of RMB. Barrell et al., (2004) study the relationship between exchange rate uncertainty and location of the US foreign direct investment in Europe. They estimate show that the US foreign investment in UK and Continental Europe for the panel of seven manufacturing industries. Their results show that US firms like risk free environment and they decrease their investment due to rising exchange rate volatility. While market power does not affect US FDI.

Udomkerdmongkol et al., (2006) examine the impact of exchange rates on US FDI inflows to a sample of 16 emerging market countries. They are using panel data for the period 1990-2002. The results of the study show that there is a negative relationship between the expectation of local currency depreciation and FDI inflows and cheaper local currency attracts FDI inflows in a country. Osinubi and Amaghionyeodiwe (2009) investigate the effect of exchange rate volatility on foreign direct investment (FDI) in Nigeria. They use error correction model and OLS method of estimation for data employing secondary time series data from 1970 to 2003. The results indicated the positive relationship between real inward FDI and exchange rate (I.e depreciation of Naira and the structural adjustment program has a negative impact on FDI due to exchange rate volatility.

Hunjra et.al (2010) examine the impact of macroeconomic variables on foreign direct investment (FDI) inflows in Pakistan, ADF test was applied to check the stationarity of the data; co-integration, descriptive statistics and Granger Causality test were used in the analysis of the data from 1992 to 2013. The results of this study showed that GDP growth rate and interest rate had significant effect on FDI inflows in Pakistan. While, the inflation and Exchange rate are found to be insignificant in determining the FDI inflows.

Dhakal et.al (2010) investigates the effect of exchange rate volatility on FDI of some East Asian countries that attracted FDI most and experience exchange rate volatility. They employ annual time series data from China (1982-2005), Indonesia (1981-2005), Malaysia (1974-2005), the Philippines (1977-2005), South Korea (1976-2005) and

Thailand (1975-2005) using error correction model. The results of the study show that exchange rate volatility has favorable effect on foreign direct investment in case of Pakistan.

Ellahi (2011) analyzed the impact of exchange rate volatility on foreign direct investment for the Pakistan's economy using time series data from 1980 to 2010. An auto regressive distributed lag (ARDL) model for short and long run and additionally multivariate vector error correction method (VECM) causality test in long run relationship was employed in this study. The results of this study showed that exchange rate volatility had negative effect on FDI and it had shown negative relation or effect in long run.

Anna et.al., (2012) examine the impact of interest rates on foreign direct investment in Zimbabwean economy by collecting data from Reserve Bank of Zimbabwe, International Monetary Fund reports, World Bank reports, Ministry of Finance, Failed Nations. Data was analyzed using the classical linear regression model, ordinary least squares approach. The results of the study showed that interest rates had no significant impact on FDI inflows.

Ullah et al., (2012) study the impact of exchange rate volatility on foreign direct investment in case of Pakistan. They used the time series data for foreign direct investment, exchange rate, exchange rate volatility, trade openness and inflation from 1980-2010. They use exchange rate volatility due to fragile exchange rate in the recent past of their study. To do the analysis they use different econometric techniques for analysis purposes like unit root test, volatility analysis, co-integration technique and causality analysis. Results of the study that FDI is positively affected by with rupee depreciation while exchange rate volatility deters FDI. The trade openness increases FDI. Granger causality test shows that exchange rate volatility granger causes foreign direct investment but not vice versa.

Jin and Zang (2013) test the impact of changes in exchange rate on FDI, with reference to international and domestic research. Based on the monthly data of foreign direct investment (FDI) in China and the index of real effective exchange rate (REER) of RMB from Jan 1997 to Sep 2012, to check the statistical model first they employed OLS and ADF tests and later examine the cointegration using Engle-Granger causality test. The results showed that the appreciation of RMB promoted FDI in China.

Saymeh and Orabi (2013) investigate the effect of interest rate, inflation rate, and GDP on real economic growth in Jordan over the period 2000-2010 employing the Unit root test (Augmented Dickey-Fuller test) study also employed Johansen test. Study adopted the same four variables to discuss Granger Causality relationship findings indicated that inflation causes interest rate? Finally regression used to test GDP, interest rate, and inflation rate together; results had shown that current GDP and one lag GDP have influence power to growth rate.

Siddiqui and Aumeboonsuke (2014) analysis the relationship of (FDI) inflow and interest rates (IR) employing Vector Auto regression (VAR) Technique using the data from 1986 to 2012. The results of the study show that Singapore and Malaysia low interest rates does not attract the FDI inflow, one directional relationship between FDI inflow and INF in Thailand, Singapore and Indonesia i.e interest rates of Thailand, Indonesia and Malaysia have negative relation with FDI.

Shafi et. al (2015) make the comparative study of balance of Payment (BOP) of two countries: Pakistan and India through Impact of exchange rate, inflation rate and interest rate fluctuations on BOP. The ANOVA technique was adopted and the results showed inflation and foreign exchange rate had positive effect while interest rate had negative effect on BOP in both countries.

Semuel and Norina (2015) investigate the effect of inflation, interest rates, and exchange rates on GDP in Indonesia, using data from June 2005 until December 2013 collected from Bank Indonesia and Kementrian Perdagangan RI employing Partial Least Square (PLS) to test the hypothesis. The results showed that there was a significant positive relationship between inflation and interest rates to GDP. While, there was no significant relationship between the exchange rate of the GDP and the interest rate on the exchange rates.

Faroh and Shen (2015) study the Impact of Interest Rates on Foreign Direct Investment in Case Study of Sierra Leone Economy. They have used different econometric techniques to run multiple regression time series data collected for the period of 1985 to 2012. The results of the study showed that the main findings are that trade

openness and exchange rate are the main determinants of FDI inflow and had positive effect on sierra Leone economy and concludes that high interest rate had no effect on FDI in the economy.

Khandare (2016) examines the impact of exchange rate on foreign direct investment in India and China using data from 1991 to 2014 collected from UNCTAD and from World Trade Organization, International Trade Statistics, 2015. Correlation and simple linear regression model has been used. The results showed that there was positive correlation between FDI and exchange rate in India and in China it is negative.

III. Theoretical framework

Interest rate and exchange rate plays an important part in the economy to attract a huge number of foreign direct investments [Urata and kiyota (2001), Osinubi and Amaghionyeodiwe (2009), Ellahi (2011), Jin and Zang (2013), Anna et.al (2012), Saymeh and Orabi (2013), Siddiqui and Aumeboonsuke (2014), Ali (2015), Ali and Rehman (2015), Semuel and Norina (2015), Khandare (2016), Arshad and Ali (2016)]. Since FDI is a major source for rapid development of a country. FDI helps to take a country out of poverty trap so FDI is very important for economic development Pakistan. Other beneficial impacts of FDI are the reduction of unemployment and economic misery whereas the enhancement of exports and GDP is occurred. To develop the model of this study we have followed the model of Faroh and Shen (2015) with certain modifications. The model of this study is comprised of FDI as dependent variables whereas exchange rate, interest rate, economic misery, political instability, exports and GDP are independent variables. Thus the model of the study become as:

$$FDI = f(INTR_t, OER_t, EI_t, PI_t, MERE_t, GDPG_t)$$

Where,
FDI=foreign direct investment
INTR= Interest Rate
OER=Exchange Rate
EI=Economic Misery
PI= Political Instability
MERE= Exports
GDPG= Gross Domestic Product
t=Time Period

For political instability we use a dummy variable between autocratic and democratic regimes. (i.e D=1 for autocratic or military regimes and 0 for democratic regimes.)

To find the responsiveness of independent variable to dependent variable, the equation can be written in the following form:

$$FDI_t = \alpha_0 INTR_t^{\alpha_1} OER_t^{\alpha_2} EI_t^{\alpha_3} PI_t^{\alpha_4} MERE_t^{\alpha_5} GDPG_t^{\alpha_6} e^{t\alpha_7}$$

e = represent for the base of log
Following the linear form of the function the model becomes as:

$$LFDI_t = \alpha_0 + \alpha_1 INTR_t + \alpha_2 LOER + \alpha_3 LEI_t + \alpha_4 PI_t + \alpha_5 LMERE_t + \alpha_6 LGDPG_t + e_t$$

The main objective of this study is to analyze the impact of exchange rate and interest rate on FDI in case of Pakistan. The data of selected variables has been collected from different sources like WDI, various issues of Pakistan Economic Survey and State Bank of Pakistan online databases over the period of 1972-2013.

III.I. Augmented Dickey-Fuller (ADF) Test

Following the weakness of time series data, Augmented Dickey-Fuller (1981) is used for checking the stationarity of the variables. The general forms of the ADF can be written as:

$$\Delta X_t = \delta X_{t-1} + \sum_{j=1}^{q} \phi_j \Delta X_{t-j} + e_{1t}$$

$$\Delta X_t = \alpha + \delta X_{t-1} + \sum_{j=1}^{q} \phi_j \, \Delta X_{t-j} + e_{2t}$$

$$\Delta X_t = \alpha + \beta t + \delta X_{t-1} + \sum_{j=1}^{q} \phi_j \, \Delta X_{t-j} + e_{3t}$$

Xt is a time series for testing unit roots, t is the time trend and et is error term having white noise properties. If j = 0, it represents the simple DF test. The lagged dependent variables in the ADF regression equation are included until the error term becomes white noise. For checking the serial correlation of error terms LM test is used. The null and alternative hypotheses of ADF unit roots test are:

H0: $\delta = 0$ non-stationary time series; so it has unit root problem.
Ha: $\delta < 0$ stationary time series.

Applying OLS and computing τ statistic of the estimated coefficient of Xt-1 and comparing it with the Dickey Fuller (1979) critical τ values, if the calculated value of τ statistic is greater than the critical value then rejects the H0. In this case the time series data is stationary. On the other hand, if we fail to reject H0, the series is non-stationary. In this way by applying this procedure on all variables, we can easily find their respective orders of integration.

III.II. Auto Regressive Distributed Lag Model (ARDL) Approach to Co-integration
In econometric literature, there are number of co-integration tests available for empirical analysis. Most famous and traditional co-integration tests are the residual based Engle-Granger (1987) test, Maximum Likelihood based on Johansen (1991/1992) and Johansen-Juselius (1990) tests. One thing common in these tests is that they require same order of integration for their analysis. These co-integration tests become invalid and inefficient when the variables of the model have different level of integration. Moreover, the analysis based on these tests do not provide information about the structural breaks of time series data and have low power of prediction. With the passage of time structural changes have occurred in time series such as economic crises, new institutional arrangements and changes in policy regime. The problem with these traditional methods is that the testing of the null hypothesis of structural stability against the alternative of a one-time structural break only. If such structural changes are present in the data generating process, but not allowed for in the specification of an econometric model, results may be biased. ARDL bound testing approach presented by Pesaran and Pesaran (1997), Pesaran and Shin (1999), and Pesaran, Shin and Smith (2001) has numerous advantages over traditional methods of co-integration. Firstly, ARDL can be applied regardless the order of integration. Secondly, ARDL bounds testing approach to co-integration can be used for small sample size (Mah, 2000). Thirdly, this approach allows taking sufficient number of lags for capturing the data generating process in a general to specific modeling framework (Laurenceson et al., 2003). Lastly, ARDL gives efficient and valid detailed information about the structural breaks in data. This technique is based on Unrestricted Vector Error Correction Model (UVECM) which have better properties for short and long-run equilibrium as compared to traditional techniques (Pattichis, 1999). Pesaran and Shin (1997) and later on Pesaran et al. (2001) mention that under certain environment long-run correlation among macroeconomic variables can be found with the help of Autoregressive Distributive Lag Model (ARDL). After lag order selection for ARDL procedure, simply OLS can be used for identification and estimation. Valid estimates and inferences can be drawn through the presence of unique long-run alliance that is crucial for co-integration.

$$\Delta lnY_t = \beta_1 + \beta_2 t + \beta_3 lnY_{t-1} + \beta_4 lnX_{t-1} + \beta_5 lnZ_{t-1} + \cdots + \sum_{h=1}^{p} \beta_h \, \Delta lnY_{t-h} + \sum_{j=0}^{p} \gamma_j \, \Delta lnX_{t-j}$$

$$+ \sum_{k=0}^{p} \phi_k \Delta lnZ_{t-k} + \cdots + u_{it}$$

At first the study will find the direction of relationship among the variables in case of Pakistan by applying the bounds test using Wald test. This study uses different proxies for social progress as dependent variable and every model has different control variable with macroeconomic instability.

H0: $\beta3 = \beta4 = \beta5 = 0$ (no co-integration among the variables)
HA: $\beta3 \neq \beta4 \neq \beta5 \neq 0$ (co-integration among variables)

If there exits long-run co-integration relationship among the variables, then for finding short-run relationship the study uses the Vector Error Correction Model (VECM). The VECM is explained as under:

$$\Delta lnY_{it} = \beta_1 + \beta_2 t + \sum_{h=1}^{p} \beta_h \, \Delta lnY_{it-h} + \sum_{j=0}^{p} \gamma_j \, \Delta lnX_{t-j} + \sum_{k=0}^{p} \phi_k \Delta lnZ_{it-k} + \omega ECT_{t-1} + u_t$$

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IV. Empirical Results and Discussions

This study investigates the impact of economic misery, exchange rate and interest rate on foreign direct investment in case of Pakistan over the period of 1972- 2013. The results of descriptive statistics and pair-wise correlation among the variables of the model are presented in table-1. The results of table-1 show that the data of foreign direct investment, political instability, exchange rate, export, economic misery, interest rate and GDP is normally distributed. Jarque-Bera statistic shows that the values of Jarque-Bera are insignificant which means all variables of the model have finite covariance and zero mean. The interest rate value is significant, because it has repeated values during the selected time period. Thus it is concluded that our selected variables are normally distributed.

Table. 1 Descriptive Statistics and Correlation Matrix							
	LFDI	EI	PI	LOER	LMERE	LINTR	GDPG_
Mean	-0.660494	13.37607	0.476190	3.306263	22.52603	2.410585	4.806418
Median	-0.564676	12.82930	0.000000	3.279104	22.72142	2.302585	4.772638
Maximum	1.299735	27.02303	1.000000	4.621328	23.95733	4.356709	10.21570
Minimum	-3.087973	4.526414	0.000000	2.161181	20.77445	1.791759	0.813406
Std. Dev.	1.003818	5.434834	0.505487	0.809953	1.002894	0.390237	2.142846
Skewness	-0.276979	0.524761	0.095346	0.039070	-0.268294	3.024762	0.215617
Kurtosis	2.986059	2.873802	1.009091	1.535048	1.934333	15.93101	2.607804
Jarque-Bera	0.524568	1.955488	7.000145	3.766334	2.609886	356.6637	0.622931
Probability	0.769293	0.376159	0.130195	0.152108	0.271188	0.000000	0.732373
Sum	-27.08027	561.7947	20.00000	138.8631	991.1454	101.2446	211.4824
Sum Sq. Dev.	40.30602	1211.034	10.47619	26.89695	43.24923	6.243674	197.4469
Observations	42	42	42	42	42	42	42

Table-2

Variables	LFDI	EI	PI	LOER	LMERE	LINTR	GDPG
LFDI	1.000000						
	0.341685	1.000000					
	2.270470	-----					
EI	0.0288	-----					
	0.068591	-0.398503	1.000000				
	0.429361	-2.713414	-----				
PI	0.6700	0.0099	-----				
	0.752488	0.398854	-0.096096	1.000000			
	7.135212	2.716249	-0.602909	-----			
LOER	0.0000	0.0098	0.5501	-----			
	0.817814	0.386669	-0.040612	0.963449	1.000000		
	8.874720	2.618411	-0.253830	22.45961	-----		
LMERE	0.0000	0.0125	0.8010	0.0000	-----		
	0.394368	0.299329	-0.342278	0.256939	0.321382	1.000000	
	2.680038	1.959136	-2.274934	1.660325	2.119468	-----	
LINTR	0.0107	0.0573	0.0285	0.1049	0.0405	-----	
	-0.150931	-0.323863	0.505240	-0.373249	-0.245052	-0.132376	1.000000
	-0.953484	-2.137738	3.656199	-2.512512	-1.578479	-0.834030	-----
GDPG	0.3462	0.0389	0.0008	0.0162	0.1225	0.4093	-----

The table-2 shows the correlation matrix among the variables of the model. FDI has positive and significant correlation with exchange rate, exports, economic misery and interest rate but it has insignificant relationship with political instability. FDI has negative and insignificant correlation with GDP. Economic misery has positive and significant correlation with exchange rate, exports and interest rate. While it has negative and significant correlation with political instability and GDP. Political instability has negative and insignificant correlation with exchange rate and exports whereas it has negative and significant correlation with interest rate. Political instability has positive and significant relationship with GDP. Exchange rate has positive and significant correlation with exports but has positive and insignificant correlation with interest rate and GDP.

Table. 3 Unit Root Tests		
Augmented Dickey-Fuller Unit root test		
At level		
Variables	T-Statistic	Prob.
LFDI	-2.775594	0.0711
EI	-3.443635	0.0149
PI	-2.054020	0.2637
LOER	0.501385	0.9848
LMERE	-1.055619	0.7245
LINTR	-3.462693	0.0142
GDPG_	-4.971467	0.0002
At first difference		
LFDI	-7.768387	0.0000
EI	-7.730288	0.0000
PI	-6.164414	0.0000
LOER	-4.677630	0.0005
LMERE	-6.710193	0.0000
LINTR	-8.231064	0.0000
GDPG_	-11.62870	0.0000

Empirics reveal that most of time series data have the problem unit root which make estimated results spurious, so it is necessary to check the stationary of the variables in time series analysis. Augmented Dickey-Fuller (ADF) and Philips Perron (PP) unit root tests are used to solve the unit root problem in this study. Table-2 shows the estimated results of unit root test. The results of both ADF and PP show that economic misery, interest rate and GDP are stationary at level. While foreign direct investment, political instability, exchange rate and exports are not stationary at level, thus we cannot reject null hypothesis for all variables. While after taking first difference all variables become stationary and we reject null hypothesis. Thus it is concluded that foreign direct investment, political instability, exchange rate, export, economic misery, interest rate and GDP have mixed order of integration, so it is suitable situation for applying ARDL bound testing approach to co-integration.

Table. 4 ARDL Bound Testing Approach		
Dependent Variable: LFDI ARDL(1, 2, 0, 1, 0, 0, 2)		
Critical values	**F-Statistics 3.383499**	
	Lower Bound	Upper bound
95%	2.45	3.61
90%	2.12	3.23

ARDL bound testing is applied for investigating the co-integration among foreign direct investment, political instability, exchange rate export, economic misery, interest rate and GDP in case of Pakistan over the period 1972-2013. F-statistic is used to test the null hypothesis of co-integration. The calculated F-statistic 3.383499 is greater than the value of 3.23 the upper bound at 10 percent. The alternative hypothesis of co-integration is accepted and null hypothesis is rejected. Thus foreign direct investment, political instability, exchange rate, export, economic misery, interest rate and GDP have co-integrational relationship in case of Pakistan.

Now we can examine the long run relationship among the variables, in this study foreign direct investment is the dependent variable whereas political instability, exchange rate, exports, economic misery, interest rate and GDP are selected independent variables. The estimated long run results of model are depicted in the table 5. The results show that there is negative and insignificant relationship between economic misery and foreign direct investment between political instability and foreign direct investment in Pakistan. The exchange rate has positive relationship with foreign direct investment. The coefficient of exchange rate shows that with 1 percent increase leads to 3.282456 percent increase in foreign direct investment in Pakistan. The examined results show that 1 percent increase in exports leads to 1.908315 percent decrease in foreign direct investment. The coefficient of interest rate shows that it

has a positive relationship with FDI. Thus, 1 percent increase in interest rate leads to 1.239564 percent increase in foreign direct investment. Finally, coefficient of GDP reveal positive relationship impact on foreign direct investment and 1 percent increase in GDP leads to 0.452007 percent increase in foreign direct investment. Hence the overall long run results show that rising economic misery, political instability and exports reduce the amount of foreign direct investment in case of Pakistan. While, exchange rate, interest rate and GDP increases foreign direct investment in Pakistan.

Table. 5
Estimated Long Run Coefficient using the ADRL Approach
ARDL(1, 2, 0, 1, 0, 0, 2)
Dependent variable is LFDI
Time Period 1972-2013

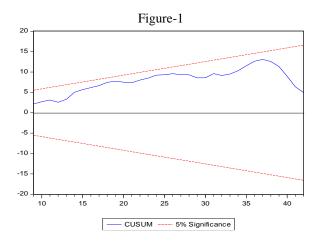| Regressors	Co-efficient	Standard-Error	T-Ratio (Prob)
EI	-0.005626	0.040431	-0.139(0.890)
PI	-0.419446	0.417610	-1.004(0.324)
LOER	3.282456	1.317733	2.491(0.019)
LMERE	-1.908315	1.067463	-1.788(0.086)
LINTR	1.239564	0.411393	3.013(0.006)
GDPG_	0.452007	0.184696	2.447(0.022)
C	27.149622	18.861648	1.439(0.162)

Table. 6
Vector Error-Correction Model (VECM)
ARDL(1, 2, 0, 1, 0, 0, 2)
Dependent variable is LFDI
Time Period 1972-2013

Regressor	Co-efficients	Standard-Error	T-Ratio (Prob)
D(EI)	0.071370	0.020278	3.520(0.002)
D(EI(-1))	0.060404	0.019361	3.120(0.004)
D(PI)	-0.228531	0.209721	-1.090(0.286)
D(LOER)	-3.434937	1.368205	-2.511(0.019)
D(LMERE)	-1.039727	0.436832	-2.380(0.025)
D(LINTR)	0.675364	0.203239	3.330(0.003)
D(GDPG_)	0.009828	0.046261	0.212(0.833)
D(GDPG_(-1))	-0.104334	0.037778	-2.762(0.010)
ECM	-0.544840	0.126172	-4.318(0.000)

The results of short run dynamics are depicted in table 6. The results show that economic misery has positive and significant relationship with foreign direct investment. The results reveal that 1 percent increase in economic misery leads to 0.071370 percent increase in foreign direct investment in Pakistan. The short run results reveal that political instability has negative and insignificant relationship with foreign direct investment in Pakistan. The short run results depict that there is negative and significant relationship between exchange rate and foreign direct investment. The estimated results show that 1 percent increase in exchange rate would result in 3.434937 percent decrease in foreign direct investment in Pakistan. The coefficient of exports shows there is negative and significant relationship between export and foreign direct investment in Pakistan. The short run results show that 1 percent increase in exports leads to 1.039727 percent decrease in foreign direct investment in Pakistan. The prevailing interest rate has positive and significant relationship with foreign direct investment, the results show that 1 percent increase in interest rate bring 0.675364 percent increase in foreign direct investment in Pakistan. The short run results of GDP reveal positive and insignificant relationship with foreign direct investment in the case of Pakistan. The results show that ECM has negative and significant which shows the speed of convergence from short run to long run. The results show that more than 54 percent variation in current period is corrected in next period. The results show that short run needs more than 2 years to converge in the long run.

Breusch-Godfrey Serial Correlation LM test and Heteroskedasticity test and White test are selected diagnostic tests. The table 7 shows the test for serial correlation and heteroscedasticity. The results show that there is no serial correlation among the error term of selected variables of the model. White test is used to check heteroscedasticity problem and there is no heteroscedasticity problem in the model. Moreover, the variables of the model have a correct functional form and the time series data is normally distributed.

Table. 7 Diagnostic test			
Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	54.20011	Prob. F(1,24)	0.2828
Obs*R-squared	46.20125	Prob. Chi-Square(3)	0.5873
Heteroskedasticity Test: White			
F-statistic	0.80976	Prob. F(12,26)	0.6386
Obs*R-squared	10.6103	Prob. Chi Square(12)	0.5626
Scaled explained SS	4.68597	Prob. Chi-Square(12)	0.9677

Stability of the long and short run parameters of the model is measured by Brown et al. (1975) proposed the cumulative sum (CUSUM) and the cumulative sum of squares (CUSUMsq). Cumulative sum (CUSUM) are presented in figure 1. The plot of the CUSUM is within the line and significant at 5 percent. This ensures the stability of the long and short run parameters.

Figure-1

V. Conclusions and Policy Suggestions
The main aim of this study is to investigate the impact of political instability, exchange rate, exports, economic misery, interest rate and GDP on foreign direct investment (FDI) in case of Pakistan over the period 1972 to 2013. ADF unit root test is used to check the stationarity of the variables of the model. Auto-Regressive Distributed Lag (ARDL) model is used for examining the co-integration among the variables of the model. Vector-Error Correction model is used to overview the short run dynamics of the selected variables. The estimated results of unit root test show that there is mixed order of integration among the variables of the model. The results show that there is negative and insignificant impact of economic misery and political instability on FDI in Pakistan. Exchange rate has positive and significant relationship with FDI over the selected time period. Exports have a negative and insignificant impact of FDI. Interest rate and GDP has a positive and significant relationship with FDI in case of Pakistan. In short run economic misery has a positive and significant relationship with FDI. There is a negative and insignificant short run relationship between political instability and FDI. On the basis of empirical results some policies are suggested to increase the amount of Foreign Direct Investment (FDI). The interest rate and exchange rate must be stable so that foreign investors feel no uncertainty while investing in Pakistan. However, economic

growth has positive relationship, so government of Pakistan should enhance economic growth which will increase FDI in Pakistan. In Short, the government of Pakistan should stable interest rate and exchange rate as well as adopt a suitable monetary policy to increase foreign direct investment in case of Pakistan. At the same time political environment must be stabilized for enhancing FDI in Pakistan.

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