

# Profile of Indian Stock Markets Vis-a-Vis Other Asian Markets

Dr. V Johnson

Associate Professor, PG Department Of Commerce, Pavanatma College, Murickassery, Kerala (India)

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### Corresponding Author

Email: johnsonchalapat[at]gmail.com

## ABSTRACT

The Indian stock markets shows better performance against its Asian counterparts in terms of stock returns, growth rate and opportunity for investment. At first, this is corroborated with the correlation of stock returns of India with five other Asian countries as there exists a very feeble correlation between the Indian markets and Hong Kong, Indonesia, Malaysia and Japan. Comparatively higher correlation was found between the Indian and the Korean markets, which seemed to have weakened in the short run. Hence it can be said that the Indian markets offer better risk diversification portfolios to international investors looking for investment in the Asia Pacific region. Besides, Indian markets also reigned supreme over other Asiatic markets with an astonishing compounded annual growth rate in stock market returns, both in the short as well as long run. However, the Indian markets, in terms of the volatility of its weekly returns, were similar to its other Asian counterparts, showing features of platykurtic distribution which signifies the normal distribution of stock returns in Indian stock market. It is positive to see that the last six months, showed signs of recovery, with the market variations negatively skewed in most countries signifying an economic upturn and concentration of returns towards higher values and increasing stock market returns.

## 1. Introduction

Stock Market is one of the most tantalizing and intricate sectors in the financial system, laying the foundations of a vibrant economy footed on liquidity, investible resource and significant contribution to economic development. It signifies an arrangement of market mechanisms where buyer and seller of securities can enter into transaction to purchase and sell shares, bonds, debenture etc., beyond geographical boundaries and time constraints. Being an established platform for trading various securities including shares, debentures and derivatives, it performs an important role in enabling corporate entrepreneurs to raise resources for their companies and business ventures through public issues, attracting prospective buyers instilling a reciprocal arrangement of investment and liquidity to improve the allocation of resources and enhance prospects of long term economic growth. The emergence of technology and the consequent proliferation of online trading have changed the very facelift of stock markets which saw meteoric rise of transactions in size and complexity. The United States has the most highly developed capital markets in the world and the size of the U.S. stock market is one of many

examples that prove this out. The combined market capitalization (total dollar value of all stocks) of the NASDAQ OMX and NYSE Euronext is nearly \$16 trillion - more than the next six largest exchanges combined. The advent of overseas players in the form of FIIs and FDIs in India has opened up speculative avenues wider, lime lighting the volatility of Indian stock markets to test the fortunes of many. The stock markets have high fluctuating stock prices, which exhibit volatility; bring variation in the returns of the investors' investment as it is a glorious business of uncertainties. The repercussions were amazing as the country surged ahead in the segment to occupy a dominant place in the stock market scenario of Asiatic region. The Bombay Stock Exchange (BSE), the National Stock Exchange (NSE) and the Calcutta Stock Exchange (CSE) are the three stock exchanges of Indian Stock Market of which BSE and NSC are more predominant. The market capitalization of BSC stood at Rs153145.74 billion in the first quarter of 2019. The present study attempts a comparative analysis of BSE with other Asian stock markets to spotout the direction and movement of Indian Stock markets in terms of returns, stationary and random walk.

Table 1

Net Investments by FIIs in the Indian Capital Market							
( Billion)							
Year / Month	Apr.	Jul.	Oct.	Jan.	Feb.	Mar.	Total
1	2	5	8	11	12	13	14
2013-14	61.41	-63.10	183.24	3.24	29.59	220.75	<b>855.22</b>
2014-15	79.23	110.72	3.87	180.63	87.76	102.28	<b>1102.44</b>
2015-16	77.61	59.80	51.04	-100.60	-76.26	256.13	<b>-48.82</b>
2016-17	69.29	109.93	-50.50	-13.73	111.11	336.83	<b>583.26</b>
2017-18	-17.40	45.92	-11.10	144.66	-118.34	168.50	<b>265.87</b>
2018-19	-66.72	46.86	-	-	-	-	-

**Notes :**

1. Data for the year 2018-19 are provisional.
2. The data relate to investment in equities only.
3. From June 01, 2014, Foreign Institutional Investors (FIIs), Sub Accounts and Qualified Foreign Investors

(QFIs) have been merged into a new investor class termed as Foreign Portfolio Investors (FPIs).

Source : Reserve Bank of India.

## 2. History

Indian Stock Market is one of the oldest Stock Market in Asia. The East India Company started transacting Loan Securities from earlier on and in the 1830s, trading on corporate stocks and shares in Bank and Cotton presses took place in Bombay. However the year 1875 marks the entry of stock markets in India, when Bombay Stock Exchange (BSE) was established as a voluntary non-profit making association, rooted in the Dalal street, called the Native Share and Stockbrokers Association. In 1894 the Ahmedabad Stock Exchange was started to facilitate dealings in the shares of textile mills there. The Calcutta stock exchange was started in 1908 to provide a market for shares of plantations and jute mills followed by the establishment of Madras stock exchange in 1920. In 1958, the BSE became the first stock exchange to be recognized by the Indian Government under the Securities Contracts Regulation Act 1980. Soon after, in 1986, Bombay Stock Exchange developed BSE Sensex (Sensex = Sensitive Index), an index of top 30 companies, which gave a means to measure the overall performance of the Exchange. Until late 1980s, BSE ran with low transparency and an unreliable clearing and settlement systems. Towards the end of the 1980s, new economic forces, the economic growth and currency crisis emphasized the need for modernization of the financial system resulting in the creation of the Securities and Exchange Board of India (SEBI) in 1988.

In November 1992, NSE (National Stock Exchange) was established as the first electronically traded Stock Exchange in India. After a few years of operations, the NSE became the largest stock exchange in India. Three segments of the NSE trading platform were established one after another. The Wholesale Debt Market (WDM) commenced operations in June 1994 and the Capital Market (CM) segment was opened at the end of 1994. Finally, the Futures and Options segment began operating in 2000. Today the NSE takes the 14th position in the top 40 futures exchanges in the world. In 1996, the National Stock Exchange of India launched S&P CNX Nifty. CNX Nifty (Nifty = National Fifty) is a diversified index of 50 stocks from 25 different economy sectors. The National Stock Exchange (NSE) is India's leading stock exchange covering 364 cities and towns across the country. NSE was set up by leading institutions to provide a modern, fully automated screen-based trading system with national reach. At present there are 24 stock exchanges in the country, 21 of them being regional ones with allotted areas. Two others set up in the reform era, viz., the National Stock Exchange (NSE) and Over the Counter Exchange of India (OICEI), have mandate to have nation-wide trading. BSC also rules the roost with a sizeable market share. The proportion of retail investors in India's equities markets is strikingly low. Less than 6 percent of the population invests in securities, compared with almost 10 percent in China and 18 percent in the U.S. Less than 1% of rural households invest in stocks.

Table 2

Market Capitalisation - BSE						
(' Billion)						
Year/ Month (end-period)	Apr.	Jul.	Oct.	Jan.	Feb.	Mar.
1	2	5	8	11	12	13
2013-14	66457.85	62631.06	68442.33	67443.98	68930.83	74152.96
2014-15	74947.91	90102.70	96846.91	103462.82	104666.61	101492.90
2015-16	99680.15	104793.96	98333.59	93921.33	85831.45	94753.28
2016-17	97105.39	108635.80	114066.93	112563.30	117593.67	121545.25
2017-18	124849.75	132622.46	143915.46	153209.78	147655.83	142249.97
2018-19	152795.35	153145.74	.	.	.	.
Source	BSE Ltd.					

## 3. Literature

Gupta (1972) in his study highlights the 'need to regulate the volume of speculation in stock exchanges in India so as to serve the needs of liquidity and price continuity. Raju and Ghosh (2004) found that skewness and kurtosis is less in Indian market stock returns as compared to other countries. Wong et al (2005) found causality from United States and Japan on Indian stock market finds, returns only in the long run and not in the short run. The findings of Ekholm and Pasternack (2005) lend solid support to the 'negative news threshold' hypothesis, which states that negative skewness in stock returns is induced by firm management disclosing information asymmetrical. Banerjee and Sarkar (2006) have

attempted to forecast stock return volatility using intra – day data of NSE from June 2000 through January 2004 by employing the GARCH model. They found that anticipation of FII's in the Indian Stock market does not result in significant increases in market volatility. Gupta and Basu (2007) evaluated market efficiency in the Indian stock market from 1991 to 2006. They use the ADF, PP, and KPSS procedures to test for unit roots. Their results indicate that Indian Stock Markets do not follow a random walk. Mukherjee and Bose (2008) investigated the level of market integration of India with the developed countries of US, Japan and five other Asia Pacific markets for the period between 1999 to 2005. They found that Stock returns in India were led by major stock index returns in US, Japan, Hong Kong, South Korea and Singapore.

Ramaniah, M.Venkata (2008) traces out year wise trends of FII's into capital markets from 1993 to 2007. They found that FII's have not only contributed significantly to the growth of Indian Stock Markets, but they also brought about high degree of Volatility in Indian Stock Markets. In a more recent study, Khan et al (2011) used a runs test to analyze the daily returns from the BSE Sensex, the S&P CNX Nifty and various publications of the Reserve Bank of India from April 2000 to March 2010. The runs test indicated that both the NSE and BSE do not follow a random walk. JatinderLoombe (2012) explores that FII brings foreign capital and reserve in the country with the aim of getting return. India is lacking in foreign capital and surplus which needed to be raised and FII is doing fabulous job for the same. Sen and Bandhopadhyay (2012) explored a bi-directional contemporaneous as well as dynamic return and volatility spillover from US Stock Market to Indian stock markets and vice versa. Sakthivel et.al (2012) also found bi- directional volatility spillover between S&P 500 and BSE

Sensex, and uni-directional volatility spillover from Japan and UK to India. AnjuBala (2013) has studied that listing of corporate on various stock exchanges impact the liquidity in the market. Risk in the stock market cannot be eliminated but that can be measured with help of volatility and variability of previous trends. Stock market is always related with the demand and supply forces, fiscal deficit and political stability. Panda and Deo (2014), investigates the volatility spillover effect during pre-crisis, post-crisis, in-crisis periods between rupee-dollar exchange rate and CNX return series and found asymmetry volatility spillover in all the three periods, it was higher asymmetry and volatility spillover effect during the post-crisis period as compared to two other periods. Gakhar (2016) finds that awareness about financial market experience is derivatives trading workplace activity and return expectation are significantly associated with Derivatives Awareness level (DAL) of respondents

Table 3

Monthly turnover at BSE							
(` Billion)							
Year/ Month	Apr.	Jul.	Oct.	Jan.	Feb.	Mar.	Annual
1	2	5	8	11	12	13	14
2013-14	409.80	415.35	410.18	496.73	348.52	621.25	<b>5216.64</b>
2014-15	497.16	751.19	510.78	736.86	784.09	795.88	<b>8548.44</b>
2015-16	674.21	702.54	581.43	635.76	571.58	617.73	<b>7400.89</b>
2016-17	491.74	680.33	645.10	647.64	683.30	2891.07	<b>9982.61</b>
2017-18	750.70	883.95	779.97	1225.37	817.58	783.59	<b>10829.68</b>
2018-19	716.30	651.68	-	-	-	-	-
<b>Note</b>	: Turnover pertains to the spot market at BSE.						
<b>Source</b>	: BSE Ltd.						

4. Data Collection

The study done is Empirical in nature. The weekly closing prices of six major Asian countries: BSE Sensex (Mumbai-India), Hang Seng (Hong Kong-China), JKSE (Jakarta-Indonesia), KLSE (Kuala Lumpur- Malaysia), Nikkie (Japan) , and KS11(Seoul-Korea) were taken from Money Control.com, Rediff stock.com and www.yahoofinance.com from 1st week of April 2013 till the last week of March 2018 were used in the analysis.

5. Research Methodology

- a) The weekly returns on the basis of the closing values of the stock indices were calculated as below:

$$R_n = (P_n - P_{n-1}) / P_{n-1} * 100$$

Where R represents returns, P is the closing value of the stock index and n is the time. Simple average of weekly returns were taken and multiplied by 52 to get yearly returns. These simple weekly returns represent the returns generated by active stock trading in the respective markets.

- b) In order to calculate compounded annual growth rate of returns ,the following formula was used.

$$CAGR = \left( \frac{\text{Ending Value}}{\text{Beginning Value}} \right)^{\left( \frac{1}{\# \text{ of years}} \right)} - 1$$

- c) Jarque–Bera test - It is a goodness-of-fit test of whether sample data have the skewness and kurtosis matching a normal distribution .  $JB = n \cdot k + 1/6(S^2 + 1/4(C-3)^2)$ , where n is the number of observations (or degrees of freedom in general); S is the sample skewness, C is the sample kurtosis, and k is the number of regressors:

6. Data Analysis and Findings

Since stock prices are time series data, a check needs to be done to find the stationarity of the given time series. A time series is said to be stationary if its mean value and its variance do not vary systematically over time, hence time series data should be first tested for stationarity. In econometrics, a time series that has a unit root is known as a random walk. A random walk is an example of a non-stationary time series. For example, asset prices, such as stock prices, follow a random walk, that is they are non stationary. In tables 1.1 and 1.2, unit root for testing stationarity of weekly closing prices was conducted first using Augmented Dickey Fuller Test (ADF). In all the six markets, the tau value( the time rate of changes of deviations from a fixed point) of the weekly closing prices for, 5, 1 year and 6 months were found to be less than the tabulated value, which indicated the stock prices were not stationary. Then the unit root test for there turns of the stock prices was conducted. The tau value of these returns for 5, 1 year and 6 months were found to be higher than the tabulated

value at 5% level of significance. This indicated that the stock returns were stationary.

Table 1.1

Unit Root Test for Stationarity of Weekly Closing Prices						
Time Period	BSC India (Closing tau Value)	Hang Seng Hong Kong (Closing tau Value)	JKSE Indonesia (Closing tau value)	KLSE Malaysia (Closing tau Value)	Nikkie Japan (Closing tau value)	KS 11 Korea (Closing tau Value)
During 2013-18	0.231	-1.399	-0.998	-1.123	-0.961	-1.934
During last one year 2018	0.909	-1.189	-0.788	-1.019	-3.301	-1.608
During last six months 2018	0.315	-3.458	-2.241	-3.718	-2.812	-2.18

Table 1.2

Unit Root Test for Stationarity of Stock Market Returns						
Time Period	BSC India (Closing tau Value)	Hang Seng Hong Kong (Closing tau Value)	JKSE Indonesia (Closing tau value)	KLSE Malaysia (Closing tau Value)	Nikkie Japan (Closing tau value)	KS II Korea (Closing tau Value)
During 2013-18	-9.411	-16.29	-7.682	-14.691	-10.112	-17.241
During last one year 2018	-4.601	-5.191	-8.421	-4.347	-4.691	-2.831
During last six months 2018	-4.381	-0.681	-1.302	-1.232	-5.551	-5.714

Table 1.3 depicts the correlation of Indian stock market represented by BSE- Sensex with five other Asian Countries. A very weak negative correlation is observed between the Hong Kong markets represented by Hang Seng and the BSE Sensex for the entire period from 2013-2018. The last six months of year 2018, saw an increase in the negative correlation between the two markets. The relationship was insignificant to be further tested upon. Coming to the Indonesian markets, a weak positive correlation was observed between the Indian Markets and the JKSE. However this weak positive correlation turned negative in the year 2018. The last six months of 2018, saw a higher negative correlation than the overall correlation for the year 2018. Again the correlation seemed insignificant to be tested upon. Similar trend of correlation was observed between India and the Malaysian markets as well as between

India and the developed Japanese markets. There existed a weak positive correlation between India and both these markets for the entire period of study from 2013 to 2018. However in the last six months of 2018, a weak negative correlation was observed between India and these two major markets of Asia. The only significant positive correlation was observed between India and the Korean markets. For the entire study period from 2013-2018, a positive correlation nearing 0.6 was observed. A similar correlation was observed in the year 2018, however in the last six months of this year, the correlation became weak. This throws a light on international diversification. Due to the weak correlation found between India and the other five Asian economies, it can be concluded that investments in India would lead to portfolio diversification and mitigate risk for international investors.

Table 1.3

Correlation of BSC Sensex with other Asian Stock market						
Time Period	BSC India	Hang Seng Hong Kong	JKSE Indonesia	KLSE Malaysia	Nikkie Japan	KS II Korea
During 2013-18		-0.156	0.131	0.174	0.177	0.591
During last one year 2018		-0.059	0.014	0.123	0.079	0.539
During last six months 2018		-0.302	-0.184	-0.149	-0.024	0.391

Table 1.4 depicts the compounded annual growth returns of the all the six Asian economies including India. Looking at the compounded annual growth rate in the period between 2013- 2018, it is evident, Indian markets gave the maximum returns around 14%. The other Asian markets gave low to negative returns, with the developed Japanese markets giving the highest negative returns. This might be attributed to the global economic slowdown of 2008 which rocked and trembled the US in particular and the Global meltdown or recession and the mortgage bubble burst, eventually hitting the Asian

Countries in the first half of 2010 demonstrating a downward slide in their respective real economies and financial markets. Once again the Indian Markets outperformed all the other Asian markets and gave compounded annual growth rate nearing 80%. Though Indonesian and the Malaysian markets continued to show negative returns. The last six months of 2018, saw Japanese markets with generating almost nil returns. India once again outperformed all the other Asian markets.

Table 1.4

Compound Annual Growth rate of Stock Market Returns						
Time Period	BSC India	Hang Seng Hong Kong	JKSE Indonesia	KLSE Malaysia	Nikkie Japan	KS II Korea
During 2013-18	14.31	0.367	-0.311	0.651	-8.691	7.212
During last one year 2018	79.591	66.011	-3.476	-0.062	29.831	45.791
During last six months 2018	35.112	29.495	30.057	28.111	0.521	17.764

Table 1. 5 depicts the comparative skewness of the selected Asian economies. Many empirical studies found that there are asymmetrical changes in the stock prices for a given event or shock leads to considerably higher volatility in the stock returns. Investors respond more sensitively to bad news rather than good news, which cause high volatility in the stock prices. Skewness is a measure of lack of symmetry, and deviations from zero indicate the data is spread more to the left or right than in a normal distribution. Negative skew or left skew has fewer low values and a longer left tail, while positive skew has fewer right values and a longer right tail. In the study period from 2013 -2018, all the countries under study showed

negative skewness, with Japan demonstrating the maximum negative skewness. This indicated that the stock index returns were getting increasingly concentrated at higher ranges, which is a very good sign. A positive skewness meant that returns were falling and were concentrated in this low range. However the last six months, showed signs of recovery, with the skewness of all countries under study except Japan and Malaysia became negative again. This signified an economic upturn and concentration of returns towards higher values. India demonstrated the highest negative skewness indicating the increasing stock market returns.

Table 1.5

Skewness of Stock Market Returns						
Time Period	BSC India	Hang Seng Hong Kong	JKSE Indonesia	KLSE Malaysia	Nikkie Japan	KS II Korea
During 2013-18	-0.382	-0.199	-1.081	-0.849	-1.433	-0.599
During last one year 2018	0.121	0.129	0.601	-0.198	0.218	-0.811
During last six months 2018	-0.491	-0.009	-0.029	-0.771	0.681	-0.281

Table 1. 6 depicts the descriptive statistics of the six Asian markets for the period between 2013 and 2018. The mean of the weekly returns of India and the Indonesian markets were observed to be the highest around 23%. Japanese markets were flat during the study period. Volatility as measured by standard deviation and its square, the variance was the least observed in the Malaysian markets. The other five Asian markets generated variance in the range of 11%-15%. Indian markets showed maximum variance. Kurtosis, as referred to as the volatility of the volatility, measures the peakedness of the distribution. The weekly returns of Hong Kong and Malaysian markets were more near to their respective means, as their kurtosis were nearing 3. Weekly returns of Indian stock markets indicate a low peak with a fat mid range on either side. The kurtosis of India is platykurtic which signifies the normal

distribution of stock returns in Indian stock market; however, the high kurtosis of other markets exhibits heavier tail than the standard normal distribution implying that returns are concentrated on one level. The study uses Jarque-Bera test to examine the normal distribution characteristic of all the stock markets. The fact that it is significant at 5 per cent level of significance for selected Asian stock markets questions the normal distribution of returns and thereby the random walk behaviour of the Asian markets. Indonesian, Korean and Japanese markets showed the features of a leptokurtic market, with their returns too closely bunched around their average. Under the null hypothesis of normality, the Jarque-Bera (JB) statistic asymptotically follows a chi-square distribution with two degrees of freedom. The computed value convincingly rejects the normality assumption

Table 1.6

Descriptive Statistics of Weekly Stock market Return in the long run(2014-2018)						
	BSC India	Hang Seng Hong Kong	JKSE Indonesia	KLSE Malaysia	Nikkie Japan	KS II Korea
Mean	0.501	0.271	0.431	0.155	0.029	0.301
Median	0.928	0.481	0.997	0.312	0.281	0.672
Standard Deviation	3.997	3.771	3.898	2.245	3.521	3.621
Simple Variate	16.021	13.442	15.117	4.828	11.779	12.919
Kurtosis	1.801	2.712	4.774	2.871	10.791	6.812
Skewness	-0.351	-0.199	-1.041	-0.912	-1.612	-0.691
Range	31.012	29.011	34.012	16.812	37.125	40.101
JarqueBeraValu	22.031	3.265	75.21	31.212	654.89	168.991

## 7. Conclusion

The Indian stock markets shows better performance against its Asian counterparts in terms of stock returns, growth rate and opportunity for investment. At first, this is corroborated with the correlation of stock returns of India with five other Asian countries as there exists a very feeble correlation between the Indian markets and Hong Kong, Indonesia, Malaysia and Japan. Comparatively higher correlation was found between the Indian and the Korean markets, which seemed to have weakened in the short run. Hence it can be said that the Indian markets offer better risk diversification portfolios to international investors looking for investment in the Asia Pacific region. Besides, Indian markets also reigned supreme over other Asiatic markets with an astonishing compounded annual growth rate in stock market returns, both

in the short as well as long run. However, the Indian markets, in terms of the volatility of its weekly returns were similar to its other Asian counterparts, showing features of platykurtic distribution which signifies the normal distribution of stock returns in Indian stock market. It is positive to see that the last six months, showed signs of recovery, with the market variations negatively skewed in most countries signifying an economic upturn and concentration of returns towards higher values and increasing stock market returns. Jarque-Bera test used to examine the normal distribution characteristic of all the stock markets suggests that it is significant at 5 per cent level of significance for selected Asian stock markets questioning the normal distribution of returns and thereby the random walk behaviour of the Asian markets.

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