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A Cross-Country Comparison of Factors Affecting Foreign Portfolio Investment in Emerging Economies: In the Case of Bangladesh, China, India, and Pakistan

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Abstract

Foreign Portfolio Investment (FPI) plays vital role in prosperity of any economy. The importance of FPI becomes even more crucial when, the subject country is in its developing phase, and in the process of exhausting its resources which are not utilized yet. Moreover, do these factors have similar effect on FPI across counties or not? We have used Multiple Linear Regression Models for China, India, Pakistan and Bangladesh, being emerging economies within the same region to examine FPI's determinants. The study found that GDP growth, External Debt, Population growth, and Inflation are the main factors that affect FPI. Moreover, it is also found that there is different relation of similar factor across the countries, which is due the socio-economic, geographic, and geo-political differences among the subject countries.

Keywords: foreign portfolio investment, Inflation, economic growth

1. Introduction

Capital flows towards developing economies continued in the start of the 1990s after a vital time of stagnation (Calvo et al., 1994). Regardless of this resurgence, the most recent decade can be portrayed as one of blasts and busts in foreign investment flows towards developing markets (Calvo et al., 1996). Accordingly, the significance of comprehension capital flows is still progressively essential. This paper is an endeavor to attempt to comprehend what is by all accounts driving capital flows towards these economies. This is an exceptionally significant inquiry as far as approach issues. Distinctive experts have contended that in little open economies, arrangement producers have their situation is practically hopeless about capital flows. Writing has stressed that, within the sight of uneven data because of high data costs, capital flows might be touched to news and bits of gossip as opposed to real country basics. As a result, objective equilibrium may emerge where grouping conduct wins. Expanding globalization ought to, in any case, cut these information costs down. This ought to infer that country basics might be more perceptible, and capital flows ought to, thusly, with time turn out to be more delicate to essentials (Claessens, Stijn, & Polastri 1998).

The comprehension of foreign investment flows is imperative for approach producers, forecasters and specialists alike, and this is especially the case for developing markets. Investment flows make up an imperative part of the equalization of installments, and the vast vacillations in such flows have, among developing economies, touched off various parity of-installment emergencies regarding the previous two decades.The sharp lessening in foreign investment inflows was, in reality, the fundamental purpose behind the Mexican emergency of 1994 and 1995, and it had imperative influence in a large portion of the developing business sector emergencies that was to take after. Investment flows not just join one of the principle fixings to be determined of installments, additionally a standout among the most unstable. Understanding foreign investment flows is, in this way, vital in any equalization of-installments investigation. In light of these thoughts we particularly think about portfolio and FDI flows to developing economies. Instead of earlier decades, these sorts of capital flows constitute the most critical ones (Prasad et al., 2005).

The paper shows the stylized realities of these flows and looks at their conduct among created and developing economies. FDI and portfolio flows to developing nations have developed at a quick pace particularly since the 1990s. While FDI has had a generally steady development, portfolio flows to developing nations have displayed colossal unpredictability in sharp complexity to created economies where these flows have become always.

Portfolio flows have beaten FDI flows in created economies, while in developing economies FDI has overwhelmed over portfolio investment for the vast majority of the 1990s (Dicken, 2003). Inversions of capital flows have, moreover, been essential and have accompanied tremendous macroeconomic costs for developing economies.

One issue with attempting to distinguish essential monetary determinants of investment flows, is that numerous such determinants are just distributed with yearly recurrence, and that the time series accessible for developing nations are moderately short. Ponders, similar to this one, meaning to distinguish such determinants of this reason for the most part appears as a cross-country study. The exact a portion of this study has as target to attempt to decide the drivers behind FDI and in addition portfolio investment flows. The underlying goal was to consider the segments of portfolio flows also, including value flows, and private and open obligation flows, yet the information for such flows ended up being insufficient. Utilizing both cross-sectional investigation and panel information strategies it is attempted to recognize the determinants for FPI. For the cross-sectional investigation we utilize information for four countries including China, India, Pakistan and Bangladesh for portfolio.

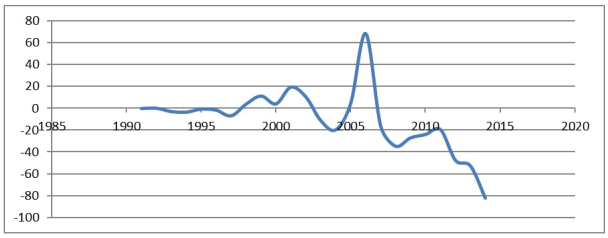

Figure 1. FPI in China

There seems a lot of variation in net FPI in China, and a persistent decline from 2006 onward, which may be the resultant from the Global Financial Crisis of 2008.

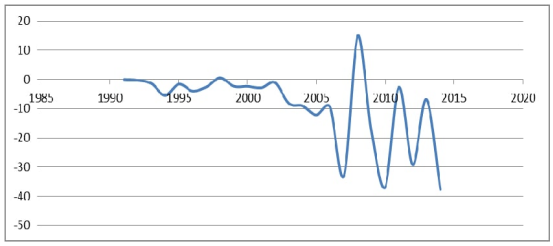

Figure 2. FPI in India

As of the case of India, FPI seems to be volatile irrespective of any global economic and social event. It is also observed from the figure that, the FPI is flown out from India, and net FPI is negative persistently except the year 2007.

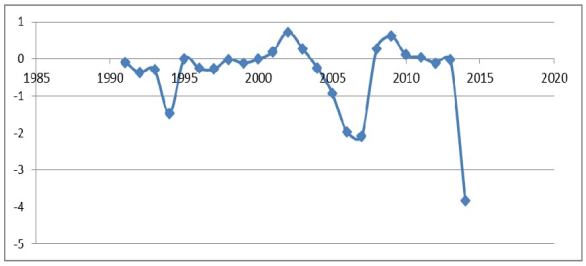

Figure 3. FPI in Pakistan

2. Literature Review

As indicated by (Faruqee, Li, & Yan, 2004; Portes & Rey, 2005; Duca, 2012) the capital inflow and outpouring is essential nowadays and topographical segment is extremely imperative for the worldwide stream of the capital. The capital inflow relies on upon the exchange cost and the business sector size of the host nation. As indicated by the IMF review the exchange cost, deviated data and the business sector size are the indispensable determinants of the capital stream in the nation. These real determinants are the driving components of the portfolio investment. The significant business sector occasions and the stuns changes the portfolio investment driving elements (García-Herrero et al., 2009). The foreign speculators are particularly worried about the provincial development after the overcome of the business sector pressure. The compelling pressure in the area made the speculators frenzy and they began to move their assets out of the nation or district.

According to Ducca 2012 the main considerations influencing the capital inflows are GDP development rate, market proficiency and higher returns desire. These variables assume an essential part in pulling in the foreign investment. Every one of these elements raises the macroeconomic level of the nation by acquired the foreign investment which helps the nation to amend the deficiency of the present record of the nation. That leads the economy towards the development. On the other side in light of the unpredictability of this sort of investment it can bring about the economic emergency in the nation. In the ordinary circumstances the foreign portfolio investment are extremely useful yet when it flew out of the nation it has exceptionally appalling impact on the economy.

Garg & Dua (2014) the foreign portfolio investment builds five times in the creating nations in most recent five years. The figure of foreign portfolio investment came to up to 128 billion dollar till 2010. The real share of foreign portfolio investment has been shared by the CHINA, INDIA, BRAZIL and SOUTH AFRICA. CHINA, INDIA, and BRAZIL receipt seventy percent of the aggregate foreign portfolio investment put resources into the entire world. CHINA get the biggest part of the foreign portfolio investment as a result of the exceptional development of most recent thirty years. The Chinese changes began in 1978 in the agrarian division and eventually it spreads in the entire economy. The private area of the China prospered enormously in the period of 1978-2005.

According to Fayyaz, Draz, & Yang (2015) the fundamental determinants of the foreign portfolio investments are the GDP development, market size and market effectiveness and higher desire of profits assumed a crucial part in the development of the foreign portfolio investment. In the event that these elements of any nation are in stable shape that nation get the smooth and stable capital inflows from everywhere throughout the world. On account of China the outside obligation is the most noteworthy element to drive the foreign portfolio investment in the nation. The GDP development, swapping scale, and FDI are among the imperative determinants of the foreign portfolio investment.

Yahya, Shujahat, & Imran (2015) argue that foreign portfolio investment for the most part relies on upon the large scale economic variables of the host nation. They considered the relationship between the large scale economic elements and foreign portfolio investment instability in China, Pakistan, India and Sri Lanka. The study demonstrates a huge effect of macroeconomic variables on the foreign portfolio investment unpredictability. In the event that the host nation had a High interest rate, foreign direct investment, Currency devaluation and lower swelling and higher GDP development rate than the foreign portfolio investment unpredictability is less in those countries. The delineates that the stable macroeconomic state of the nation draws in more foreign portfolio financial specialists to put resources into the nation and instability of the foreign portfolio investment is less because of stable economic states of the host nation.

The Chinese government took enormous estimations to made China an open economy in the late 90s. For this, the Chinese government privatize the all the general population claimed ventures aside from a few restraining infrastructures to private financial specialists to pull in foreign portfolio investment in the nation. Amid the time of 2001-2004 China decreased state possessed ventures by 48%.Chinese government joined the World Trade Organization, diminish taxes nullify the exchange hindrances and adjusted the exchange controls to drove the gigantic foreign portfolio investment in the nation. These measures were ended up being extremely valuable to the China. China is the world second biggest economy now a day after the United States of America (Shen, 2006).

Foreign portfolio investment moved enormously from created to creating nations before the monetary emergencies of 2008. The capital inflows and outflows have positive and long haul association with the business sector capitalization and level of openness of the hot nation. The FPI are likewise influenced by the neighboring nations of the host nation either in the positive and negative way. The foreign speculator is exceptionally sharp

about the security of its assets. The normal rate of return is likewise associated with the political dependability of the nation. Foreign speculator for the most part inclines toward the political stable nation for the investment as contrast with the less political stable nation. The foreign financial specialists move their asset from politically flimsy to politically stable nation to guarantee the security of the assets. The social qualities of the contributing nation and the host nation likewise are an essential components to decide the foreign portfolio investment in the host country, Chukwuemeka et al. (2012); Smimou (2014).

Several studies like Egly et al. (2010); among others, have focused on the fundamental determinant of the foreign portfolio investment in the United States of America is the budgetary development of the nation. The nations for the most part put resources into the United States on account of less budgetary development. The nation's inward variables influence the capital inflow and outpouring of the nation. The nation institutional and household dangers have direct connection with the capital inflows and outflows. On the off chance that the nations have great institutional setup and less residential danger will probably have more foreign portfolio investment. As in the case of South Africa have more solid institutional setup have secure property rights and low local danger influences emphatically to the volume of capital flows in the South Africa both the FDI and FPI. The subject matter has been under consideration of economists, but in order to have a cross country comparative analysis, there is weak evidence found in the literature. Hence, this study aim to fill this gap by bringing into light the comparison of the impact of different factor on the foreign portfolio investment in the case of China, India, Pakistan and Bangladesh.

3. Method

The multiple linear regression model is most commonly used model by employing ordinary least squares (OLS). It is assumed that there are linear (in parameters) relationship between a dependent variable yi and a set of explanatory variables x 0 i = (xi0, xi1,..., xiK). The first regressor xi0 = 1 is a constant unless otherwise specified. Following Faraz, Draz, & Yang (2015) Multiple Linear Regression Model is used to analyze the impact of macroeconomic indicators on the FPI of China, India, Pakistan and Bangladesh. A Separate regression is run by each country to have a cross-country comparison. General to specific technique is used to specify which variables are to be included into regression. Yearly data for the variables of External Debt, FDI, Population growth, GDP growth, and CPI is taken for the years of 1991-2015 from World Development Indicators (WDI). All the variables are in growth form, and found to be stationary. (The results of Unit root test are at Appendix) Following model will be regressed:

$$FPI = f(ED, FDI, Pop, GDPG, CPI) \tag{1}$$

3.1 Estimation and Discussion

Table 1. Cross country comparison of impact of macroeconomic factors on FPI

	China	India	Pakistan	Bangladesh
External Debt	11.909* (6.169) [1.930]	-1.754*** (0.417) [-4.200]	0.077** (0.032) [2.386]	-0.021 (0.016) [-1.281]
FDI	0339** (0.153) [2.216]	-1.697*** (0.348) [-4.872]	0.318* (0.171) [1.855]	0.786*** (0.178) [4.412]
GDP Growth	7.426** (3.428) [2.165]	-2.148*** (0.722) [-2.973]	-0.064 (0.101) [-0.634]	0.306** (0.134) [2.279]
Population Growth	2.125* (1.097) [1.930]	0.723*** (0.0878) [8.234]	-3.711** (1.478) [-2.510]	4.406** (1.607) [2.741]
CPI	-2.736* (1.371) [-1.995]	-1.011** (0.461) [-2.193]	0.129** (0.060) [2.135]	0.010 (0.030) [0.351]

Significant at 1% ***
Significant at 5% **
Significant at 10% *

Note. ( ) = Standard Errors; [ ] = t-Stat.

In table 1, the cross country comparison is given, for the impact of different macroeconomic variables on the foreign portfolio invest in the four countries. As we can see that in case of the impact of External Debt, the impact is significant and positive in the case of China and Pakistan, whereas, the External Debt has negative impact on FPI in India. On the other hand, External Debt is insignificant in case of Bangladesh.

As of Foreign Direct Investment (FDI), it is strongly correlated with the FPI and has positive impact on FPI in case of China, Pakistan, and Bangladesh. On the contrary, FDI has significant negative impact on India's FPI. GDP Growth has significant positive impact on FPI in case of China and Bangladesh. Pakistan and India's GDP is negatively associated with the FPI. Population Growth is positively correlated with FPI in case of China, Bangladesh, and India, whereas, Pakistan's population growth has negative impact on its FPI. In case of CPI, there are mixed impacts on FPI, where China and India's CPI is negatively affecting their FPI, and Pakistan and Bangladesh's CPI is positively affecting their respective FPI.

3.1.1 Factors Affecting China's FPI

Multiple Linear Regression Model is used to assess the impact of macroeconomic indicator like External Debt, FDI, Population growth, CPI on China's FPI and the result is represented in the table 2 below:

Table 2. Determinants of FPI in China

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ED	11.90970	6.169251	1.930494	0.0741
FDI	-0.229294	0.154485	-1.484249	0.1599
FDI(-1)	0.339220	0.153026	2.216739	0.0437
GDP(-1)	7.426686	3.428924	2.165894	0.0481
POP	2.125	1.097	1.930494	0.0741
CPI	-2.736761	1.371748	-1.995090	0.0659
C	-148.4259	82.09577	-1.807961	0.0921

R-squared	0.708309	S.E. of regression	19.67394
Adjusted R-squared	0.562464	S.D. dependent var	29.74297
F-statistic	4.856572	Akaike info criterion	9.071755
Prob(F-statistic)	0.005840	Durbin-Watson stat	2.286709

R squared shows the good of fit, that the variables taken as explanatory variables are explaining 70% variation in the dependent variable. F-statistic shows that the model is overall significant. DW Stat confirms that there is no autocorrelation. External Debt has significant positive impact on FPI in case of China. On the other hand, FDI and GDP growth are significantly positively associated with FPI at its first lag. Population growth is also significantly associated with FPI and has positive effect on it. CPI is found to be negatively correlated with FPI.

Table 3. Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.664284	Prob. F(2,12)	0.5326
Obs*R-squared	2.192920	Prob. Chi-Square(2)	0.3341

Table 4. Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.421846	Prob. F(7,14)	0.8729
Obs*R-squared	3.832037	Prob. Chi-Square(7)	0.7989
Scaled explained SS	5.555309	Prob. Chi-Square(7)	0.5925

From table 3 & 4 it is shown that there is no existence of autocorrelation and heteroskedasticity in the residuals of the regression model. Hence the residuals are independent and identically distributed.

3.1.2 Factors Affecting India's FPI

MLR is used to explain the relationship between one continuous dependent variable and two or more independent variables. Therefore, in order to estimate the relative impact of different factors on FPI is given as under in table 5:

Table 5. Determinants of FPI in India

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FPI(-1)	-0.543405	0.150246	-3.616774	0.0023
ED(-1)	-1.754549	0.417711	-4.200390	0.0007
FDI	-1.697230	0.348331	-4.872469	0.0002
GDP(-1)	-2.148155	0.722484	-2.973291	0.0090
POP	113.1746	13.72863	8.243693	0.0000
CPI	-1.011582	0.461201	-2.193365	0.0434
C	-152.8769	21.53826	-7.097923	0.0000

R-squared	0.874352	Mean dependent var	-9.184780
Adjusted R-squared	0.827233	S.D. dependent var	13.23436
F-statistic	18.55658	Log likelihood	-67.67509
Prob(F-statistic)	0.000002	Durbin-Watson stat	2.088031

R squared shows the good of fit, that the variables taken as explanatory variables are explaining 87% variation in the dependent variable. F-statistic shows that the model is overall significant. DW Stat confirms that there is not autocorrelation. All the variables are significantly affecting FPI in case of India. Since, we have used lag of dependent variable as an explanatory variable, so the results of DW stats are not reliable, so we shall have to go for residual diagnostics. Table 6 & 7 show that the residuals are independent and identically distributed.

Table 6. Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.980280	Prob. F(2,14)	0.3995
Obs*R-squared	2.825270	Prob. Chi-Square(2)	0.2435

Table 7. Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.617338	Prob. F(6,16)	0.7138
Obs*R-squared	4.323616	Prob. Chi-Square(6)	0.6330
Scaled explained SS	2.992698	Prob. Chi-Square(6)	0.8098

3.1.3 Factors Affecting Pakistan's FPI

The main explanatory variables External Debt, FDI, Population growth, CPI on China's FPI and the result is represent in the table 8 below, where we can see that except for GDP growth, all other variables are significantly affecting the FPI of Pakistan, where only population growth has negative impact, while all other variables are positively affecting FPI. Moreover, the R-squared is showing the goodness of fit, and the F-stat shows that the model is over all significant:

Table 8. Determinants of FPI in Pakistan

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ED	0.077399	0.032429	2.386697	0.0282
FDI	0.318752	0.171752	1.855890	0.0799
GDP	-0.064340	0.101371	-0.634696	0.5336
POP	-3.711875	1.478710	-2.510212	0.0218
CPI	0.129557	0.060676	2.135213	0.0467
C	4.438377	2.369356	1.873241	0.0774

R-squared	0.454238	Mean dependent var	-0.413060
Adjusted R-squared	0.302637	S.D. dependent var	1.009237
F-statistic	2.996278	S.E. of regression	0.842797
Prob(F-statistic)	0.038592	Durbin-Watson stat	1.759371

Table 9. Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.940594	Prob. F(2,16)	0.4109
Obs*R-squared	2.524918	Prob. Chi-Square(2)	0.2830

Table 10. Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.677583	Prob. F(5,18)	0.6460
Obs*R-squared	3.801680	Prob. Chi-Square(5)	0.5783
Scaled explained SS	6.118620	Prob. Chi-Square(5)	0.2948

Table 9 and 10 show that there is no auto correlation, nor there is heteroskedasticity. Hence we can say that the residuals of the model are independent and identically implications.

3.1.4 Factors Affecting Bangladesh's FPI

Factors affecting FPI in Bangladesh are assessed same as are done for the rest of the subject counties, by using Multiple Linear Regression Model, and the results are represented in the table 11 below, all the variables except External Debt and CPI are significantly affecting the FPI of Bangladesh, where only population growth's 1st lag has negative impact, and all others are positively affecting FPI. Moreover, the R-squared is showing the goodness of fit, and the F-stat shows that the model is over all significant. By looking at table 12 & 13, we can say there is no autocorrelation, nor there is heteroskedasticity. Hence we can say that the residuals of the model are independent and identically distributed. Hence the error term is white noise.

Table 11. Deternimatants of FPI in Bangladesh

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ED	-0.021482	0.016763	-1.281575	0.2194
FDI	0.786912	0.178342	4.412386	0.0005
GDP	0.306701	0.134521	2.279953	0.0377
POP	4.406632	1.607314	2.741612	0.0151
POP(-1)	-4.579848	1.591193	-2.878248	0.0115
CPI	0.010778	0.030698	0.351089	0.7304
C	-0.073947	0.858378	-0.086147	0.9325

R-squared	0.605487	Mean dependent var	0.025262
Adjusted R-squared	0.421381	S.D. dependent var	0.360145
S.E. of regression	0.273951	Durbin-Watson stat	2.176288
F-statistic	3.288799	Prob(F-statistic)	0.025130

Table 12. Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.235880	Prob. F(2,13)	0.7932
Obs*R-squared	0.805425	Prob. Chi-Square(2)	0.6685

Table 13. Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.765358	Prob. F(7,15)	0.1682
Obs*R-squared	10.38920	Prob. Chi-Square(7)	0.1676
Scaled explained SS	4.466623	Prob. Chi-Square(7)	0.7247

4. Conclusion and Recommendations

Capital flows towards developing economies continued in the start of the 1990s after a vital time of stagnation. Regardless of this resurgence, the most recent decade can be portrayed as one of blasts and busts in foreign investment flows towards developing markets. Accordingly, the significance of comprehension capital flows is

still progressively essential. The present study examined the factors affecting FPI of China, India, Pakistan and Bangladesh. Moreover, a cross country comparison of these factors is done. The result of the regression analysis suggests the same macroeconomic indicator has different impact on FPI in the subject countries, depending upon the socioeconomic, geographic, and geopolitical differences among the subject nations. The study suggests that instead of following the recommendations drawn by the studies done on developed country, developing countries should focus their country specific factor to enhance the level of FPI.

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Appendix

Unit Root Test

China

Group unit root test: Summary

Series: CPI, ED, FDI, FPI, GDP, POP

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-9.20232	0.0000	6	121
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-6.39727	0.0000	6	121
ADF - Fisher Chi-square	98.7233	0.0000	6	121
PP - Fisher Chi-square	88.7776	0.0000	6	126

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

India

Group unit root test: Summary

Series: FPI, GDP, POP, CPI, ED, FDI

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-10.8332	0.0000	6	128
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-12.3292	0.0000	6	128
ADF - Fisher Chi-square	217.645	0.0000	6	128
PP - Fisher Chi-square	302.177	0.0000	6	132

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Pakistan

Group unit root test: Summary

Series: CPI, ED, FDI, FPI, GDP, POP

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-8.92670	0.0000	6	123
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-7.98514	0.0000	6	123
ADF - Fisher Chi-square	282.548	0.0000	6	123
PP - Fisher Chi-square	36.3680	0.0003	6	132

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Bangladesh

Group unit root test: Summary

Series: FPI, ED, FDI, GDP, POP, CPI

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.21736	0.0133	6	126
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	52.6360	0.0000	6	126
PP - Fisher Chi-square	54.3264	0.0000	6	132

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.