

Relationship between Stock Market and Macroeconomic Variables: A Study of Asian Emerging Economies and Developed Countries Economies

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Abstract

This paper examined the empirical relationships between stock market of Asian developing countries and the developed countries and the macroeconomic variable. The sample size included stock markets, of Malaysia, Indonesia, Bangladesh and Pakistan and US, UK, Japan and Germany. This study is intended to be a useful contribution to the academician researcher and students in their study to understand the relationship. For that we have applied unit root test and OLS test.

Keywords - stock market, GDP, inflation rate, exchange rate

INTRODUCTION

The integration of global financial markets has been focus of much research over the last decade. This is interesting for investors as well as policy makers. We have selected the Asian developing country's stock markets, Malaysia, Indonesia, Bangladesh and Pakistan. Also we have selected the four developed country in largest stock markets in the world, US, UK, Japan and Germany.

The empirical relationships between the stock market of Asian developing countries and the developed country's stock market are considerable interest to the economists, policymakers and the investors. Economists are interested in understanding the mechanisms that link between these markets the correlation applied in largest stock markets in the world, US, UK, Japan and Germany. The present study is an effort to check relationship between Asian emerging economies and developed countries economies

GROSS DOMESTIC PRODUCT

The total market value of all final good and services produced in countries' in given year ,equal to total consumer, investment and government spending, plus the value of export, minus the value of import. The monetary values of final goods and services are measured by GDP. GDP counts the total output generated within a domestic country. GDP is measured in terms of currencies it is dependent on Purchasing power parity which is related to exchange rates. The developed country GDP per capita exceed developing country GDP per capita and the income gap between developed and developing counties has declined in relative term.

EXCHANGE RATE

Rate At Which One Currency May Be Converted In To Another, The Exchange Rate Is Used When Simplifying Converting One Currency To Another (Such As For The Purposes Of Travel To Another Country) Or For Engaging In Speculation Or Trading. In developed and developing country The Foreign Exchange Market an exchange rate can be defined as a price of one country's currency in terms of another currency. Exchange rate refers to the system through which this price is determined and it is one of the most important policy instruments of governments. The choice of exchange rate has considerable impact on developed and developing country, trade goods and services, capital flows, inflation, balance of payments and other macroeconomic variables.

INFLATION RATE

Inflation rate" is a term used in economics which refers to the rise in prices of goods or services over a given time period; as prices rise, the value of the goods or service diminishes. Inflation is the percentage change in the value of the Wholesale Price Index (WPI) on a year-on year basis. It effectively we measures the change in the prices of a basket of goods and services in a year. Inflation is the persistent increase in the general price level of good and services in an economy over a pried of time when the general price level rises each unit of currency buy goods and services.

STOCK MARKET

Stock market or equity market is a public entity for the trading of the company stock and derivative at an agreed price these are security list on a stock exchange as well as those only traded private. the stock are used in stock

exchange and the Stock exchange basically serve as primary market where corporation, governments, municipalities, and other incorporated bodies can raise capital by channeling saving of the investors into productive ventures; and secondary market where investors can sell their securities to other investors for cash, thus reducing the risk of investment and maintaining liquidity in the System. Stock exchanges impose stringent rules, listing requirement, and statutory requirement that are binding on all listed and trading parties

DEVELOPING COUNTRY AND STOCK EXCHANGE

Country	Stock exchange
Bangladesh	Dhaka stock exchange
Indonesia	Jakarta Stock Exchange
Malaysia	Kuala lampur stock exchange
Pakistan	Karachi stock exchange

DEVELOPED COUNTRY AND STOCK EXCHANGE

Country	Stock exchange
United Kingdom	London stock exchange
United State	New York stock exchange
Japan	Tokyo Stock Exchange
Germany	Frankfurt stock exchange

REVIEW OF LITERATURE

The prices of various indices are co-integrated. This was reflected by the study of Subramanian (2004) who examined the co-integration and causal relations among five major stock exchanges in East Asia, i.e. Shanghai Stock Exchange, Tokyo Stock Exchange, Osaka Stock Exchange, the Hong- Kong Stock Exchange and the Korean Stock Exchange by establishing advanced econometrics relationships. Furthermore, it was also found that diversification of portfolios in different markets could not benefit much in long run but it can be so in short run. Boubakari Ake (2010) examined the causality relationship between stock market and economic growth in 5 European countries (Belgium, France, Portugal, Netherlands and United Kingdom). Author used Granger causality test to find the causality relationship between the variable. Author used the data for the period of 1995 to 2008. The results found that the stock market and economic growth has long run relationship. Corchy Rad and Urbain (1995) examined the relationship among the stock market (Australia Japan, Hong Kong, New Zealand, and Singapore, Korea, Taliban, and US, UK). Authors used data for the period of 1981 to 1991. Granger causality test applied for finding the relationship between those stock markets. Authors found no causal relationship among the stock market of Australia, Japan, Hong Kong, New Zealand, and Singapore, Korea, Taliban, and US, UK. Schleicher (2001) examined co- integration between the stock market of the Czech Republic Hungary and Poland with each other with the global market. The author used daily data for the period of 1995 to 1997. he estimated a vector auto regression modal with multivariate GARCH to evaluate the impact of price and volatility shock Schleicher and results found that eastern European market were influenced by western market to some degree. Serwa and Bohl (2003) examined the co-integration between European stock markets and they compare developed European markets [Germany UK, France, Ireland, Spain, Portugal, Greek] with major central and eastern European markets [Poland, check republic Hungary, Russia]. They used correlation analyses. They used data for the period of 1997 to 2000. Results were found that emerging market did not coverage to the developed market returns.

Mukherjee and Mishra (2005) examined that the Indian stock marked were co-integrated with the other Asian stock market [Indonesia, Malaysia, Philippines, Korea and Thailand]. They apply the Johnson co-integration test on the Asian group of countries. They found that there is long run relationship among Indian stock market and other Asian stock markets. Tripathy (2006) examined the relationship between the world market and developed markets. The authors found that the world market is having an impact on developed markets and the results found that the world stock markets were efficient and co-integrated with developed market and there is longer equilibrium relationship. Chittedi (2010) studied the co-integration of developed countries stock market and Indian stock market. Author applied grangers causality test and he found result that there was a unidirectional casual influence between Indian stock market and united state Japan fiancé whereas UK, Australia not having any causality. Tripathi and Sethi (2010) examined the co- integration of the Indian stock market with japan stock market. They used Granger causality test to analysis the relationship between Indian stock market and japan stock market. Authors found the results that there is no long run relationship.

Modi (2010) examined selected developed and developing country's stock market. The author used Granger causality test and dickey fuller test. The results showed that US investor has good portfolio diversification potential with Hong Kong, Russia and Indian.

3. OBJECTIVES OF THE STUDY:

- To check that data series is stationary or not
- To calculate the stock market returns for eight country
- To establish the relationship between exchange rate, inflation rate and GDP with stock returns among the stock market of developing countries and developed countries.
- To open new vistas for further researcher

4. RESEARCH METHODOLOGY

About the study

The study was empirical and casual nature as it was emphasized analyzing the relationship between Asian emerging developing and developed country's economics. The population of study was developing country and developed country and the sample for the study was eight nations of Asian countries.

The time frame for the study was taken for fifteen years varying data from January 1998 to January 2013. This study was based on secondary data, which was collected from the various secondary sources such as websites of financial data, World Bank website and journal. The data was analyzed by using ADF and OLS test.

Data analysis

The study has been done in a bigger prospective by taking relationship between the Asian emerging economies and developed countries economies

5. RESULTS

The present study used to time series analysis in eight Asian countries namely Bangladesh, Indonesia Malaysia, Pakistan, US, UK, Japan, Germany. It determines the casualty between the variable gross domestic product, exchange rate, inflation rate, stock return, of eight Asian developed and developing countries.

RESULTS OF ADF TEST

Countries	GDP			Inflation rate			Exchange rate			Stock return		
	const	Intri	Pro	Cont	intri	pro	Cont	intri	pro	const	intri	pro
Bangladesh	-4.47	I(2)	0.000	-4.42	I(2)	0.000	-4.86	I(2)	0.000	-4.78	I(2)	0.000
Malaysia	-5.22	I(2)	0.000	-4.19	I(1)	0.000	-5.09	I(2)	0.000	-4.19	I(1)	0.000
Indonesia	-4.21	I(2)	0.000	-5.91	I(2)	0.000	-4.32	I(2)	0.000	-5.35	I(2)	0.000
Pakistan	-6.00	I(2)	0.000	-4.91	I(2)	0.000	-3.54	I(2)	0.000	-5.02	I(1)	0.000
Germany	-4.21	I(2)	0.000	-4.63	I(2)	0.000	-4.39	I(2)	0.000	-4.25	I(2)	0.000
Japan	-4.97	I(2)	0.000	-5.66	I(2)	0.00	-4.97	I(2)	0.000	-5.21	I(2)	0.000
US	-4.69	I(2)	0.000	-4.76	I(2)	0.000	-4.33	I(2)	0.000	-4.40	I(2)	0.000
Uk	-4.22	I(2)	0.000	-4.76	I(2)	0.000	-4.33	I(1)	0.000	-4.40	I(2)	0.000

Unit root test result

In order to examine dynamic relationship between exchange rate, inflation rate, GDP, stock return of developed countries economies and Asian pacific developing economies, data sets should be stationary. Therefore, four type of unit root test were employed in this log levels and log –differenced forms between these variables. The study used the ADF test with and without intercept till the data become stationary.

The null hypothesis is $(p-1) = 0$ it possesses a unit root. One issue is computing the ADF test is the choice of the maximum lag in the equation (A I). An insufficiently small number of lags will result in a test of incorrect size, but too large choice of lags will results in a test of lower power.

In the present study AIC value was used to determine the optimum lag length. It principal says lower the value, better the model.

So present study included use of OLA model .all the data series were stationary at $i(2)$ i e Ist difference and intercept level. In all the above case p-value of exchange rate, inflation rate, GDP, stock return that value is significant at 5% level using differencing with intercept model. Implying that null hypothesis is rejected in all case and the data series is stationary. Also predicting the value of ADF test equation the coefficient value ids negative in all cases suggesting that the model is fit .

RESULTS OF OLS TEST

Countries	T value	probability	Adjusted R squared	Durbin Watson stationary test
Bangladesh	-13.64	0.0000	0.018469	1.304885
Germany	0.81	0.4200	-0.083	1.98192
Indonesia	-62.27	0.000	241.92	1.81233
Japan	-16.09	0.000	-1.52	0.9678
Malaysia	-0.067	0.94	0.015	2.7522
Pakistan	-6.512	0.000	-0.409	1.034
UK	-1.763	0.093	-0.102	1.498
US	-0.863	0.339	-0.089	1.632

The statics of OLS explain that stronger relationship exists in the variable in sample countries it is estimated that developing nation like Pakistan , Indonesia Bangladesh have strong relationship between stock price GDP, inflation rate and exchange rate where multiple regression statics is significant at 5% in all the cases where the adjusted R square is found to be low which explained the relationship exist but causes a very low variance in the dependent variance

The review show that individual independent variable like GDP have significant relationship with stock return but the mediating effect of inflation and exchange rate with GDP on the stock return is causing the adjusted r square value to be low. This explained that the independent variables are interlinked the data was also tested auto correlation but it was found to be low signifying that data series are auto correlated in case of Germany Malaysia and US the relationship significant explaining that GDP inflation rate and exchange rate do not cause stock prices review explained there is relationship in single independent variable but it is not to be when combined altogether.

In case of UK results are significant at 10 % significant level implying that the stock price effected by inflation rate exchange tare and GDP it is also observed that mixed result of these relationship has been found developed and developing countries in developing countries like Pakistan Indonesia Bangladesh, stock return are effected by GDP , exchange rate and inflation rate , where as in malesia this relationship was not seen

In case of developed nation, US , Germany, and japan explain no relationship between the variable but UK stock market price are effected by the production and in the economy , exchange rate and inflation rate.

6. CONCLUSION

The present study was an attempt to examine the dynamic causality relationship between the dependent variable stock prices and independent variables GDP, exchange rate and inflation rates in developing and developed nations. The results were estimated using Ordinary Least Square statistics, where it was found that in case of Pakistan, Bangladesh and Indonesia, relationship between stock prices were affected by the explanatory variables in the study. It was analysed through the results that individual variables have the direct relationship but these when combined together, proved the variance to be low, which helped in explaining the dependent variables which are affecting the stock returns.

In case of developed nations, US, Germany and Japan, the relationship did not exist. This means that, in developed nations, there are some other explanatory variables, which are explaining the stock prices. When the sample of UK undertaken for study, the relationship was seen, but at 10% level of significance, explaining the relationship existed in 90% cases. The study concluded that stock markets are highly impacted in developing nations, majorly by GDP, exchange rates and inflation rate of these countries. On the contrary, developed have some other major factors which explain stock markets.

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ANNEXURE

Table 1 of unit root test

Null Hypothesis: D(BGDP,2) has a unit root
 Exogenous: Constant
 Lag Length: 1 (Automatic based on SIC, MAXLAG=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.473161	0.0049
Test critical values:		
1% level	-4.057910	
5% level	-3.119910	
10% level	-2.701103	

Null Hypothesis: D(BINFLATION) has a unit root
 Exogenous: Constant
 Lag Length: 1 (Automatic based on AIC, MAXLAG=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.422596	0.0048
Test critical values:		
1% level	-4.004425	
5% level	-3.098896	
10% level	-2.690439	

Null Hypothesis: D(BSTOCK_RET,2) has a unit root
 Exogenous: Constant
 Lag Length: 2 (Automatic based on AIC, MAXLAG=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.351614	0.0069
Test critical values:		
1% level	-4.121990	
5% level	-3.144920	
10% level	-2.713751	

Null Hypothesis: D(BX_RATE,2) has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic based on AIC, MAXLAG=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.867554	0.0022
Test critical values:		
1% level	-4.004425	
5% level	-3.098896	
10% level	-2.690439	

*MacKinnon (1996) one-sided p-values.

Augmented dickey-fuller test equation

Dependent Variable: BSTOCK_RET

Method: Least Squares

Date: 08/28/14 Time: 13:36

Sample (adjusted): 1999 2014

Included observations: 16 after adjustments

BSTOCK_RET =C(1)+BGDP(-1)+BX_RATE(-1)+BINFLATION(-1)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-69.25000	5.075309	-13.64449	0.0000

R-squared	0.018469	Mean dependent var	7.900625
Adjusted R-squared	0.018469	S.D. dependent var	20.49135
S.E. of regression	20.30124	Akaike info criterion	8.919702
Sum squared resid	6182.102	Schwarz criterion	8.967989
Log likelihood	-70.35762	Durbin-Watson stat	1.304885

Tabal 2 unit root test

Null Hypothesis: D(GGDP,2) has a unit root

Exogenous: Constant

Lag Length: 2 (Automatic based on AIC, MAXLAG=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.213411	0.0086
Test critical values:		
1% level	-4.121990	
5% level	-3.144920	
10% level	-2.713751	

Null Hypothesis: D(GINFLATION,2) has a unit root

Exogenous: Constant

Lag Length: 2 (Automatic based on AIC, MAXLAG=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.638706	0.0044
Test critical values:		
1% level	-4.121990	
5% level	-3.144920	
10% level	-2.713751	

Null Hypothesis: D(GSTOCK_RET,2) has a unit root

Exogenous: Constant

Lag Length: 2 (Automatic based on AIC, MAXLAG=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.257650	0.0080
Test critical values:		
1% level	-4.121990	
5% level	-3.144920	
10% level	-2.713751	

Null Hypothesis: D(GX_RATE,2) has a unit root

Exogenous: Constant

Lag Length: 2 (Automatic based on AIC, MAXLAG=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.390481	0.0065
Test critical values:	1% level	-4.121990	
	5% level	-3.144920	
	10% level	-2.713751	

Dependent Variable: GSTOCK_RET

Method: Least Squares

Date: 08/28/14 Time: 14:21

Sample (adjusted): 1999 2014

Included observations: 16 after adjustments

GSTOCK_RET=C(1)+ GGDP(-1)+GX_RATE(-1)+GINFLATION(-1)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	4.716875	5.780031	0.816064	0.4272
R-squared	-0.083733	Mean dependent var		9.196250
Adjusted R-squared	-0.083733	S.D. dependent var		22.20901
S.E. of regression	23.12013	Akaike info criterion		9.179746
Sum squared resid	8018.103	Schwarz criterion		9.228032
Log likelihood	-72.43796	Durbin-Watson stat		1.981009

Tabal 3 unit root test

Null Hypothesis: D(IGDP,2) has a unit root

Exogenous: Constant

Lag Length: 2 (Automatic based on AIC, MAXLAG=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.219334	0.0085
Test critical values:	1% level	-4.121990	
	5% level	-3.144920	
	10% level	-2.713751	

Null Hypothesis: D(IINFLATION,2) has a unit root

Exogenous: Constant

Lag Length: 2 (Automatic based on AIC, MAXLAG=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.913431	0.0006
Test critical values:		
1% level	-4.121990	
5% level	-3.144920	
10% level	-2.713751	

Null Hypothesis: D(ISTOCK_RET) has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic based on AIC, MAXLAG=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.353135	0.0010
Test critical values:		
1% level	-4.004425	
5% level	-3.098896	
10% level	-2.690439	

Null Hypothesis: D(IX_RATE) has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic based on AIC, MAXLAG=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.327495	0.0056
Test critical values:		
1% level	-4.004425	
5% level	-3.098896	
10% level	-2.690439	

Dependent Variable: Istock_RET

Method: Least Squares

Date: 08/28/14 Time: 14:24

Sample (adjusted): 1999 2014

Included observations: 16 after adjustments

ISTOCK_RET=C(1)+ IGDP(-1)+IX_RATE(-1)+IINFLATION(-1)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-9385.284	150.7127	-62.27270	0.0000
R-squared	-241.926110	Mean dependent var		23.00875
Adjusted R-squared	-241.926110	S.D. dependent var		38.67877
S.E. of regression	602.8507	Akaike info criterion		15.70168
Sum squared resid	5451434.	Schwarz criterion		15.74996
Log likelihood	-124.6134	Durbin-Watson stat		1.819472

Tabal 4 unit root test

Null Hypothesis: D(JGDP) has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic based on AIC, MAXLAG=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.977460	0.0018
Test critical values:		
1% level	-4.004425	
5% level	-3.098896	
10% level	-2.690439	

Null Hypothesis: D(JINFLATION) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic based on AIC, MAXLAG=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.663292	0.0005
Test critical values:		
1% level	-3.959148	
5% level	-3.081002	
10% level	-2.681330	

Null Hypothesis: D(JSTOCK_RET) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic based on AIC, MAXLAG=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.218538	0.0010
Test critical values:		
1% level	-3.959148	
5% level	-3.081002	
10% level	-2.681330	

Null Hypothesis: D(JX_RATE,2) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic based on AIC, MAXLAG=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.970295	0.0018
Test critical values:		
1% level	-4.004425	
5% level	-3.098896	
10% level	-2.690439	

Dependent Variable: JSTOCK_RET

Method: Least Squares

Date: 08/28/14 Time: 14:19

Sample (adjusted): 1999 2014

Included observations: 16 after adjustments

JSTOCK_RET=C(1)+ JGDP(-1)+JX_RATE(-1)+JINFLATION(-1)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-101.1400	6.283902	-16.09510	0.0000
R-squared	-0.520424	Mean dependent var		4.296250
Adjusted R-squared	-0.520424	S.D. dependent var		20.38483
S.E. of regression	25.13561	Akaike info criterion		9.346909
Sum squared resid	9476.981	Schwarz criterion		9.395196
Log likelihood	-73.77528	Durbin-Watson stat		1.104010

Tabal 5 unit root test

Null Hypothesis: D(MGDP) has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic based on AIC, MAXLAG=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.220756	0.0012
Test critical values:	1% level	-4.004425	
	5% level	-3.098896	
	10% level	-2.690439	

Null Hypothesis: D(MINFLATION) has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic based on AIC, MAXLAG=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.092278	0.0015
Test critical values:	1% level	-4.004425	
	5% level	-3.098896	
	10% level	-2.690439	

Null Hypothesis: D(MSTOCK_RET) has a unit root
 Exogenous: Constant
 Lag Length: 2 (Automatic based on AIC, MAXLAG=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.191455	0.0080
Test critical values:		
1% level	-4.057910	
5% level	-3.119910	
10% level	-2.701103	

Null Hypothesis: D(MXRATE) has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic based on AIC, MAXLAG=2)

	t-Statistic
Augmented Dickey-Fuller test statistic	-8.647217
Test critical values:	
1% level	-3.959148
5% level	-3.081002
10% level	-2.681330

MALASIA Dependent Variable: MSTOCK_RET

Method: Least Squares

Date: 08/28/14 Time: 14:13

Sample (adjusted): 1999 2014

Included observations: 16 after adjustments

MSTOCK_RET=C(1)+ MGD(-1)+MXRATE(-1)+MINFLATION(-1)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.340625	5.215296	-0.065313	0.9488
R-squared	0.015067	Mean dependent var		11.20938
Adjusted R-squared	0.015067	S.D. dependent var		21.02014
S.E. of regression	20.86118	Akaike info criterion		8.974119
Sum squared resid	6527.835	Schwarz criterion		9.022406
Log likelihood	-70.79295	Durbin-Watson stat		2.758622

Tabal 6 unit root test

Null Hypothesis: D(PGDP,2) has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic based on AIC, MAXLAG=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-6.003610	0.0003
Test critical values:		
1% level	-4.004425	
5% level	-3.098896	
10% level	-2.690439	

Null Hypothesis: D(PINFLATION) has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic based on AIC, MAXLAG=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.911027	0.0018
Test critical values:		
1% level	-3.959148	
5% level	-3.081002	
10% level	-2.681330	

Null Hypothesis: D(PSTOCK_RET) has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic based on AIC, MAXLAG=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.020839	0.0014
Test critical values:		
1% level	-3.959148	
5% level	-3.081002	
10% level	-2.681330	

Null Hypothesis: D(PX_RATE,2) has a unit root
 Exogenous: None
 Lag Length: 1 (Automatic based on AIC, MAXLAG=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.547697	0.0019
Test critical values:		
1% level	-2.754993	
5% level	-1.970978	
10% level	-1.603693	

Dependent Variable: PSTOCK_RET

Method: Least Squares

Date: 08/28/14 Time: 14:40

Sample (adjusted): 1999 2014

Included observations: 16 after adjustments

PSTOCK_RET=C(1)+ PGDP(-1)+PX_RATE(-1)+IPINFLATION(-1)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-55.91563	8.581989	-6.515463	0.0000
R-squared	-0.409442	Mean dependent var		24.46188
Adjusted R-squared	-0.409442	S.D. dependent var		28.91508
S.E. of regression	34.32795	Akaike info criterion		9.970259
Sum squared resid	17676.13	Schwarz criterion		10.01855
Log likelihood	-78.76207	Durbin-Watson stat		1.032600

Tabal 7 unit root test

Null Hypothesis: D(UKGDP) has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic based on AIC, MAXLAG=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.225718	0.0067
Test critical values:	1% level	-4.004425	
	5% level	-3.098896	
	10% level	-2.690439	

Null Hypothesis: D(UKINFLAT) has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic based on AIC, MAXLAG=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.251959	0.0064
Test critical values:	1% level	-4	
	5% level	-3.098896	
	10% level	-2.690439	

Null Hypothesis: D(UKSTOCK_RET,2) has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic based on AIC, MAXLAG=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.106525	0.0017
Test critical values:	1% level	-4.057910	
	5% level	-3.119910	
	10% level	-2.701103	

Null Hypothesis: D(UKEX_RATE) has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic based on AIC, MAXLAG=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.346460	0.0049
Test critical values:		
1% level	-3.959148	
5% level	-3.081002	
10% level	-2.681330	
Dependent Variable: UKSTOCK_RET		
Method: Least Squares		
Date: 08/28/14 Time: 14:30		
Sample (adjusted): 1999 2014		
Included observations: 16 after adjustments		
UKSTOCK_RET=C(1)+ UKGDP(-1)+UKEX_RATE(-1)+UKINFLAT(-1)		

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-5.820625	3.289813	-1.769288	0.0972
R-squared	-0.100235	Mean dependent var		1.866875
Adjusted R-squared	-0.100235	S.D. dependent var		12.54551
S.E. of regression	13.15925	Akaike info criterion		8.052588
Sum squared resid	2597.488	Schwarz criterion		8.100875
Log likelihood	-63.42071	Durbin-Watson stat		1.490614

US

Dependent Variable: US_STOCK_RET
 Method: Least Squares
 Date: 08/28/14 Time: 14:32
 Sample (adjusted): 1999 2014
 Included observations: 16 after adjustments
 US_STOCK_RET=C(1)+ USGDP(-1)+USX_RATE(-1)+USINFLATION(-1)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-3.147500	3.632947	-0.866377	0.3999
R-squared	-0.089951	Mean dependent var		2.006250
Adjusted R-squared	-0.089951	S.D. dependent var		13.91924
S.E. of regression	14.53179	Akaike info criterion		8.251016
Sum squared resid	3167.593	Schwarz criterion		8.299302
Log likelihood	-65.00812	Durbin-Watson stat		1.637640

Tabal 8 unit root test

Null Hypothesis: D(USGDP) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic based on AIC, MAXLAG=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.690563	0.0026
Test critical values:		
1% level	-3.959148	
5% level	-3.081002	
10% level	-2.681330	

Null Hypothesis: D(USINFLATION) has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic based on AIC, MAXLAG=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.764950	0.0026
Test critical values:		
1% level	-4.004425	
5% level	-3.098896	
10% level	-2.690439	

Null Hypothesis: D(US_STOCK_RET) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic based on AIC, MAXLAG=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.405981	0.0044
Test critical values:		
1% level	-3.959148	
5% level	-3.081002	
10% level	-2.681330	

Null Hypothesis: D(USX_RATE,2) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic based on AIC, MAXLAG=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.338055	0.0055
Test critical values:		
1% level	-4.004425	
5% level	-3.098896	
10% level	-2.690439	

Dependent Variable: US_STOCK_RET

Method: Least Squares

Date: 08/28/14 Time: 14:32

Sample (adjusted): 1999 2014

Included observations: 16 after adjustments

US_STOCK_RET=C(1)+ USGDP(-1)+USX_RATE(-1)+USINFLATION(-1)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-3.147500	3.632947	-0.866377	0.3999
R-squared	-0.089951	Mean dependent var		2.006250
Adjusted R-squared	-0.089951	S.D. dependent var		13.91924
S.E. of regression	14.53179	Akaike info criterion		8.251016
Sum squared resid	3167.593	Schwarz criterion		8.299302
Log likelihood	-65.00812	Durbin-Watson stat		1.637640

RESULTS OF LEAST SQUARE TEST

Countries	Coefficient	Std. Error	t-Statistic	Prob
Bangladesh	-69.25000	5.075309	-13.64449	0.000
Malaysia	-.340625	5.215348	-0.065313	.0.003
Indonesia	-9385.384	150.7121	-62.27270	0.000
Pakistan	-55.91563	8.586768	6.537678	0.000
Germany	-4.714545	5.780003	0.816064	0.4272
Japan	-101.1400	6.283902	-16.0546	0.0000
Uk	-5.82565	3.286547	-1.769288	0.0092
Us	3.15456	3.632945	-0.864467	0.3999

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