VOLUME-8, ISSUE-9, SEPTEMBER-2019 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

Original Research Paper

Economics

A STUDY ON LONG RUN RELATIONSHIP BETWEEN STOCK MARKET RETURNS AND GDP IN INDIA

Manjunatha G Research Scholar, Dept of Studies in Economics & Cooperation, University of Mysore, Mysore

Prof. M. Mahesha* Professor of Economics, Dept of Studies in Economics & Cooperation, University of Mysore, Mysore *Corresponding Author

ABSTRACT A financial system is a facilitator of economic activity and growth. It accelerates the growth of savings, lowers intermediation costs, enables innovation cheaper, helps in evaluating the healthiness of economy, and thereby helps in promising success of monetary and fiscal policies. Present study is undertaken to investigate the long-run relationship between the S&P BSE SENSEX Returns and GDP at Factor Cost. It is found that BSE has significant growth. There is positive long run relationship between market returns and GDP. For every one unit increase in returns, GDP increases by Rs.2.5390 crores.

KEYWORDS : S&P BSE SENSEX, GDP at factor Cost, Market capitalization, Co-inetgration

1. INTRODUCTION:

Indian capital markets have grown significantly since independence attributing to time to time reforms undertaken by Government, establishment of SEBI to regulate capital markets and most importantly, New Economic Policy of 1991.Major constituents of capital market are stock markets which mobilize funds or resources from investors to producers and entrepreneurs. Naik and Padhi (2012) argue that stock markets affect the growth of industries through transferring funds from the household units who have excess or surplus savings to those who are in need of them. Moreover, financial markets are drawing the attention across the world reinforcing the importance of financial markets in the economic development of a nation (Nazir and Ghilani, 2010). Stock Markets being pivotal and important pillar of an economy play a significant role in the growth of its business and commerce. These in fact, ultimately determines economic development of a country. Therefore, Reserve Bank of India, Government, academicians and researchers always keep an eye on the performance of the stock market.

A financial system is a facilitator of economic activity and growth. It accelerates the growth of savings, lowers intermediation costs, enables innovation cheaper, helps in evaluating the healthiness of economy, and thereby helps in promising success of monetary and fiscal policies. Moreover, it can monitor the management of companies. Stock Market is heart of the financial system. It operates as a mechanism of transforming savings into financing of the real sector. It augments the real production by enhancing and improving the quality and quantity of the investments. Higher the savings mobilization higher will be the amount available for investments. Stock markets can allocate increased pace of savings to investment projects that can yield higher returns. As a result, higher returns will prompt savers to save more makings savings attractive and these increased savings can be mobilized to corporate sector. Consequently, stock markets can become efficient and efficient markets make corporations more competitive and productive with higher returns (Wassal, 2013). In this context, Securities and Exchange Board of India (SEBI) defines Stock Exchange as "Any body of individuals, whether incorporated or not, constituted for the purpose of assisting, regulating or controlling the business of buying, selling or dealing in securities."

There are plethora of studies on the relationship between stock markets and economic growth. Few studies have studied impact of macro-economic indicators such as savings, investments (public and private), international capital flows, FDI, FIIs, Net Exports and Forex Rates. Mukherjee and Naka (1995) have made attempt to find the dynamic relationship between macro economic variables and The Japanese Stock Market using Vector Error Correction Model. They found that Japanese Stock Market is co-integrated with six macro economic indicators such as inflation, money supply, exchange rate, Industrial production index (IIP), government bond rates and call money rates. Mookerjee and Yu (1997) have tried to study the relationship between macro economic variables and stock prices in a city state Singapore. They found that three of the four macroeconomic indicators are co-integrated with stock prices. There is also classical study by Fama (1981) whose study enquired the relationship between Stock returns, inflation and real activity in US economy. His study found the negative relationship between inflation and stock returns which is due to negative relationship between inflation and real activity. Chen, Roll and Ross (1986) have empirically tested the stock market returns cause macroeconomic risks. Ratanapakorn and Sharma (2007) observed that stock prices are negatively related to long term interest rates but positively to short term interest rates money supply, inflation, industrial production and Forex rate. Dimson, Marsh and Staunton (2014) considered a cross-section data from 1900 to 2013 of 21 countries and their results depict negative correlation between equity returns and per capita GDP growth rate and a positive correlation with aggregate GDP growth rate. Robert (2008) found no significant relationship with present and past market returns with macroeconomic variables in a cross-sectional study of Brazil, China, India and Russia markets. Paramati and Gupta (2011) examined the long run and short dynamics of the Indian stock markets and the direction of relationship between stock returns and economic growth. Their study found bi-directional relationship from NSE returns to IIP and Vice-versa. They also found that there is long run relationship between BSE returns and Economic growth. Bhattacharya and Sivasubramanian (2003) found the uni-directional relationship from financial sector to GDP. A study by Acharya, Amanulla and Joy (2009) for Indian states from 1981 to 2002 found that economic growth follows financial development. With available literature it is found that there is dearth of studies in Indian context. Therefore, Present study is carried out to examine the long run relationship between stock prices and Economic Growth in India.

2. DATA AND METHODOLOGY:

Present study is purely based on secondary data collected from Bombay Stock Exchange (BSE) and Reserve Bank of India. The data for the study is collected from 1996-97 to 2018-

Submitted : 17th June,2019 | Accepted : 14th July,2019 | Publication : 15th September, 2019

19. The data on GDP at Factor Cost is considered as a proxy for Economic growth. Data on GDP at factor cost is a quarterly data. As a proxy for stock market returns, returns of S&P BSE SENSEX are used. The monthly data available is converted to quarterly by taking mean of three months.

Data analysis is carried out using Johansen's cointegration test. Before performing Johansen's co-integration test, data is checked for stationarity of the series using Augmented Dickey-Fuller Unit root tests.

3. RESULTS AND DISCUSSIONS:

The role of financial markets in the process of India's economic development is well documented by the researchers, scholars and academicians since the establishment of commercial banks in India. The stock market being a specialized institution for mobilization of long term and productive capital, their absence would result in the underutilization of the community's savings. The relationship between the economic development and stock markets is established as the process of economic development proceeds, the demand for acquisition and ownership of capital by private entrepreneurs or individuals or producers would grow.

3.1 AN OVERVIEW OF BSE EQUITY MARKET:

This section provides a picture of gro.wth of stock markets in certain parameters as shown in table. Table 1 gives an overview of BSE Equity Maket from 1997-98 to 2018-19 on Number of Companies Listed, Number of Securities Traded, Number of Trades, Turnover, Average Turnover, Average Trade Size and Number of Trading Days. It is observed that 5,861 companies were listed on BSE in the year 1998-99. This steadily increased to 5,962 companies being listed on BSE in 2001-02. However, these companies have declined to 5,786 (2002-03) and 5,647 (2003-04). These again increased marginally to 4,929 (2008-09), 5,067(2010-11), 5,211(2012-13), 5,624 (2014-15) and 5,985 (2016-17) companies. Number of Securities traded on BSE have increased significantly from just 1,55,891 in 1997-98 to 3,97,820 in 2000-01, 5,46,418 (2004-05), 6,92,993(2007-08), 7,52,325 (2012-13), and 7,71,374 (2014-15).

TABLE 1 AN OVERVIEW OF BSE EQUITY MARKET FROM 1997-98 TO 2018-19

Year	No. of cos. Listed	No. of Securities Traded	No. of Trades	Shares Traded	Turnover (Rs. Cr.)	Average Turnover	Average Trade Size	Market Capitalisation	No. of Trading Days
1997-1998	NA	1,55,891	88,38,644	371	86,899.16	17,379.83	98,318	NA	97
1998-1999	5861	3,43,254	326,24,112	1,186	2,84,636.87	23,719.74	87,248	NA	224
1999-2000	5889	5,12,629	740,74,784	2,102	6,86,428.55	57,202.38	92,667	NA	252
2000-2001	5955	3,97,820	1456,37,654	2,579	10,00,032.62	83,336.05	68,666	NA	251
2001-2002	5962	3,47,724	1277,21,555	1,821	3,07,297.77	25,608.15	24,060	6,12,224.14	247
2002-2003	5786	4,21,323	1413,08,272	2,214	3,14,073.13	26,172.76	22,227	5,72,197.37	251
2003-2004	5647	4,93,506	2027,97,719	3,904	5,02,618.38	41,884.87	24,785	15,39,595.00	254
2004-2005	5296	5,46,418	2374,10,469	4,772	5,18,715.65	43,226.30	21,849	16,98,428.28	253
2005-2006	4782	6,39,289	2640,06,644	6,645	8,16,084.70	68,007.06	30,912	30,22,191.00	251
2006-2007	4821	6,40,676	3462,21,521	5,608	9,56,189.11	79,682.43	27,618	35,45,041.00	249
2007-2008	4895	6,92,993	5303,40,315	9,860	15,78,855.41	1,31,571.28	29,771	51,38,015.26	251
2008-2009	4929	6,44,592	5407,98,268	7,396	11,00,073.77	91,672.81	20,342	30,86,076.00	243
2009-2010	4975	6,92,507	6055,87,554	11,365	13,78,809.32	1,14,900.78	22,769	61,65,620.14	244
2010-2011	5067	7,76,168	5284,69,400	9,908	11,05,026.89	92,085.57	20,910	68,39,083.61	255
2011-2012	5133	7,44,742	3943,95,405	6,541	6,67,497.58	55,624.80	16,925	62,14,911.83	249
2012-2013	5211	7,52,325	3235,08,501	5,672	5,48,774.44	45,731.20	16,964	63,87,886.87	250
2013-2014	5336	6,71,507	3632,10,584	4,799	5,21,664.20	43,472.02	14,363	74,15,296.09	251
2014-2015	5624	7,71,374	7110,66,890	8,568	8,54,844.29	71,237.02	12,022	1,01,49,289.97	243
2015-2016	5911	7,40,029	4116,88,690	7,625	7,40,088.59	61,674.05	17,977	94,75,328.34	247
2016-2017	5985	7,53,710	3918,50,125	7,072	9,98,260.58	83,188.38	25,476	1,21,54,525.46	248
2017-2018	5828	7,52,003	3585,82,337	7,716	10,82,968.21	90,247.35	30,202	1,42,24,996.97	246
2018-2019	5648	7,33,503	3145,22,838	5,181	7,75,590.08	64,632.51	24,660	1,51,08,711.01	248

Source: Bombay Stock Exchange Ltd

Market Capitalisation provides requisite information to assess a company's financial performance and business outlook. It is seen that S&P BSE SENSEX had Market cap of Rs. 6, 12,224.14 Crores in 2001-02. It increased to Rs. 15, 39,595.00 Crore (2003-04), Rs.30, 22,191.00 Crore (2005-06), Rs. 51, 38,015.26 Crore (2007-08) and Rs. 61, 65,620.14 Crore (2009-10). The growth of market cap was significant over the years since from 2001-02. Market cap had significantly increased to Rs. 74, 15,296.09 Crore in 2013-14. In 2014-15 it reached Rs. 1, 01, 49,289.97 Crore, then to Rs. 1, 51, 08,711.01 in 2018-19. The performance of S&P BSE Sensex was significant. Market Turnover was Rs. 86,899.16 Crore in 1997-98. This signgicantly increased by about 300 percent to Rs. 2,84,636.87 Crore in 1998-99. This has reached rs. 10,00,032.62 Crore in 2001-02, an increase nearly by 400 percent. However, this decreased marginally in the following years. With market-led growth, turnover significantly incresed to Rs. 15,78,855.41 Crore in 2007-08. In the all years following, market turnover hovered in and around 5 Lakh Crores to 10 lakh Crores. The lowest recorded market turnover was in the year 2001-02 (3,07,297.77 Crore) and 2002-03 (3,14,073.13 Crore). Average Turnover was highest in 2008-09 (1,31,571.28 Crore) and 2009-10 (1,14,900.78 Crore). It was least in 1997-98 and 1998-99 with average turnover of Rs. 17,379.83 Crore and 23,719 Crore respectively. Number of shares traded have also increased significantly 1997-98 to 2018-19. There were about 371 shares of companies traded in 1997-98. This took a giant leap to 2,102 shares in 2000-01. In 2003-04, 3904 trading of shares were recorded. This almost doubled by 2005-06. A record high of 11.365 shares were traded in the year 2009-10, on the revamp of the course of Indian Economy from sub prime crisis. However, after, 2009-10, shares traded on BSE have marginally decreased.

S&P BSE SENSEX has seen highest number of trading days in 2010-11 (255 days). Stock market has witnessed 251 days of trading in 2000-01, 2002-03, 2005-06, 2007-08 and 2013-14. Year 1997-98 has witnessed only 97 days of trading. 224 trading days were witnessed during the year 1998-99. Similarly, there were about 243 trading days witnessed in 2014-15.

3.2 ESTIMATION OF LONG RUN RELATIONSHIP BETWEEN S&P BSE SENSEX RETURNS AND GDPFC

This section provides empirical estimation of the long run relationship between S&P BSE Sensex Returns and GDP at Factor cost using Johansen's Co-integration model. Before estimating causal relationship between S&P BSE Sensex returns and GDP at Factor Cost, unit root problem has to be verified to ensure stationarity of the data. Therefore, Augmented Dickey-Fuller test is used. Results of the unit root test using ADF test are explained in Table 2.

Both variables are non- stationary at level but they become stationary by taking First Difference, which is observed from the unit root results in the Table.3. They have a same order of Integration, namely I (1). Thus, unit root problem has been solved and used for statistical analysis of Johansen's Co-integration Test. It is pre-requisite to identify the order of integration before proceeding for Johansen's co-integration. For this, Vector Auto Regressive (VAR) Lag Order selection criteria are used. Irrespective of the criteria, selected lag one where both variables are integrated of Order I(1)

TABLE 2 MODEL SUMMARY OF UNIT ROOT TESTS (ADF TEST)

Variable	At Level		At 1st Difference	
	't' value	Prob. value	't' value	Prob. Value
S&P BSE SENSEX Returns	0.690582	0.9914	-8.80464	0.000***
GDP at Factor cost	1.626612	0.9995	-9.66804	0.000***

*** Significant at 1 % level

TABLE 3 MODEL SUMMARY OF VAR LAG ORDER SELECTION CRITERIA

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1682.890	NA	9.07e+14	40.11643	40.17431	40.13970
1	-1416.545	513.6662*	1.76e+12*	33.87011*	34.04374*	33.93991*
2	-1415.841	1.323380	1.90e+12	33.94860	34.23798	34.06493
3	-1414.332	2.766103	2.02e+12	34.00791	34.41305	34.17078
4	-1413.309	1.827304	2.17e+12	34.07879	34.59968	34.28818
5	-1412.143	2.026351	2.32e+12	34.14627	34.78291	34.40219
6	-1408.284	6.523805	2.33e+12	34.14962	34.90202	34.45208
7	-1407.088	1.965701	2.50e+12	34.21637	35.08452	34.56536
8	-1406.145	1.504212	2.70e+12	34.28916	35.27306	34.68468

*indicates lag selected by the criteria

The purpose of the co-integration test is to determine whether a group of non-stationary series is co-integrated or not. The test for the presence of Co-integration is performed when all the variables are non-stationary and integrated of the same order.

TABLE 4 MODEL SUMMARY OF COINTEGRATION TEST

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.184700	26.60394	12.32090	0.0001
At most 1 *	0.087347	8.225990	4.129906	0.0049
Trace test indicates 2 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.184700	18.37795	11.22480	0.0024
At most 1 *	0.087347	8.225990	4.129906	0.0049
Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

1 Cointegrating Equation(s):		Log likelihood	-1516.602
Normalized co-integrating coefficients (standard error in parentheses)			
RETURNS	GDP		
1.000000	2.539092 (0.33561)		
Adjustment coefficients (standard error in parentheses)			
D(RETURNS)	0.019167 (0.00738)		
D(GDP)	0.015323 (0.00436)		

The results are computed using Unrestricted Co-integration Rank Test with making use of Trace and Maximum Eigen value methods (Table 4). They reveal that there is significant co-integrating relationships between the S&P BSE stock market Returns and GDP at factor cost. This indicates the presence of long-run equilibrium relations between the FII Returns and BSE Stock Market Returns. Both the trace and max tests show one significant co-integrating rank. Thus, the plausible interpretation is that, there is a long-run relationship between BSE Market Returns and FII returns. The obtained results Normalized Co-integrating coefficients also explain that if index returns increases by 1 point, GDP in response increases by 2.5390 crores.

It is summarized that Stock markets are positively related to GDP at factor cost and they have strong long-run relationship.

Therefore the growth of stock markets would promote economic growth in the short run through increasing GDP and economic welfare in the long-run.

REFERENCES:

1. Acharya, D., Amanulla, S., and Joy, S., (2009) "Financial Development and Economic Growth in Indian States: An Examination" International Research Journal of Finance and Economics, ISSN 1450 Issue 24, pp. 117-130.
2. Al-Majali, Ahmad & Al-Assaf, Ghazi (2014) "Long-Run And Short-Run Relationship Between Stock Market Index And Main Macroeconomic Variables Performance In Jordan, European Scientific Journal, Vol.10 No.10, retrieved from https://www.researchgate.net/publication/272168837_long-run_and_short run_relationship_between_stock_ market_index_and_main_ macroeconomic_variables_performance_in_jordan
3. Chen, N., Roll, R., & Ross, S. (1986) "Economic Forces and the Stock Market", The Journal of Business, 59(3), 383-403. Retrieved from http://www.jstor.org/stable/2352710
4. Dimson, Marsh and Staunton (2014), " Triumph of the Optimists: 101 Years of Global Investment Returns", Princeton University Press
5. Fama, E. (1981). Stock Returns, Real Activity, Inflation, and Money. The American Economic Review, 71(4), 545-565. Retrieved from http://www.jstor.org/stable/1806180
6. Gujarati, Damodar N (2004), "Basic Econometrics", Tata McGraw Hill, ISBN-10: 0070597936
7. Kamal A. El-Wassal, 2013. "The Development of Stock Markets: In Search of a Theory," International Journal of Economics and Financial Issues, Econjournals, vol. 3(3), pages 606-624.
8. Manjunatha G and Dr. M. Mahesha (2016), Long-run Relationship between stock Market returns and FII Returns, Mysore Journal of Economics and Politics, Vol.1, Issue.1
9. Mookerjee, Rajen & Yu, Qiao, (1997) "Macroeconomic variables and stock prices in a small open economy: The case of Singapore," Pacific-Basin Finance Journal, Elsevier, vol. 5(3), pages 377-388, July.
10. Naik, Pramod Kumar and Padhi, Puja (2012) "The Impact of Macroeconomic Fundamentals on Stock Prices Revisited: Evidence from Indian Data", Eurasian Journal of Business and Economics, 5 (10), 25-44
11. Nazir, Mian Sajid & Musarat Nawaz, Muhammad & Gilani, Usman. (2010) "Relationship between economic growth and stock market development", African Journal of Business Management. 4. 3473-3479.
12. Paramati, Sudharshan Reddy & Gupta, Rakesh. (2011) "An Empirical Analysis of Stock Market Performance and Economic Growth: Evidence from India", International Research Journal of Finance and Economics. 144-160. 10.2139/ssrn.2335996
13. Ratanapakorn, O. and Sharma, S. C. (2007). Dynamics analysis between the US Stock Return and the Macroeconomics Variables, Applied Financial Economics, 17 (4): 369-377.
14. Robert, D.G. (2008). Effect of Macroeconomic Variables on Stock Market Returns for four Emerging Economies: Brazil, Russia, India and China. International Business & Economics Research Journal, 7 (3): 1-8.