Political Stability, foreign direct investment and remittance inflow in Bangladesh: An empirical Analysis

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Abstract

This study investigates the causal relationship between political stability, foreign direct investment and remittance inflows in Bangladesh. To examine this causal nexus, we use political stability and absence of violence indicator from World Bank's good governance indicator data base and foreign direct investment, and remittance data from the International Monetary Fund data base, for the period 1996-2013. Both short run and long run relationship are investigated by testing cointegrating relationships and employing a vector error correction model (VECM). Our results suggest that i) political stability has a positive impact on foreign direct investment and remittance inflows in the long run, ii) political stability has positive impact on remittance in short run but there is no significant relation between political stability and foreign direct investment in the short run.

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1. Introduction:

Foreign direct investment (FDI) is one of the key determinants for economic growth in developing countries. Many developing countries take explicit policy initiatives to attract FDI. On the other hand, investors across the globe always explore the locations where profitable investment opportunities exist. In combination with other factors, the inflow of FDI strongly depends on the overall hospitality of investment climate in the host countries. In general, political instability affects the investment climate negatively which intern reduces FDI inflows. Many developing countries in the world are not politically stable and most often they suffer from poor quality of governance. Nonetheless, some of those countries have been showing good economic performance in the last couple of decades, Bangladesh being one of them. Bangladesh has a history of political instability and poor quality of governance. Military coups and political turmoil, involving violent demonstrations and strikes, are a very common picture in Bangladesh. However, despite political instability and poor governance quality, Bangladesh has emerged as a lower-middle income country by its own merit over the last 20-25 years. Therefore, Bangladesh is an interesting country to investigate the relationship between political instability and foreign direct investment.

A number of studies have found a significant relationship between FDI and economic growth in the economy of Bangladesh. Most of these studies show that FDI affects the economic growth positively. But there is no study which investigates causal relationships between FDI inflow and political stability for Bangladesh. Therefore, our study aims to fill this gap in literature.

Political instability might discourage the FDI inflow. But, the direction of causality is not so clear, i.e., whether FDI inflow contributes to political stability or political stability causes FDI. The findings for Bangladesh in the literature are mixed and some of the results are contradictory. *Ahmed & Pulak (2013)* show that FDI and Economic performance have both short run and long run relation and both are negatively correlated. On the other hand *Hossain & Hossain (2011),* work on in the relationship for the period 1972-2008 and do not find any significant relationship between FDI and GDP in the long or short run. They also do not find any causality in the relationship between GDP and FDI in Bangladesh.

Also, there are many studies which investigate similar relationships for other countries. Most of them suggest that FDI and political instabilities are influentially interrelated. *Büthe, T et al. (2008)* analyze the FDI inflow for 122 developing countries for the period between 1970 and 2000. They find that despite political instability in these developing countries, joining in different trade agreements help them receiving FDI and maintain decent economic growth. *Kim (2010)* finds completely opposite results. He shows that political instability and FDI inflow are positively correlated in those countries that have a high level of corruption and low level of democracy. Those countries are able to attract more FDI inflows and actually countries with higher political rights have higher FDI outflows.

Shahzad A. et al (2012) investigate this relationship for Pakistan and show that there is a negative correlation between FDI inflow and political instability in Pakistan and conclude that political instability has reduced FDI inflow in Pakistan.

Most of the existing studies on Bangladesh focus on the relationship between FDI and economic performance in Bangladesh. In this study we primarily focus on the causal relationship between FDI inflow and political instability in Bangladesh. In addition, we also include remittance inflow, which seems to become a strong driving component for economic development in Bangladesh, in our investigation. This part of our analysis suggests that there are long run association between these three variables political stability, foreign direct investment and remittance inflow; they are positively correlated in long run. In short run, we do not find any causal relation of political stability and remittance to foreign direct investment.

This research will be useful for policy makers, loan providers, producers, exporters, importers and different foreign firms and investors who wish to invest in Bangladesh.

The rest of this paper is organized as follows. In Section two; a brief review of the existing literature is provided. Section three describes the model, methodology, data and research technique. The fourth section analyzes the empirical result. The final section presents some concluding remark.

2. Literature Review:

Foreign direct investment is a crucial factor for enhancing economic development. In developing countries policy makers give more importance for attracting FDI as in their view it accelerates economic growth. Many studies have revealed that FDI inflows bring several benefits for the host country. FDI inflow is considered as one of the main engines of economic growth, which increases domestic investment and creates employment

(*Awan, K, & Zaman, 2011*). Foreign direct investment has not only increased economic growth, but has also created jobs, increased labor skills, strengthened exchange rate, accelerated the exports of the country *(Javed et al,. 2012). Ahmed, N et al (2012)* worked on economic performance and FDI inflow in Pakistan and their result shows that FDI and economic performance have both short run and long run relation and both are positively co related. But there are also many factors that discourage foreign direct investment. Corruption is one of the big components which prevent FDI inflow. *Castro (2013)* showed lower corrupt countries attract greater FDI. Many researchers have shown that corruption is directly linked with political stability that creates a different barrier as these discourage to attract foreign direct investment.

Attracting FDI in a developing country like Bangladesh is a big challenging issue. Bangladesh is not a politically stable country in recent history. High unemployment rate, high inflation, poor government quality and mainly corruption create barrier to FDI inflow for Bangladesh. *Williams (2010)* has worked on FDI inflow for developing countries and showed that higher debt, higher level of inflation, market size, infrastructure quality, government policy affect the FDI inflow into the developing countries.

China and India are now the top FDI destination countries in the word. Both countries are relatively politically stable and have a favorable investment climate. Both countries, especially India, have already reform their infrastructure to influence foreign direct investment to their country. *Kariuki, C (2014) has* shown that a high economic risk has a negative and significant effect on FDI flows into Africa. He investigated 35 African

countries and showed that the FDI inflow increased in those countries when they reformed their infrastructure.

Investors or firms always seek profit and smooth business operations. Political risk hampers hospitable investment climate. Investment decision greatly depends on considering 'political risk' in the host country and it is a crucial factor for attracting FDI inflow. 'Political risk' refers to political decisions or events (such as strike, shutdown or blockage) in a country that constrain the business climate in the host country. Presence of well-defined property rights is another important factor in attracting FDI inflow. If the host country cannot give the security for company's property rights, firms will not be attracted to invest in those countries *Cho, H. J. (1996.)* Ensuring hospitable business climate is also important factor for attracting FDI. His empirical findings showed that higher political risk reduces FDI. *Moniruzzaman (2010)* worked on inward FDI performance for 57 Muslim countries over the period 1995-2006. He found that the unfavorable business climate and high level of political instability reduce FDI inflows in those 57 countries.

Dutta & Ray (2008); studied the effect of political risk on foreign direct investment and financial development for 97 counties. They found that the higher level of political stability increases financial development in those countries and also led to higher levels of FDI inflows.

Brada et al. (2006) showed that FDI inflow is significantly affected by political internal or external conflicts. They worked in Central Europe and CIS countries. They found

transition is an important factor for attracting FDI. They also found that after transition enabled central Europe to receive FDI several times more than Western Europe.

3. Model and Methodology:

3.1 Model:

Sumon (2014) used the following model. In this study Sumon's model has been used to investigate a causal relation between Political Stability, Absence of Violence, Foreign Direct investment and Remittance inflows. This model is as follows.

FDI = f (REM, PSAV)

The model built for the purpose of testing hypotheses is as follow:

$\ln FDI = \alpha + \beta 1 (\ln REM) + \beta 2(\ln PSAV) + e$

Where

lnFDI = Foreign Direct investment

InPSAV = Political Stability and Absence of Violence

lnREM = Remittance inflows

α = Intercept

β = Coefficient

e = Error Term

Data on the above variables are obtained from the two different sources. Political Stability and Absence of Violence (PSAV) is used from the World Bank good governance Indicators and Foreign Direct Investment, (FDI) and Remittance inflows (REM) are used from IMF data set for all countries over the period between 1996 and

2013 to analyze the relationship. We also use logarithmic forms of all of our variables to avoid any heteroscedasticity problem. After taking logarithms, LnPSAV, Ln FDI and Ln REM were used as tables for above mentioned variables.

Here Political Stability and Absence of Violence (PSAV) indicate the percentile rank among all countries ranges from lowest to 100 highest ranks for 213 economies by six governance indicators. According to the World Bank's data lowest rank indicates that stable political condition and less violence and highest rank indicates that politically unstable and more violence.

3.2 Statistical Tools

We will use the following advanced econometric tools as mentioned below for analyzing causal relations among the variables.

1. *Unit Root Test (for testing stationary)*
2. *Johansen Co Integration Test (for testing long run relationship)*
3. *Vector Error Correction Model*
4. *Wald Test (For testing short run relationship)*

To investigate the causal relation among the Political Stability and Absence of Violence, Foreign Direct investment and Remittance inflow, we will first check whether our data are stationary or not. To test stationarity we will use Unit Root test. We set our hypothesis is as below.

Null Hypothesis	H_0 = data are not stationary and
Alternative Hypothesis	H_A = data are stationary.

If we find P value is less than 5%, we can reject the null hypothesis and we in favour of the alternative hypothesis, meaning that data are stationary. Alternatively, if we find our P value to be more than 5%, we cannot reject the null hypothesis and conclude that our data are not stationary.

For investigating causality, it is important that all of the data are stationary. We will check our data through Augmented Dickey Fuller (ADF) test. If we do not get stationarity from this unit root test, we will make them stationary. For checking stationarity we will take the 1^{st} difference. After checking stationarity, our next task will be to check whether our variables are co-integrated or not. We will use Johansen Co-Integration Test, developed by Søren Johansen, for checking co-integration among the variables. If we find, they are co integrated, we will use VECM to analyze the causal relationship and if we do not find any co-integration among our investigated variables, we will use the VAR model to analyze this causal relation

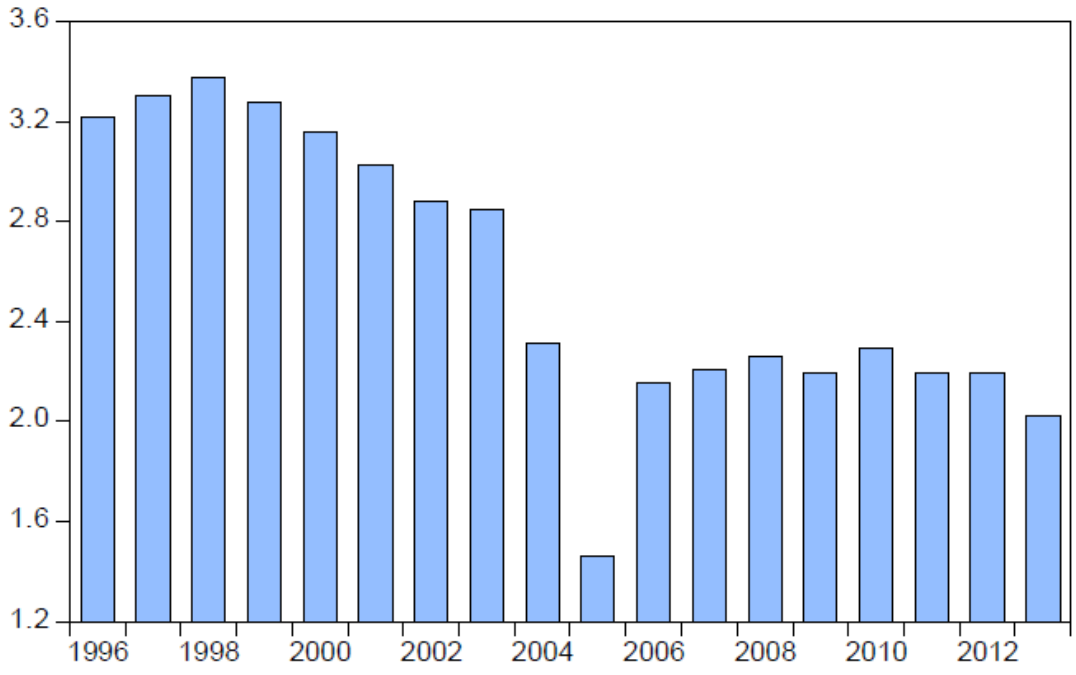
3.3 Description of trend in variable

In this section we examine trends in our data graphically. Our investigating country had of political turmoil between the period 1996 and 2013. There were four elections, one military coup, political violence; the blockage was happening that time and our graphs show that the violence had an effect on both foreign direct investment and remittance inflow. We briefly explain our graphs below for each variable between the period 1996 and 2013.

1. **Political Stability and Absence of Violence data**

The graph 3.2 shows the political Stability and Absence of Violence data graphically. This graph indicates that the political condition was the worst in 2005. That year was the last year of the Bangladesh Nationalist Party's government. At that time the main opposition party, Bangladesh Awami League, alliedd with other opposition parties are to start a movement for restoration of caretaker government and Bangladesh reached very near to a civil war. Another army coup happened at that time, the government was replaced and constitution was. The army backed military caretaker government the power after two years by giving a democratic election. Awami League won majority seats and formed the new government. The next few years saw political stability, but later on they started war crime trials which again created fresh violence in the country.

Graph 3.1: Graphical presentation of political stability between 1996 and 2013



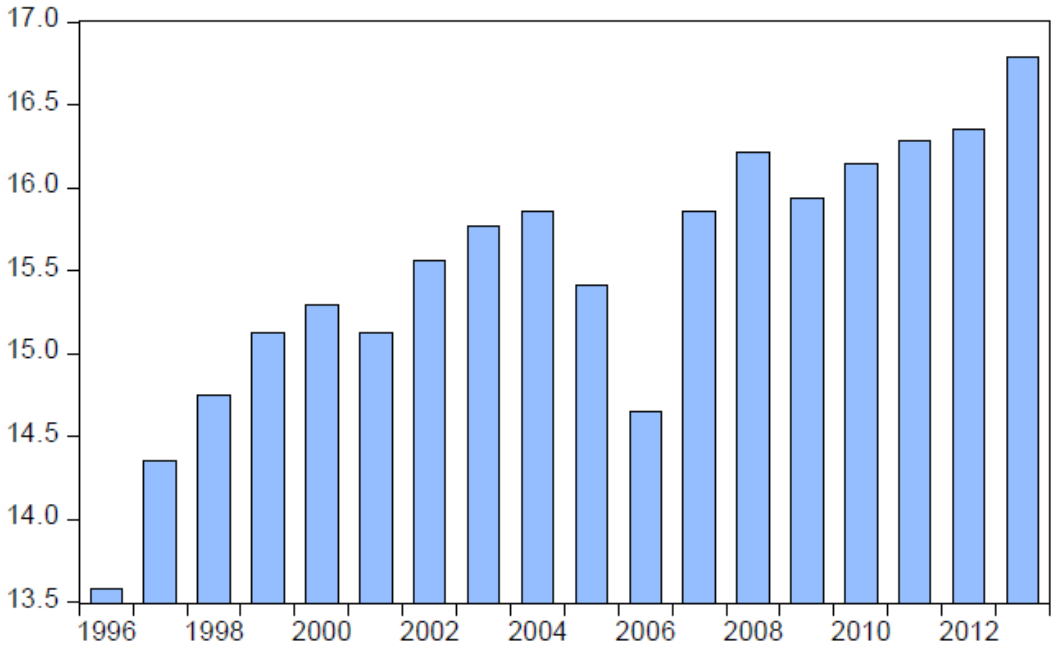
Source: World Bank good governance indicator

2. Remittance inflow

The graph 3.2 shows the graphical presentation of our Remittance inflow data.

The graph indicates that remittance inflow was steadily increasing from 1996 to 2000 and 2002 to 2004, but in 2001 and 2006 it declined it is attributed a huge political unrest. Same thing happened with foreign direct investment in the period 2000 to 2002 (Table 1.3). This research finds that both FDI and remittances have long run association with political stability and absence of violence.

Graph 3.2: Graphical presentation of Remittance inflow between 1996 and 2013



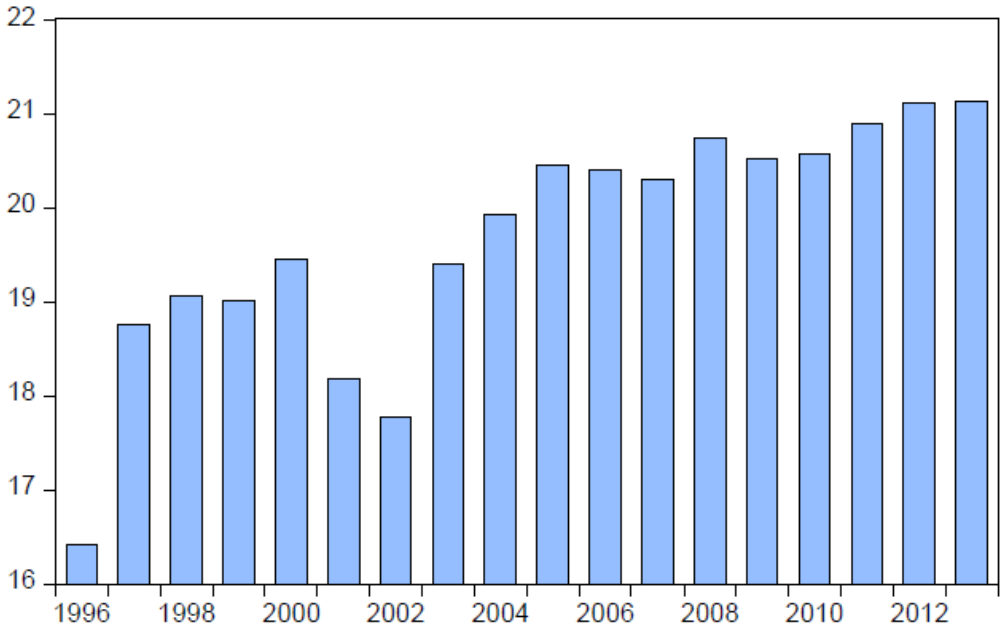
Source: International Monetary Fund International Financial Statistics (IFS) data base

3. Foreign Direct Investment

Graph 3.3 shows the Foreign Direct Investment data.

Political violence prevents the desired foreign direct investment in the host countries. In the past decade, Bangladesh was able to increase FDI inflows because of certain policy initiatives and developed many infrastructures. But political conditions were still not good enough or governance quality was not much developed. However, our graph indicates that FDI inflow has been increasing. This is a very interesting finding that provides rationale to investigate the relationship between FDI and political stability in Bangladesh.

Graph 3.3: Graphical presentation of Foreign Direct Investment between 1996 and 2013



Source: International Monetary Fund International Financial Statistics (IFS) data base

4. Econometric Results:

Three shape Intercept, Linear trend and No Trent of Augmented Dicky Fuller test is used to check whether our data are stationary or not. These three shapes of our variables (Political Stability and Absence of Violence, Foreign direct investment, net inflows

(current US$) and Remittance inflows, paid (current US$) show Augmented Dicky Fuller test results in bellow tables.

4.1 Unit Root Test

For the unit root test, this study sets the null hypothesis that all data are not stationary and alternative hypothesis that all data are stationary. After testing the Augmented Dickey-Fuller test in three forms, intercept, linear trend and no trend, for Political Stability and Absence of Violence (LnPSAV), we see that p value in each form has greater than 5% level. So we cannot reject null hypothesis which means that data are not stationary. But as the main objective of this research is to investigate their causal relation, it is required that all data should have stationarity. As we did not find our data stationary, we now had to make them stationary. For making them stationary, we used 1^{st} difference for these data. After taking 1^{st} difference**,** we got all stationarity of data in all forms, intercept, linear trend and no trend (0.7%, 0.3% and 0.06%, respectively) coefficient value is also negative which indicates that our model is perfect.

Table: 4.1: Unit Root Test

	Intercept	**Linear Trend**	**No Trend**
LNPSAV	-3.886751*	-4.616209*	-2.708094*
	-3.052169**	-3.710482**	-1.962813**
	-2.666593***	-3.297799***	-1.606129**
P Value	0.6450> 5% **Not Stationary**	0.5692>5% **Not Stationary**	0.2101>5% **Not Stationary**
LNFDI	-3.886751*	-4.616209*	-2.708094*
	-3.052169**	-3.710482**	-1.962813**
	-2.666593***	-3.297799***	-1.606129**
P Value	0.9505> 5% **Not Stationary**	0.5232>5% **Not Stationary**	0.9651>5% **Not Stationary**
LNPRM	-3.886751*	-4.667883*	-1.606129*
	-3.052169**	-3.733200**	-1.962813**
	-2.666593***	-3.310349***	-1.606129***
P Value	0.2134> 5% **Not Stationary**	0.0970>5% **Not Stationary**	0.9672>5% **Not Stationary**

Table: 4.2: Taking 1st Difference from Augmented Dickey Fuller

	Intercept	**Linear Trend**	**No Trend**
LNPSAV	-3.920350*	-4.667883*	-2.717511*
	-3.065585**	-3.733200**	-1.964418**
	-2.673459***	-3.310349***	-1.605603***
P Value	0.0073<5% **Stationary**	0.0333<5% **Stationary**	0.0006<5% **Stationary**
LNFDI	-3.920350*	-4.667883*	-2.708094*
	-3.065585**	-3.733200**	-1.962813**
	-2.673459***	-3.310349***	-1.606129**
P Value	0.0066<5% **Stationary**	0.0183<5% **Stationary**	0.0018<5% **Stationary**
LNPRM	-3.959148*	-4.728363*	-4.728363*
	-3.081002**	-3.759743**	-2.717511**
	-2.681330***	-3.324976***	-1.605603***
P value	0.0080<5% **Stationary**	0.0425<5% **Stationary**	0.0008<5% **Stationary**

(*, ** and *** are represent to 1%, 5% and 10% significance levels. When the probability value is less than 5%, then data is stationary and when probability value is more than 5% then the data are not stationary.)

4.2 Testing co- integration:

To find whether variables have co integration or not, we have used the Johansen co integration test. We can explain results of Johansen co integration test by two ways, either using trace statistic or using Max-Eigen statistic. We have set our null hypothesis is this care are as follows.

H_{o1} = There is no co integration
H_{o2} = There is at most 1 integration
H_{o3} = There is at most 2 integration

If we find P value less than 5% we can reject the null hypothesis. Table 4.1 and 4.2 show Johansen co integration Test results. In Trace test, we have found that critical value is higher than trace statistic; also p value is less than 5%. So we can reject null hypothesis. In our second hypothesis, we have found p value is more than 5% and trace statistic is higher than critical value, so we cannot reject the null hypothesis, which indicates there is 1 co integrating equations or one error tern exist. So we can conclude that in the long run, all three variables have long run an association or they are co integrated. We have found similar result from Maximum Eigen value test showed that there are two cointegrating equations at the 0.05 level.

Table: 4.2.1 Cointegration Rank Test (Trace)

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.976036	66.82650	29.79707	0.0000
At most 1	0.639555	14.58956	15.49471	0.0681
At most 2	0.021462	0.303745	3.841466	0.5815
Trace test indicates 1 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Table 4.2.2 Cointegration Rank Test (Maximum Eigen value)

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.976036	52.23693	21.13162	0.0000
At most 1 *	0.639555	14.28582	14.26460	0.0496
At most 2	0.021462	0.303745	3.841466	0.5815
Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

4.3 Vector Error Correction Model:

As our variables are co integrated we will use Vector Error Correction Model. Our aim is to find whether political stability and remittance can affect foreign direct investment (FDI) or not. Here FDI is dependent variable and political stability and remittance are independent variable.

Table: 4.3.1 result of Vector Error Correction Model

Vector Error Correction Estimates			
Date: 09/01/15 Time: 22:38			
Sample (adjusted): 1999 2013			
Included observations: 15 after adjustments			
Standard errors in ( ) & t-statistics in [ ]			
Cointegrating Eq:	CointEq1	CointEq2	
FDI_{t-1}	1.000000	0.000000	
PRM_{t-1}	0.000000	1.000000	
$PSAV_{t-1}$	3.504971	2.081164	
	(1.03804)	(0.63571)	
	[3.37652]	[3.27375]	
C	-28.70005	-20.87663	
Error Correction:	D(FDI)	D(PRM)	D(PSAV)
CointEq1	-0.914384	-0.081908	0.364029
	(0.39431)	(0.13333)	(0.17722)
	[-2.31897]	[-0.61432]	[2.05414]
CointEq2	1.058044	0.192622	-0.697964
	(0.50120)	(0.16948)	(0.22526)
	[2.11101]	[1.13658]	[-3.09847]
$D\ FDI_{t-1}$	0.221275	-0.104972	-0.319247
	(0.31529)	(0.10661)	(0.14170)
	[0.70181]	[-0.98462]	[-2.25291]
$D(FDI_{t-2}$	0.336261	0.125302	-0.287600
	(0.28061)	(0.09488)	(0.12612)
	[1.19832]	[1.32057]	[-2.28042]
$D(PRM_{t-1}$	0.755704	-0.165060	0.332605
	(0.90026)	(0.30441)	(0.40461)
	[0.83943]	[-0.54222]	[0.82203]

D PRM $_{t-2}$	-0.277455	-0.308937	0.238333
	(0.45052)	(0.15234)	(0.20248)
	[-0.61585]	[-2.02796]	[1.17705]
D PSAV $_{t-1}$	0.854379	1.174894	-0.499467
	(0.72757)	(0.24602)	(0.32700)
	[1.17428]	[4.77559]	[-1.52741]
D PSAV $_{t-2}$	-0.859829	-0.073723	-0.174512
	(1.14187)	(0.38611)	(0.51320)
	[-0.75300]	[-0.19094]	[-0.34004]
C	-0.044020	0.273705	-0.090188
	(0.27501)	(0.09299)	(0.12360)
	[-0.16007]	[2.94337]	[-0.72968]
R-squared	0.623335	0.919995	0.727385
Adj. R-squared	0.121114	0.813321	0.363899
Sum sq. resids	2.009310	0.229739	0.405876
S.E. equation	0.578692	0.195678	0.260088
F-statistic	1.241158	8.624367	2.001133
Log likelihood	-6.207136	10.05737	5.789114
Akaike AIC	2.027618	-0.140983	0.428118
Schwarz SC	2.452448	0.283847	0.852948
Mean dependent	0.137799	0.135483	-0.090174
S.D. dependent	0.617279	0.452891	0.326105
Determinant resid covariance (dof adj.)		0.000618	
Determinant resid covariance		3.96E-05	
Log likelihood		12.17594	
Akaike information criterion		2.776542	
Schwarz criterion		4.334252	

We have found our error correction term is -0.914384 and t-statistics is -2.31897. Here error correction term describes the speed of adjustment towards equilibrium. Here coefficient is negative and speed of adjustment = 91.43%.

If we find error correction term is negative and statistically significant then we can say that the independent variables have long run causality to dependent variables. And for getting short run causal relationship, we will use Wald Test. If we find probability value of Wald Test to be less than 5%, we can conclude that these three variables have short run causal relationship and if we find probability value more than 5%, we can conclude that these three variables have not any causal relationship..

From the Vector Error Correction Model we got three error correction models. They are as follows.

Δ LnFDI = C(1)* $LnFDI_{t-1}$+ 3.50497136925* $LnPSAV_{t-1}$- 28.7000499079 + C(2) * $LnPRM_{t-1}$+ 2.08116382798* $LnPSAV_{t-1}$- 20.8766323206 + C(3) * Δ Ln FDI_{t-1} + C(4) * Δ $LnFDI_{t-2}$ + C(5) * Δ $LnPRM_{t-1}$ + C(6) * Δ $LnPRM_{t-2}$ + C(7) * Δ $LnPSAV_{t-1}$ + C(8) * Δ $LnPSAV_{t-2}$ + C(9)

Δ LnPRM = C(10) * $LnFDI_{t-1}$ + 3.50497136925* $LnPSAV_{t-1}$ - 28.7000499079 + C(11) $LnPRM_{t-1}$ + 2.08116382798 * $LnPSAV_{t-1}$ - 20.8766323206 + C(12) * Δ $LnFDI_{t-1}$ + C(13) * Δ $LnFDI_{t-2}$ + C(14) * Δ $LnPRM_{t-1}$ + C(15) * Δ $LnPRM_{t-2}$ + C(16) * Δ $LnPSAV_{t-1}$ + C(17) * Δ $LnPSAV_{t-2}$ + C(18)

Δ LnPSAV = C(19)* $LnFDI_{t-1}$ + 3.50497136925 * $LnPSAV_{t-1}$ - 28.7000499079 + C(20) * $LnPRM_{t-1}$ + 2.08116382798 * $LnPSAV_{t-1}$ - 20.8766323206 + C(21) * Δ $LnFDI_{t-1}$ + C(22) * Δ $LnFDI_{t-2}$ + C(23) * Δ $LnPRM_{t-1}$ + C(24) * Δ $LnPRM_{t-2}$ + C(25) * Δ $LnPSAV_{t-1}$ + C(26) * Δ $LnPSAV_{t-2}$ + C(27)

Table 4.3.2 shows our results. Here we have found the error correction term or speed of adjustment C(1) is negative and probability value less than 5% which mean than our error

correction tern is statistically significant. It indicates that causality running from remittance and political stability to FDI in the long run.

Table 4.3.2 OLS estimation

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.914384	0.394306	-2.318969	0.0324
C(2)	1.058044	0.501203	2.111011	0.0490
C(3)	0.221275	0.315290	0.701813	0.4918
C(4)	0.336261	0.280609	1.198325	0.2463
C(5)	0.755704	0.900261	0.839428	0.4122
C(6)	-0.277455	0.450522	-0.615851	0.5457
C(7)	0.854379	0.727574	1.174285	0.2556
C(8)	-0.859829	1.141872	-0.753000	0.4612
C(9)	-0.044020	0.275007	-0.160068	0.8746
C(10)	-0.081908	0.133330	-0.614323	0.5467
C(11)	0.192622	0.169476	1.136578	0.2706
C(12)	-0.104972	0.106612	-0.984620	0.3379
C(13)	0.125302	0.094885	1.320570	0.2032
C(14)	-0.165060	0.304413	-0.542224	0.5943
C(15)	-0.308937	0.152339	-2.027963	0.0576
C(16)	1.174894	0.246021	4.775592	0.0002
C(17)	-0.073723	0.386110	-0.190938	0.8507
C(18)	0.273705	0.092990	2.943369	0.0087
C(19)	0.364029	0.177217	2.054137	0.0548
C(20)	-0.697964	0.225261	-3.098466	0.0062
C(21)	-0.319247	0.141704	-2.252911	0.0370
C(22)	-0.287600	0.126117	-2.280415	0.0350
C(23)	0.332605	0.404615	0.822029	0.4218
C(24)	0.238333	0.202483	1.177049	0.2545
C(25)	-0.499467	0.327002	-1.527413	0.1440
C(26)	-0.174512	0.513204	-0.340044	0.7378
C(27)	-0.090188	0.123600	-0.729677	0.4750
Determinant residual covariance		3.96E-05		
Equation: D LnFDI = C(1) * $LnFDI_{t-1}$ + 3.50497136925 * $LnPSAV_{t-1}$ -				
28.7000499079 + C(2) $LnPRM_{t-1}$ + 2.08116382798 * $LnPSAV_{t-1}$ -				

20.8766323206) + C(3) * D FDI $_{t-1}$ + C(4) * D LnFDI $_{t-2}$ + C(5) * D LnPRM $_{t-1}$ + C(6) * D LnPRM $_{t-2}$ + C(7) * D LnPSAV$_{t-1}$ + C(8) * D LnPSAV$_{t-2}$ + C(9)			
Observations: 15			
R-squared	0.623335	Mean dependent var	0.137799
Adjusted R-squared	0.121114	S.D. dependent var	0.617279
S.E. of regression	0.578692	Sum squared resid	2.009310
Durbin-Watson stat	2.449737		
Equation: D(PRM) = C(10) * LnFDI$_{t-1}$ + 3.50497136925 * LnPSAV$_{t-1}$ - 28.7000499079) + C(11)* LnFDI$_{t-1}$ + 2.08116382798 * LnPSAV$_{t-1}$ - 20.8766323206) + C(12) * D LnFDI$_{t-1}$ + C(13)*D LnFDI$_{t-2}$ + C(14) *D LnPRM$_{t-1}$ + C(15) * D LnPRM$_{t-2}$ + C(16) * D LnPSAV$_{t-1}$ + C(17) * D LnPSAV$_{t-2}$ + C(18)			
R-squared	0.919995	Mean dependent var	0.135483
Adjusted R-squared	0.813321	S.D. dependent var	0.452891
S.E. of regression	0.195678	Sum squared resid	0.229739
Durbin-Watson stat	2.387340		
Equation: D LnPSAV = C(19) * LnFDI$_{t-1}$ + 3.50497136925* LnPSAV$_{t-1}$ - 28.7000499079 + C(20) * LnPRM$_{t-1}$ + 2.08116382798 * LnPSAV$_{t-1}$ - 20.8766323206) + C (21) * DLn FDI$_{t-1}$ + C(22) * D LnFDI$_{t-2}$ + C(23) *D LnPRM$_{t-1}$ + C(24)*D LnPRM$_{t-2}$ + C(25) * D LnPSAV$_{t-1}$ + C(26) *D LnPSAV$_{t-2}$ + C(27)			
R-squared	0.727385	Mean dependent var	-0.090174
Adjusted R-squared	0.363899	S.D. dependent var	0.326105
S.E. of regression	0.260088	Sum squared resid	0.405876
Durbin-Watson stat	2.372616		

4.4 Wald Test:

Now we can check is there any short run relationship among these three variables. We will WALD test for getting this relationship.

For Short run causality we will set our hypothesis are as follows.

Null Hypothesis H_{01} = C (5) = C (6) =0 (there is no short run association)

Alternative Hypothesis H_{A1} = C (5) = C (6) ≠ 0 (there is short run association)

If we find P value is less than 5%, we can reject the null hypothesis, meaning that there is short run causality exist among these two variables.

Table 4.4.1 Wald Test: for C(5)=C(6) variables

Wald Test:			
System: Untitled			
Test Statistic	Value	df	Probability
Chi-square	1.624229	2	0.4439
Null Hypothesis: C (5) = C (6) =0			
Null Hypothesis Summary:			
Normalized Restriction (= 0)		Value	Std. Err.
C(5)		0.755704	0.900261
C(6)		-0.277455	0.450522
Restrictions are linear in coefficients.			

Here probability value is 44.39% which is more than 5%. So, there is no short run relationship among C(5) and C(6) to dependent variables.

Same thing we can do for C (7) and C (8) variables. Here we also can set our

Null hypothesis H_{01} = C (7) =C (8) =0

Alternative Hypothesis H_{A1} = C (7) =C (8) $\neq$ 0

If we find P value is less than 5%, we can reject the null hypothesis, which indicate that there is short run causality exist among these two variables.

Table 4.4.2 Wald Test: for C(7)=C(8) variables

Wald Test:			
System: Untitled			
Test Statistic	Value	df	Probability
Chi-square	1.725631	1	0.1890
Null Hypothesis: C (7) =C (8)			
Null Hypothesis Summary:			
Normalized Restriction (= 0)		Value	Std. Err.
C(7) - C(8)		1.714208	1.304937
Restrictions are linear in coefficients.			

Here, probability value is 18.90% which is more than 5%. So we cannot reject the null hypothesis means that 2 lag remittance inflows have not any short run causality to dependent variables.

4.5 Model Specification/Model Efficiency:

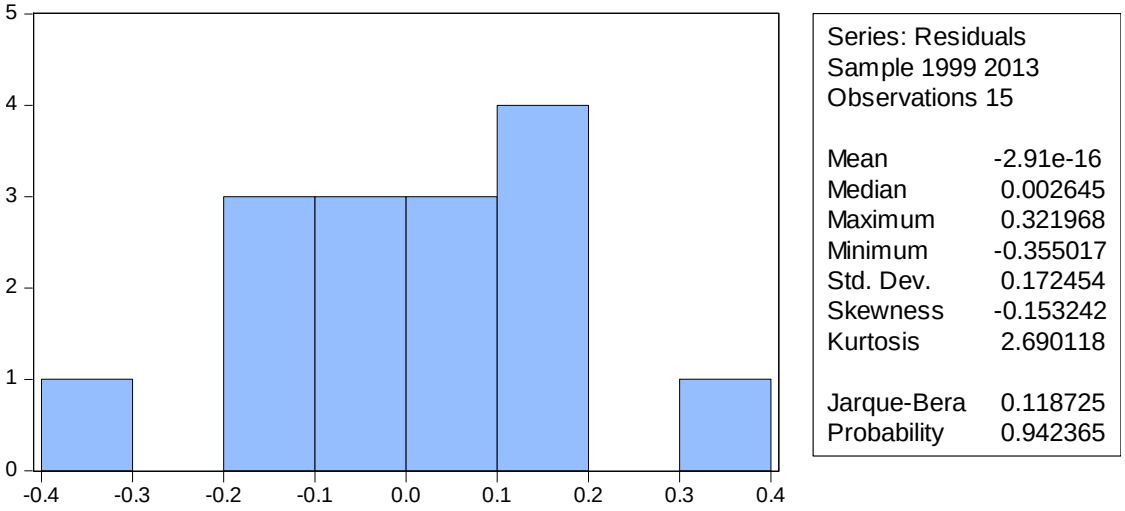
For a good model should satisfy the following conditions

1. Residual of this model should be normally distributed
2. Model should not have any serial correlation
3. Model should not have any arch effect

We are now checking these three factors one by one.

Histogram- Normality Test: Our null hypothesis = Residual is normally distributed

And alternative hypothesis = Residual is not normally distributed



Here we got P value to be more than 5%, so we can not reject null hypothesis, that means, residual is normally distributed.

Arch Test: We set our null hypothesis = There is no Arch effect and

Alternative Hypothesis = There is Arch effect exist.

Heteroskedasticity Test: ARCH			
F-statistic	0.011323	Prob. F(2,10)	0.9888
Obs*R-squared	0.029374	Prob. Chi-Square(2)	0.9854

Here our data indicate that P Value is more than 5%, so we cannot reject the null hypothesis. It means that no Arch effect exists in the model.

Serial correlation: For checking serial correlation,

We set our Null hypothesis = There is no serial correlation exist and

Alternative Hypothesis = There is serial correlation exist

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.074857	Prob. F(2,5)	0.4090
Obs*R-squared	4.510069	Prob. Chi-Square(2)	0.1049

From this test we got R-squared is 10.49%, which is more than 5%, so we cannot reject null, means there is no serial correlation exist.

5. Conclusions:

FDI inflows are among the main sources for economic growth in a developing country. Many developing countries have taken number of reforms to attract FDI inflows. Research findings show that hospitable business climate and less economic barriers attract FDI. Although Bangladesh has taken many initiatives to attract FDI inflows, the outcomes of these initiatives have not been satisfactory. Political instability is one of the main reasons. In recent years, remittance inflow (generated by foreign expatriates) has been an important factor in the growth of Bangladesh economy. In recent times, foreign reserves have reached their highest level. But remittances have been used mainly in consumption activities in Bangladesh. Their contribution towards investment has been weak, but they have a strong contribution to improve the standard of living in Bangladesh. Our main aim in this paper was to investigate it these two important sectors in Bangladesh were affected by political instability. Our Johansen co integration test showed that these two variables have a long run association and our Vector Error Correction Model showed that it is unidirectional, meaning that FDI causes political stability. This research also found that, remittance and political stability has not any association to FDI in the short run.

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