

# GLOBAL STOCK MARKET INTEGRATION WITH INDIA: A STUDY OF BSE AND NASDAQ

**Dr. NAMITA SRIVASTAVA**

Associate professor, Institute of cooperative and corporate management research and training, Lucknow.

email: [nigam.namita@rediffmail.com](mailto:nigam.namita@rediffmail.com)

## Abstract

In a country like India, where the stock market is undergoing significant transformation with the liberalization measures, there are also concerns regarding its exposure to risk in case of a global regional crisis, i.e. a need to know how far a Depression or crisis in another market can affect the Indian stock market in a more and more globally integrated environment. Hence, the analysis of the nature of co-movements or long term dependencies with other developed and regional emerging markets would give an idea of the of possible gains out of portfolio. The present study aims to test the interdependency of Indian stock market on the American Stock Markets. The study found that NASDAQ Composite is the largest stock exchange in the world in terms of Market Capitalization and has been correlated with S&P BSE SENSEX. .

**Keywords : Market Capitalization, Integration, Diversification**

## INTRODUCTION

The process of globalization has had a deep impact of the financial markets worldwide. With the liberalization of the Indian capital markets and relaxation of restrictions on international flow of capital and trade, it is likely to expect the Indian stock market to be correlated with other world markets. In a country like India, where the stock market is undergoing significant transformation with the liberalization measures, there are also concerns regarding its exposure to risk in case of a global regional crisis, i.e. a need to know how far a Depression or crisis in another market can affect the Indian stock market in a more and more globally integrated environment. Hence, the analysis of the nature of co-movements or long term dependencies with other developed and regional emerging markets would not only give an idea of the of possible gains out of portfolio Diversification to be reaped from the Indian market but also may give some indication of the vulnerability of the country's stock market in case of a regional crisis. The liberalization of Indian capital market has led to more integration of Indian markets with other stock markets of the world. The present study, try to determine the degree to which there is integration between the Indian stock market and American stock markets.

## RESEARCH METHODOLOGY

The present study is based on secondary data. Month-wise closing prices of selected indices have been collected from the concerned stock exchange websites. The study covers a period from January 2013 to Dec 2015.

Apart from this, various journals, magazines, text books and articles have been referred to get the relevant information.

**The analytical tool used to develop the relationship between Indian stock market to US stock market is Karl Pearson Co-efficient of Correlation.**

Month wise return is calculated as follows:

**Calculation of Month-wise returns:**

**$T1-T0/T0*100$**

(Closing of Current Month-Closing of Previous Month/closing of Previous Month/100)

Month-wise index prices have been chosen and month-wise returns have been calculated. Multiple Correlations have been computed for the selected stock market indices. Statistical Significance of the correlation has been tested by applying correlation test.

## Data analysis and interpretation

**Table 1**

MONTH	BSE CLOSE	RETURNS (x)	NASDAQ CLOSE	RETURN
January 2013	19,894.98	12	3,142.13	4.06
February 2013	18,861.54	-5.19	3,160.19	0.57
March 2013	18835.77	-0.01	3,267.52	3.39
April 2013	19504.18	3.54	3328.79	1.87
May 2013	19760.3	1.31	3455.91	3.81
June 2013	19395.81	-1.84	3403.25	-1.52
July 2013	19345.7	-0.25	3626.37	6.55
August 2013	18619.72	-3.75	3589.87	-1.00
September 2013	19379.77	4.08	3771.48	5.05
October 2013	21164.52	9.2	3919.71	3.93
November 2013	20791.93	-1.76	4059.89	3.57
December 2013	21170.68	1.82	4176.59	2.87

As per the year 2013, the minimum return which SENSEX recorded was -5.19 and the maximum was 12.00. The average return for the year was 1.59 while the standard deviation in returns was 5.04. Commencement of the year saw a good response as being affected by the January effect. But, in the later year, there were many price fluctuations. The market, somehow, held a good position due to the festive season in October, but fell down by the year end.

As per the year 2013, the minimum return which **NASDAQ Composite** recorded was **-1.52** and the maximum was **6.55**. The average return for the year was **2.76** while the standard deviation was **2.39**. The market continued its strong upward momentum, and finished off the year on a positive note.

**Table 2**

MONTH	CLOSE	RETURNS(x)	NASDAQ CLOSE	RETURN
Jan-14	20513.85	-3.1	4103.88	-1.74
Feb-14	21120.12	2.95	4308.12	4.97
Mar-14	22386.27	5.99	4198.99	-2.53
Apr-14	22417.8	0.14	4114.56	-2.01
May-14	24217.34	7.43	4242.62	3.11
Jun-14	25413.78	4.94	4408.18	3.9
Jul-14	25894.97	1.89	4369.77	-0.87
Aug-14	26638.11	2.86	4580.27	4.81
Sep-14	26630.51	-0.02	4493.39	-1.89
Oct-14	27865.83	4.63	4630.74	3.05
Nov-14	28693.99	2.97	4791.63	3.47
Dec-14	27499.42	-4.16	4736.05	-1.15

As per the year **2014**, the minimum return which S&P BSE SENSEX recorded was **-4.16** and the maximum was **7.43**. The average return for the year was **2.21** while the standard deviation in returns was **3.49**. The best period was the month of May due to the General Elections and the positive response towards the Narendra Modi led government. Also, a huge amount of investment was injected into the economy by the Foreign Portfolio Investors and by the Foreign Direct Investment.

As per the year 2014, the minimum return which **NASDAQ Composite (COMP)** recorded was **-2.53** and the maximum was **4.97**. The average return for the year was **1.09** while the standard deviation was **2.99**. NASDAQ Composite had an overall satisfactory performance. It showed high returns at the beginning of Q1 and Q3. Major investments were powered by the technological sector.

**Table 3**

MONTH	CLOSE	RETURNS(x)	NASDAQ CLOSE	RETURN
Jan-15	29182.95	6.12	4635.24	-2.12
Feb-15	29361.5	0.61	4963.53	7.08
Mar-15	27957.49	-4.78	4900.88	-1.26
Apr-15	27011.31	-3.38	4941.42	0.82
May-15	27828.44	3.02	5070.03	2.6
Jun-15	27780.83	-0.17	4986.87	1.64
Jul-15	28114.56	1.2	5128.28	2.83
Aug-15	26283.09	-6.51	4776.51	-6.85
Sep-15	26154.83	-0.48	4620.16	-3.27
Oct-15	26656.83	1.91	5053.75	9.38
Nov-15	26145.67	-1.91	5108.67	1.08
Dec-15	26117.54	-0.1	5007.41	-1.98

As per the year 2015, the minimum return which SENSEX recorded was -6.51 and the maximum was 6.12. The average return for the year was -0.37 while the standard deviation in returns was 3.45. The year 2015 was not less than a roller coaster rides for the market. Leaving behind the not so good performance in the year end of 2014, the market became stable in January but again fell by the end of the first quarter and set a record recovery. But, followed by further falls in the later year, there were many fluctuations overall

As per the year 2015, the minimum return, which NASDAQ Composite (COMP) recorded, was -6.85 and the maximum was 9.38. The average return for the quarter was 0.82 while the standard deviation was 4.43. It was a volatile year which however, the equities markets were good. Big moves were made and a lot of investors positioned themselves at the right time.

**Table 4**

**Correlation Analysis between S&P BSE SENSEX & NASDAQ Composite for the year 2013:**

**Correlation**

SENSEX_2013	Pearson Correlation	1	0.490
	Sig. (2-tailed)		0.106
	N	12	12
NASDAQ_2013	Pearson Correlation	0.490	1
	Sig. (2-tailed)	0.106	
	N	12	12

By analyzing the movement and performance of both the global indices in the year 2013, we can see that there was a Moderate level of correlation between the two international stock markets. Fluctuations of the NASDAQ Composite had a moderate level of impact over the performance of the domestic stock index S&P BSE SENSEX

**Table 5**

**Correlation analysis between NASDAQ Composite & S&P BSE SENSEX for the year 2014:**

**Correlation**

SENSEX_2014	Pearson Correlation	1	<b>0.515</b>
	Sig. (2-tailed)		0.087
	N	12	12
NASDAQC_2014	Pearson Correlation	<b>0.515</b>	1
	Sig. (2-tailed)	0.087	
	N	12	12

By analyzing the overall movement of both the stock markets, a **High** degree of correlation was established between both the indices. The movement of the NASDAQ Composite largely affected the domestic S&P BSE SENSEX stock index.

**Table 6**

**Correlation analysis between NASDAQ Composite and BSE SENSEX for the year 2015:**

**Correlation**

SENSEX_2014	Pearson Correlation	1	<b>0.424</b>
	Sig. (2-tailed)		0.161
	N	12	12
NASDAQC_2014	Pearson Correlation	<b>0.424</b>	1
	Sig. (2-tailed)	0.161	
	N	12	12

Observing the movement of the stock indices in the year 2015, there is a **Moderate** level of Correlation between both the indices. The changes in NASDAQ Composite somehow effected the movement of the S&P BSE SENSEX.

**Table 7**

**Correlation between NASDAQ Composite and S&P BSE SENSEX over the years (2013, 2014, 2015)**

**Correlation**

SENSEX	Pearson Correlation	1	<b>0.510**</b>
	Sig. (2-tailed)		.001
	N	36	36
NASDAQC	Pearson Correlation	<b>0.510**</b>	1
	Sig. (2-tailed)	.001	
	N	36	36

\*\*.

Correlation is significant at the 0.01 level (2-tailed).

Following the past year trends, the performance of NASDAQ Composite had a large effect on the domestic stock index S&P BSE SENSEX. It is quite relevant that the movement of U.S. Stock market has been influencing the movement of the Indian Stock market

## CONCLUSION

The 21st century has witnessed the rapid growth of global economies countries such as China and India. India, being one of the biggest democracies and developing nations in the world has attracted investments from across the globe, which also flourished the investments in the stock markets. Because of such globalization, the movement of the stock markets have also a witnessed a momentous change. The United States of America and India share a glorious history of decades old trade practices. After the stock market crash of 2008, the stock market of United States of America NYSE and NASDAQ are on a path of stability. By observing such trends from several years, it is quite relevant that there is a Moderate-to-High level of Correlation between NASDAQ Composite S&P BSE SENSEX and the U.S. Stock Market does have an impact over the Indian stock market.

## REFERENCES

1. Bala, A. and Mukund, K.S., 2001, 'Interrelationship between Indian and US Stock Markets', *Journal of Management Research*, Vol.1, No.3, May-August, pp.141-148.
2. Bodie, Kane, Marcus, "Investments", Fourth Edition, Irvin/McGraw-Hill International Edition, Singapore, 1999
3. R. N. Mantegna and H. E. Stanley, *Introduction to Econophysics: Correlations and Complexity in Finance*, Cambridge University Press, Cambridge, 2000.
4. Wong, W.K. and Agarwal, A. and Du Jun, 2004, 'Financial Integration for Indian Stock Market: A Fractional Co-Integration Approach', *Finance India*, Vol.XVIII, No.4, December, pp.1581-1604.