

Research Article

Capital Markets Integration: The Case of Select South Asia Markets

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Abstract: In these days of globalization, liberalization and IT, nations have become mutually dependent across the globe. The volume of merchandise transactions as well as international capital mobility has been improved. The investors, both domestic and international, are able to optimize portfolio diversification through multi-country investments. Emerging market economies are removing the reins of investment and introduce investor responsive policies to draw overseas finance in the form of FDI or equity participation. Thus, free and perfect capital mobility has become the important feature of highly integrated financial markets. In this context we investigated the degree and direction of capital market integration among select South Asian countries. We found that the markets have long-run interdependency among themselves and the short-run dynamics is significant in few cases. Such findings will keep much relevance for managing international portfolios.

Keywords: Capital markets, cointegration, market integration, South Asia

INTRODUCTION

In recent years, the phenomenal growth of Asian capital markets has engrossed a huge pact of notice from investor, academicians, researchers, planners and policy makers. In particular, South Asia has come up as the most buoyant and vibrant part of the worldwide economy. Growth of internal economy, deepening of capital markets, growing potential for incomes and savings, better quest of tranquility, bigger human development, larger economic stability and greater economic and financial sector resilience are major factors driving the present pace of growth of the region. Other than Afghanistan, which is recovering from the extended existence of trouble and unsteadiness, among other countries the extent of the economic structure is equal to the size of the internal growth potential and in some countries like India, it is several times higher. World Bank evaluates that 78.5% of the transformation in the potential production during the period 2003-07 as compared to the period 1995-2003 was mainly due to the expansion of the financial markets in South Asia.

The South Asian Capital Markets have been experiencing rapid growth and diversity. All the nations in this region have been experiencing considerable surge in terms of market capitalization and the value of shares traded in their stock markets. Some of the capital markets of this region are fast growing, emerging and frontier markets due to constant innovations in market structure and financial products. And, several rounds of financial market reforms have also contributed to it a lot. The highly intensified South Asian capital markets

in the zone had been apparent due to the swift expansion of the primary markets in terms of capital generation and growth in markets in terms of bigger trading volumes. The most recent Global Financial Crisis reveals that capital market integration is a threat due to the swings in the domestic and foreign financial shocks and enhances variance of the risk and the return level of a country (Andelić *et al.*, 2010). On the other hand, it is argued that capital market integration is a boon as it may induce market discipline and informational efficiency (Assidenou, 2011). Thus, it is quite essential to address the topic of capital market integration as an important context as well as time relevant moot point.

LITERATURE REVIEW

The extent of the combination and mutuality of worldwide financial market is being a subject matter in the financial literature. Nevertheless, the present literature is very rich concerning the said issue on the capital markets of established economies (Joy *et al.*, 1976; Hillard, 1979; Eun and Shim, 1989; Becker *et al.*, 1990). In spite of the growing importance of South Asian capital markets, there exists a limited source of literature on the degree of market combination and inter-connectivity (Park and Fatemi, 1993).

Janakiramanan and Lamba (1998) investigated the possible association among the financial markets of US, Asia-Pacific zone and the Pacific-Basin zone respectively using the VAR model. These studies

provided the evidence of the significant unidirectional causal association from the US market to other markets.

Tan and Tse (2001) studied the extent of intensity and linkage of capital market among ASEAN-5 and South East Asian economies spanning from 1988 to 2000 so as to observe the impact of deregulations in these markets. Wang *et al.* (2005) investigated the earnings due to up and down overflow of countries like US and Japan and its effect on the capital markets of three countries of South-East Asian region-Sri Lanka, Pakistan and India. This study provided the relevance of earnings overflow of US and Japan and its effect on all the three selected markets. It also observed that there is a significant fluctuation of earnings of US on Japan and Pakistan and of India and Sri Lanka.

Lamba (2005) examined the influence of developed equity markets on Indian markets and what influence can the Indian equity market exert on the others. This study used a multivariate cointegration test along with VECM estimation to analyze the underlying association among the market of developed economy and the market of South Asian region.

Chuang *et al.* (2007) examined the instability interdependence among capital markets of East Asian region. The use of VAR model suggested strong connection between the restrictive differences of selected markets. The capital market of Japan observed to be most leading in passing on unpredictability to markets of East Asian countries. Égert and Kočenda (2007) analyzed the association inside and crosswise the Eastern, Western European and Central stock markets and provided the evidence of no healthy co-movement association among any of the pair of markets. However, this study provides the confirmation that short-term opposite movement of data overflow between these markets in conditions of equity earnings and equity earning fluctuations.

It is revealed that the past studies provide the evidence of inconsistency in the results regarding the degree of interdependence and integration between capital markets. Thus, a reconsideration of the issue is warranted. Additionally, it is required to empirically assess the integration and interdependency of South Asian capital markets that has been set in process in the aftermath of Asian economic predicament of late 1990s, with the liberalization of regime forced barrier to capital surge crosswise countries. Furthermore, the recent worldwide monetary calamity also increased the gravity of the problem, i.e., the association between the stock market of South Asian countries. Thus, in an attempt to achieve a valuable role to the existing vital issue, the current analysis handles the problem of interdependence among the capital markets of South Asian countries. Specially, this article investigates the short-run interdependence of South Asian capital markets. This study would be significant as regional market interdependence may provide essential reward in the form of:

- Low cost economic services

- A better and effective, short-term and expanded stock market
- Creative financial products and services
- Industrial conversion of market
- Inexpensive company finance
- More competent and productive movement of funds
- Improved risk return frontier

Relevance of the study: This study shall be significant for the reasons such as:

- Market integration is an important means of promoting domestic savings, investment and hence the real economic growth.
- Market integration makes the country's financial sector as international financial centre.
- Capital market integration brings the financial stability by enhancing competition and efficiency of financial intermediaries in their operations and allocation of resources.

Objective of the study: In view of the recent year's claim that globalization, economic assimilation and integration among nations have increased the degree of interdependency among their financial markets, the intention of the article is to study the degree and dynamics of integration among the capital markets of the select nations of South Asian region, viz., Sri Lanka, Maldives, Pakistan, Bangladesh and India.

Hypotheses of the study: The following hypotheses have been formulated.

Hypothesis-1: Moderate to High degree of association exists among the select capital markets.

Hypothesis-2: No co-movement among select capital markets exists.

Hypothesis-3: No causal relationship exists between select capital markets.

Duration of study: This study examines the relationship between the select South Asian capital markets over a period spanning from January 2004 to March 2013.

Data used: This study uses the quarterly time series data on general share price indices on the select South Asian stock markets and these have been collected from International Financial Statistics.

METHODOLOGY

The Descriptive Statistics like average, standard deviation, skewness and Kurtosis are used to examine the basic properties of time series data. Pearson's correlation is applied to find the intensity of association

among the capital market indices. The testing of Unit Roots test. The long-run co-movement between the select South Asian capital markets is tested by using multivariate cointegration test. Last, the Paired Causality test of Granger model is used to explore the course of the short-run influence of one capital market on another.

EMPIRICAL ANALYSIS AND DISCUSSION

At the outset, the relevant descriptive statistics have been calculated and presented in Table 1 for discussion.

It is clear that the standard deviation in general share price index of Bangladesh is highest and it is lowest for India. Thus, the capital markets of Bangladesh shows highest volatility and that of India reveals the lowest volatility. The values of Skewness and Kurtosis infer that the distributions of share price indices are not normal. So, this paves the way for investigating the stationarity of the time series under study. But before we go for stationarity issue, it is essential to know the intensity of linkage among the capital markets under consideration. The connectivity was studied by applying Pearson's correlation coefficient as reported in Table 2.

The degree of correlations between general share price indices of India and Bangladesh, India and Pakistan and India and Sri Lanka are positive and strong. The degree of association between share price indices of Sri Lanka and Bangladesh is positive and very strong. The correlations between share price indices of Pakistan and Bangladesh and Sri Lanka and Pakistan are positive and moderate.

The positive and strong degree of association among few capital markets may indicate the way their

stationarity is accomplished by using Phillips-Perron capital markets are interdependent and integrated. This would help in studying the flows of capital from one market to another. The correlation, however, does not show any causality between the variables of interest. So capital market integration needs to be verified the long-run co-movement of capital markets and by the Granger Causality test. All these investigation would result in healthier outcome if the selected time sequence is stationary and therefore, there is a requirement for the unit root test. The results of stationarity test in terms of unit roots test are tabulated in Table 3.

It is inferred that all the data has unit root, in their level form, but they have no unit root in their first level of differences.

So, co-integration check was employed to evaluate the long-run co-movement of time series under study. The outcome on the cointegration analysis is presented in Table 4.

The maximum eigenvalue and trace statistics brings out three cointegrating equations explaining the long-run association between the data. This means the capital markets of the select region are moving together in the long-run which may indicate the fact that financial assets allocation across the markets may not provide enough opportunities of portfolio diversification.

Once the existence of co-movement of share price indices in select capital markets is identified, there is a need to know their direction of movement in the short-run. So the Causality test pair-wise of Granger Model was applied and the outcome is reported in Table 5 and 6.

It is inferred that no causal relationship exists between the share price indices between the capital markets of India and Bangladesh; Maldives and

Table 1: Descriptive statistics

Statistics	Bangladesh	India	Maldives	Pakistan	Sri Lanka
Mean	196.740	189.400	84.790	133.520	171.350
Median	167.350	218.450	83.580	132.160	127.860
Std. Dev.	111.790	66.030	26.390	40.750	94.660
Skewness	0.765	-0.521	0.582	0.139	0.766
Kurtosis	2.584	1.912	2.202	2.493	2.124
Obs.	37	37	37	37	37

Table 2: Pearson's correlation

Countries	Bangladesh	India	Maldives	Pakistan	Sri Lanka
Bangladesh	1				
India	0.781	1			
Maldives	-0.231	-0.023	1		
Pakistan	0.415	0.779	-0.113	1	
Sri Lanka	0.889	0.758	-0.482	0.594	1

Table 3: ADF unit roots test

Countries	ADF statistic at level	p-value	ADF statistic at 1 st difference	p-value
Bangladesh	-1.341	0.599	-4.835	0.0004*
India	-1.898	0.329	-4.220	0.0020*
Maldives	-2.215	0.205	-3.894	0.0050*
Pakistan	-1.332	0.604	-3.599	0.0100**
Sri Lanka	-1.426	0.558	-2.803	0.0600***

*: Significant at 0.01 level; **: Significant at 0.01 level; ***: Significant at 0.10 level

Table 4: Cointegration test

Hypothesized No. of CE (s)	Eigen value	Trace statistic	Critical value 5%	p-value	Max-eigen statistic	Critical value 5%	p-value
None*	0.823	121.6	69.81	0.000	59.03	33.87	0.00
At most 1*	0.601	62.56	47.85	0.001	31.30	27.58	0.01
At most 2*	0.470	31.26	29.79	0.030	21.60	21.13	0.04
At most 3	0.178	9.66	15.49	0.300	6.66	14.26	0.53
At most 4	0.084	2.99	3.84	0.080	2.99	3.84	0.08

Maximum eigenvalue and trace statistics show equations (s) of cointegration at the 5% level; *: at the 5% level rejection of the hypothesis indicated

Table 5: Pair-wise causality test

Null hypothesis	F-statistic	Probability
India does not granger cause Bangladesh	0.42179	0.79132
Bangladesh does not granger cause India	0.32341	0.85947
Maldives does not granger cause Bangladesh	0.39581	0.80960
Bangladesh does not granger cause Maldives	0.76568	0.55799
Pakistan does not granger cause Bangladesh	0.23348	0.91676
Bangladesh does not granger cause Pakistan	0.52063	0.72141
Sri Lanka does not granger cause Bangladesh	2.99614	0.03871
Bangladesh does not granger cause Sri Lanka	2.62352	0.05986
Maldives does not granger cause India	0.92211	0.46740
India does not granger cause Maldives	1.17738	0.34575
Pakistan does not granger cause India	1.61580	0.20275
India does not granger cause Pakistan	2.71258	0.05389
Sri Lanka does not granger cause India	1.45010	0.24834
India does not granger cause Sri Lanka	0.23518	0.91575
Pakistan does not granger cause Maldives	1.39700	0.26497
Maldives does not granger cause Pakistan	4.87276	0.00509
Sri Lanka does not granger cause Maldives	1.39700	0.26497
Maldives does not granger cause Sri Lanka	4.87276	0.00509
Sri Lanka does not granger cause Pakistan	2.71263	0.05388
Pakistan does not granger cause Sri Lanka	0.37638	0.82318

Table 6: Pair-wise causality test

Capital markets	Bangladesh	India	Maldives	Pakistan	Sri Lanka
Bangladesh					
India	⊗				
Maldives	⊗	⊗			
Pakistan	⊗	←	←		
Sri Lanka	↔	⊗	⊗	↑	

Bangladesh; Pakistan and Bangladesh; India and Sri Lanka; India and Maldives; Sri Lanka and Maldives. The share price indices of Sri Lanka and Bangladesh cause each other. The share price indices of India and Sri Lanka cause that of Pakistan, but the other way around. The share price index of Maldives causes that of Pakistan, but converse is not true. Thus, we found that short-run dynamics is so significant like long-run one. Only we can say that the long-run co-movement of capital markets in the South Asia region has increased over time.

CONCLUSION

The current study examines association among select stock markets of South Asian countries. The results indicate that there exists long-term stable association among the markets of these countries. Thus, the Investors have no diversification opportunity in select markets. However, the short-term dynamics infers that there lies an opportunity to earn more in these stock markets only on short term basis.

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