

RISK AND RETURN ANALYSIS OF PRE AND POST CRISIS OF INDIAN STOCK MARKET

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Abstract:

In this paper, an attempt has been made to measure the recovery of Global Financial Crises on Indian economy in general and on the Indian Stock Market in particular. Additionally, this study intends to discuss the role of RBI in the present context. This paper employs the data from April 2001 to March 2013 to investigate the impact on Indian stock market. The result suggests that the Indian Stock market was affected by the Global financial crunches and also shows that the recovery from the slowdown during the global financial crisis is well underway.

KEYWORDS:

Indian economy, Indian stock market, Financial Crisis, RBI and Sharpe ratio.

INTRODUCTION

After globalization and liberalization, the financial system in India has undergone a rapid change and this paved the way for adoption of new economic policy that routed our capital market more broad based with the starting of OCTEI, NSE etc. Due to momentum gained by globalization, our financial markets were at forefront. Recent financial meltdown although appearing ruinously from the current view point by no means a unique event such as the US stock market crash in 1987, the breakdown of the European monetary system in 1992, the turmoil in bond market in 1994 and the Asia-Pacific crisis beginning in 1997 were all extra ordinary events. In today's fast moving financial world, there were many factors like political environment, economic integration, electronic development, development of trade, growth of capital market, fiscal disciplines and control of economy bends the type of culture of financial market. The existence of economic and trading links, the increase in liberalization activities of governments, the advancement of international trade and finance, rapid development in telecommunication and the formation of common trading blocs such as NAFTA, EU and ASEAN were vital factors contributing to financial integration. In this paper, an attempt has been made to measure the impact of recovery of Global Financial Crises on Indian economy in general and on the Indian Stock Market in particular. Further, the study intends to discuss the role of RBI in the present context.

STATEMENT OF THE PROBLEM

In India, the stock market has undergone significant transformations with the liberalization measures. The Bombay Stock Exchange (BSE) of India has emerged as one of the largest stock exchange in the world in terms of number of listed companies, comprising many large, medium-sized and small firms. The inflow of foreign capital has made a crucial contribution to the growth of the stock market. India has become a major destination, representing about a fourth of total portfolio capital inflows to the emerging market economies (EMEs) group. India has also engaged in various bilateral trade and economic co-operation agreement with several countries and regional groups across Asia, Europe and the Western Hemisphere. Our stock market had been growing day by day in the competitive world economy. Hence, a

Please cite this Article as : T. Muthukumaran , S. Natarajan and M. Rangasamy , “RISK AND RETURN ANALYSIS OF PRE AND POST CRISIS OF INDIAN STOCK MARKET ” : Tactful Management Research Journal (March ; 2014)

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study was made to examine the effect of risk exposure towards global financial crisis and present scenario of Indian Stock Market aftermath of crisis.

OBJECTIVE OF THE STUDY

The principle objectives of the study were to examine the impact of global financial crisis on Indian Stock Market, more specifically, the study was intended to:

- a) Understanding how the global financial crisis is being transmitted to the Indian economy;
- b) Examine Sign of recovery of Indian economy aftermath of crisis
- c) Estimate the risk and return on Indian Stock Market.

REVIEW OF LITERATURE

In the literature, the integration of global equity markets has been a well studied topic since the stock market crash of October 1987. Though most of the studies had initially been conducted for the developed markets like the US, European countries and Japan, recently, Post Asian crises in particular; literature has started focusing on emerging Asian markets. A small body of literature exists in the Indian Context also. It was observed that there were no studies in the Indian context looking ahead the impact of the crisis which affected USA stock market on India's stock market that is of a most recent issue. Therefore, the aim of this study was to test whether there exist an effect of the recent crisis on Indian Stock Market.

The studies such as Yang and Lim (2002) in an empirical study of nine East Asian stock markets for the period January 1990 to October 2000 found some evidence of short-term linkages. Their results indicated that there was a significant difference between sub-periods pre and (during) post-Asian crisis, with an overall improvement of correlation coefficient for each pair from the pre-crisis to the post crisis period, except for Malaysia and Taiwan. Unlike results from short run tests, there was no long run co-movement among East Asian Stock markets, as the absence of co integration in the post-crisis period rules out the existence of a long-term equilibrium trending relationship among East Asian stock markets. Nath and Verma (2003) tested for co-integration between the nifty, STI and Taiex and found no evidence in favor of Co-integration. Lamba (2005) implemented a large sample to investigate the presence of long-run relationship between South Asian equity markets and the developed equity markets for the period through July 1997 to Dec 2003. His results indicated that Indian market was influenced by developed equity markets of US, UK and Japan. Raj and Dhari (2008) examines the integration of India's Stock market with global markets such as the United States, the United Kingdom and Japan, along with some other major regional markets such as Singapore and Hong Kong. Empirical evidence supported the international integration of India's Stock Market in terms of US dollars but not in local currency, a finding attributable to investment decision of foreign Investors. P.K. Mishra, KB Das and BR Pradhan (2009) examined the efficiency of Indian Stock Market in the context of recent global financial crisis. The study, by employing the unit root tests on the sample of daily stock return, supported the evidence of weak form of market inefficiency in India. Sinha, Pankaj; Gupta, Sushant and Randev, Nakul (2010) have been examines the state of the Indian economy pre, during and post recession by analyzing various macro economic factors such as GDP, exchange rate, inflation, capital markets and fiscal deficit. They have forecast some of the major economic variables using ARIMA modeling and present a picture of the Indian economy in the coming years. The findings indicate that Indian economy is reviving after a slowdown during the period of global recession. It is forecasted that GDP, foreign investments, fiscal deficit and capital markets will rise in 2010-11. Furthermore, the rupee-dollar exchange rates will not change much during the same period.

GLOBAL FINANCIAL CRISIS: A THEORETICAL BACKDROP

A financial crisis refers to a loss of confidence in a country's currency or other financial assets causing international investors to withdraw their funds from the country. Financial crisis was applied broadly to a variety of situations in which some financial institutions or assets suddenly lose a large part of their value. Financial crisis includes stock market crashes and the bursting of other financial bubbles, currency crises, and sovereign defaults. The world's economy was in difficult time period due to the intensification of global financial crisis following the bankruptcy of Lehman Brothers in September 2008. The global macroeconomic imbalance such as saving-investment and huge cross border financial flows put great stress on the financial intermediation process and major cause for the crisis.

PRE CRISIS- IMPACT ON INDIA:

The Indian economy looked to be relatively insulated from the global financial crisis that started in August 2007 when the 'Sub-Prime Mortgage Crisis' first surfaced in the US. The impact of global crisis has been transmitted to the Indian economy through three distinct channels, viz., Financial Sector, Exports and Exchange Rates. The financial sector includes the banking sector, equity markets, external borrowings and remittances. The world wide financial crisis brought about 70 per cent fall in demand for Indian exports in its major market as its second channel of global financial crisis. Last, but not least, the rupee value came under pressure with the outflow of portfolio investments, higher foreign exchange demand by Indian entrepreneurs seeking to replace the external commercial borrowing by domestic financing, and consequent decline in foreign exchange reserves as its third sector.

IMPACT ON STOCK MARKET:

The Stock Market activity was one of the principal activities in the corporate world among the chain of activities, which got affected due to the financial crisis. The stock market indices were one of the principal indicators of the economic activities. The movements of stock market indices present the future economic outlook. A falling stock index reflects the dampening of the investment climate while a rising stock index indicates more confidence and soundness of the economy. When the crisis affects the real activities, it affects the stock market, as profit expectation on financial investment would be lower. If financial investment would be affected, its impact would be felt on the real investment, as real investment would not increase. Once the real sector activity lowers that would affect the entire economy. The expedition of the investors' interest mainly works affecting both the financial and real investment in the economy.

RBI RESPONSE TO THE CRISIS:

As the current global financial crisis showed clearly the liquidity risk can raise manifold during the crisis and can pose serious downside risk to macro economic and financial stability. The only controlling and regulatory authority which can reduce this crisis situation in India has done its part effectively by stressing the various relief measures with response to the crisis. CRR short down by a total of 250 paisa points and SLR requirements were released initially by 1% and subsequently an additional window of 0.5% points was introduced specifically to enable banks to draw funds for providing liquidity to mutual funds. Apart from these initiatives, RBI had imposed prudential limits on inter bank liabilities in relations to their net worth and provision for balance sheet items including derivatives which had been reviewed to strengthen capital requirements and lightening of regulation and supervision of NBFC.

POST CRISIS- IMPACT OF INDIAN

Indian economic recovery seems to be well underway. The Indian economy is estimated to register a growth rate of 5.0 per cent in 2012-13 in terms of GDP at factor cost as against 6.2 per cent in 2011-12 and 9.3 per cent in 2010-11. Economic growth stood at 8.6 percent during fiscal year 2010-11. In the Year 2010-11 was exceptionally good for Indian exporters. With overall exports amounting to US\$ 245.5 billion, the sector registered a growth of 37.7 percent in 2010-11 over the previous year. And this was a record growth witnessed in exports since independence. India's merchandise export during March 2011 reached US\$ 29.13 billion, up 43.8 per cent over US\$ 20.25 billion in the 2010. With this, the country's total exports in goods for 2010-11 reached US\$ 245.29 billion, registering 37.5 per cent growth against US\$ 178.75 billion in 2009-10. In the year 2011, India's foreign exchange reserves totaled US\$ 13.51 billion. Betting high on the Indian market, foreign institutional investors (FIIs) have purchased stocks and debt securities worth US\$ 222 billion in the financial year ending March 31, 2011. In 2010-11, foreign investment flows into India saw a dip of about 17 percent over the previous year.

Further, this dip is largely on account of a slowdown seen in case of FDI. In 2009-10, FDI inflows into India totaled US \$ 37.7 billion. In 2010-11, this figure came down to US\$ 27 billion. Data also shows that of out of the top 25 sectors, 15 sectors have seen a dip in FDI flows during April – Feb 2010-11 compared to the same period in 2009-10. Sectors like services, construction, housing and real estate, telecommunication and agricultural services are the ones where investment flows have slowed down considerably. In 2010-11, portfolio flows totaled US\$ 31.5 billion and were only a tad below US\$ 32.4 billion received in 2009-10. The outlook for portfolio flows in the current year is not too encouraging. The Indian IT-BPO sector continues to be the fastest growing segment of the industry and is estimated to have

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aggregated revenues of US\$ 76 billion in FY2011 by growing 19 per cent over the previous year,

IMPACT ON STOCK MARKET

The Indian Capital market exhibited signs of recovery from April 2009 and the movement in equity indices in the market was in line with trends in major international equity markets, a sign of increasing integration. The regulatory measures initiated during the year were clearly in the direction of introducing greater transparency, protecting investors' interests and improving efficiency in the working of Indian equity markets, while also ensuring the soundness and stability of the Indian capital market. The resource mobilization through the primary market which recorded an increase of 32.4 per cent in 2009. Secondary Market is recovery in 2009 following stimulus measures implemented by the Government and resurgence of foreign portfolio flows displaying renewed interest by foreign investors.

Indian securities market started the year 2012-13 on a low note following the global economic signals of 2011-12. The reform measures undertaken by the government as well as slender improvements visible in the global economic condition have however uplifted the mood in the domestic securities market. Sensex registered a growth of 8.2 percent; Nifty recorded a growth of 7.3 percent. The market capitalisation of BSE stood at ` 63, 87, 887 at end-March 2013 compared to ` 62, 14,941 crore as of end-March 2012 while its ratio to GDP stood at 63.7 percent for 2012-13. The market capitalisation of NSE was ` 62,39,035 at end-March 2013 compared to ` 60, 96,518 crore as of end-March 2012 while its ratio to GDP stood at 62.2 percent for 2012-13.

DATA AND METHODOLOGY

The data and methodology adopted for drawing out the present study were underlined below:

Data Analysis:

The sample consists of daily average index prices from BSE and NSE from April 1, 2001 to March 31, 2013. The daily price data of these two indices were obtained from various websites including Bombay Stock Exchanges, National Stock Exchanges and yahoo finance. The State Bank of India fixes fixed rate and that fixed rate (6.5%) was taken as a proxy for risk free rate of return.

Methodology:

Various statistical tools like Mean-Variance analysis and Sharpe ratio were employed in the study that facilitates to estimate the risk and return involved in the investment decisions which in turn estimates the impact of global financial crisis on Indian stock market. The brief outline of those statistical tools had been summarized here under:

Mean-Variance:

The Mean-Variance enables to estimate the return and risk factor involved in investment process. Some of the important terms are as follows:

Return: The rate of return is the single most important outcome of an investment. Return is the motivating force and the principal reward in the investment process and it is the key measure available to investors in comparing alternative investments. Return as a securities in the change in security price during a holding period. The present study has calculated the annualized rate of return on the market index by using the following formula.

$$R = \frac{P_{t+1} - P_t}{P_t}$$

Where,

R_i = Return on 'i' th scrips

P_t = Price of the share at time t

P_{t+1} = Price of the scrip's at the end of the holding period.

Risk: Risk is the uncertainty associated with future possible outcomes. Risk is composed of the demand

that brings variations in return on income. The main force contributing to the risk are price and interest. It is the variability in expected returns. This variability is generally measured by using a statistical measure called 'Standard deviation'. This measure has been considered to measure 'total risk' in portfolio theory. The formula used is

$$\sigma_i^2 = \sum_{i=1}^n [(R_i - E(R_i))^2]$$

Where,

R_i = Actual Return during a holding period.

$E_{(R_i)}$ = Expected Return or Average Return.

Sharpe Ratio: The sharpe ratio which is developed by Nobel laureate William F. Sharpe has been used to measure the performance of reward-to-risk. It provides insight in to the risk/reward scenario of a security or a portfolio. The Sharpe ratio measures excess investment return as a function of volatility. The premise of this ratio is that the investment or portfolio must return gains which are proportional to the risk that is being taken. It is generally accepted that a higher Sharpe ratio is a better investment.

Formula

$$SharpeRatio = \frac{Expectedportfolio\ Return - RiskfreeRateof\ Return}{StandardDeviationofportfolio}$$

Limitation

- One of the major limitations of the study was the length of the data period. i.e., the study was limited to ten years only. Generally twenty years data would be more appropriate to form the trend analysis.
- Secondly, the study was based on secondary sources. And hence, it suffers from all the limitations of the secondary data.
- Finally, the study was restricted to the application of ratio analysis only. And it would be more effective if some of the other advanced econometric tools have been used.

Analysis and Interpretation

The relationship between the return and its volatility as a proxy for risk has been considered as important topic in financial research. However, nature of their relationship clearly pictuarised mixed evidence in the nature of these relationships. The Performance of Sensex and Nifty were scrutinized and presented in the following Tables (Table. 1 and Table 2).

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TABLE-1
Descriptive Statistics

YEAR	BSE-SENSEX				NSE S&P CNX NIFTY			
	MEAN	STDEV	SKEW	KURT	MEAN	STDEV	SKEW	KURT
2001-02	0.000	0.012	-0.642	3.001	0.000	0.014	-0.864	4.633
2002-03	-0.001	0.008	-0.145	-0.251	0.000	0.008	-0.118	0.431
2003-04	0.002	0.011	-0.462	0.441	0.002	0.011	-0.292	0.319
2004-05	0.001	0.013	-3.164	32.513	0.001	0.012	-3.100	29.464
2005-06	0.002	0.008	-0.487	1.284	0.002	0.008	-0.573	0.515
2006-07	-0.001	0.050	-0.498	27.483	0.000	0.014	-0.574	2.604
2007-08	0.002	0.043	1.429	35.548	0.001	0.017	-0.842	4.528
2008-09	-0.002	0.021	-0.645	2.778	-0.002	0.025	-0.225	1.012
2009-10	0.003	0.015	0.637	13.590	0.002	0.015	3.212	26.242
2010-11	0.000	0.008	-0.092	-0.026	0.000	0.008	-0.061	0.054
2011-12	0.004	0.007	-0.0672	13.023	0.001	0.014	-0.531	19.464
2012-13	0.003	0.023	-2.217	3.778	-0.002	0.015	-0.292	1.604

Source: www.bseindia.com; www.nseindia.com

Some of the preliminary statistics tools were presented in Table-1, which shows the movements of daily average stock returns and standard deviation. Skewness and Kurtosis measures provide insights about the underlying statistical distribution of stock returns. It is evident that Skewness was negative and Kurtosis was positive for both Sensex and Nifty during the study period. There was also an evidence of excess skewness and Kurtosis relative to the normal distribution.

TABLE-2

PERFORMANCE OF SENSEX AND NIFTY FOR 2001-02 2012-13						
YEAR	BSE-SENSEX			NSE-S&P CNX NIFTY		
	RETURN	RISK	SHARPE RATIO	RETURN	RISK	SHARPE RATIO
2001-02	-1.30	21.93	-1.60	-3.53	18.73	-3.88
2002-03	-10.89	13.33	-11.37	-13.06	12.24	-13.59
2003-04	79.01	17.17	78.63	74.42	17.98	74.05
2004-05	16.78	19.05	16.44	7.93	20.18	7.61
2005-06	71.43	13.23	70.93	72.00	12.78	71.50
2006-07	13.21	22.58	12.92	-12.91	79.40	-12.99
2007-08	27.09	27.41	26.85	71.00	68.57	70.91
2008-09	-39.46	38.98	-39.62	-36.08	32.81	-36.28
2009-10	84.51	24.40	84.24	88.03	24.34	87.76
2010-11	2.53	13.36	2.05	11.10	13.50	10.62
2011-12	6.58	28.94	5.98	13.45	36.81	11.25
2012-13	14.21	19.26	12.21	16.51	11.21	14.25

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Source: www.bseindia.com;www.nseindia.com

The Annualized Returns, Risk and Sharpe Ratio of Sensex and Nifty indices through the period April 1, 2001 to March 2013 were presented in Table-2. This clearly shows a mixed evidence of return for both Sensex and Nifty during the study period. The table depicted clearly that there was an increase in stock return during FY 2003-04 and FY 2009-10 and the highest return was gained during the financial year 2009-10. During the Crisis period, the return was negative for both Sensex (-39.46) and Nifty (-36.08). Additionally, risk-adjusted performance Sharpe Ratio is also negative for both Sensex (-39.62) and Nifty (-36.28) respectively. The results also showed positive returns averaged approximately 24.29 and 25.89 per cent for the Sensex and Nifty with a volatility of 21.14 and 30.05 per cent. Overall, the analyzed result during the study period showed positive returns.

FINDINGS AND SUGGESTIONS

FINDINGS

- 1.The adoption of New Economic Policy routed our Capital Market more broad based with the starting of OCTEI, NSE etc. Owing to this, our financial markets were at forefront.
- 2.The impact of Global Financial Crisis has been transmitted to the Indian economy through three distinct channels viz., Financial Sector, Exports and Foreign Exchanges.
- 3.The Stock Market activity got affected due to financial crisis which in turn has greater effect on profit expectation among the investors.
- 4.RBI has implemented many remedial measures to overcome the crisis.
- 5.India's economic performance in 2009-10 to 2012-13 shows that the recovery from the slowdown during the global financial crisis is well underway.

SUGGESTIONS

The steps that would further strengthen the Indian Stock Market to reach its high morale among the investors are as under:

- 1.The SEBI and the central government should make all positive efforts to boost the morale of the Indian investors to invest in the stock market quite often.
- 2.The government must have some strategic measures, so that it can withstand the crisis situation. Hence, our economy will not be affected badly.

CONCLUSIONS

In this paper, an attempt has been made to study the impact of recovery of Global Financial Crisis on Indian stock market. For this, the study employs the data through the period April 1, 2001 to March 31, 2013 that has been collected from various websites including National Stock Exchanges, Bombay Stock Exchanges and several other websites. From the study, it was concluded that the Indian Stock market was affected by the Global financial crunches. The fear of the US financial crisis affecting Indian markets, but there was no panic as the capital market watchdog was monitoring the situation very closely. The Indian stock market was resilient and the clearing system has proved its ability to deal with stock market fluctuations. Financial stability in India has been achieved through perseverance of prudential policies which prevent in situations from excessive risk taking and financial markets from becoming extremely volatile and turbulent. India is facing now facing a challenge and it is not a new phenomenon for India as it has faced several challenges in the past and has overcome them. Our nation hence, has the strength to overcome the current challenges also.

SCOPE FOR FURTHER RESEARCH:

The slowdown in the economy of any country will definitely have great impact on financial sector. The extension of this paper is needed to examine further the impact of financial market towards real sector.

REFERENCES

1. Yang, T. and Lun, J.J. (2002): "Crisis, Contagion, and East Asian Stock Markets", Working Paper on Economics and Finance No1, February 2002, Institute of South East Asian Studies.
2. Nath, Golaka C and Suntil Verma, (2003), "Study of Common Stochastic Trend and Co integration in the Emerging Markets: A Case study of India, Singapore and Taiwan, Working Paper 72, National Stock Exchange of India, Accused on 26 September 2003.
3. Asjeet S. Lamba (2005), "An analysis of the Short and long run relationship between south Asian and Developed Equity Market", International Journal of Business .Vol.10 No.4.2005.
4. Raj and Dhair (2008), "Integration of Indian's Stock market with global and major regional markets", BIS paper No.42.
5. Speech delivered at the Symposium on "The Global Economic Crisis and Challenges for the Asian Economy in a Changing World" organized by the Institute for International Monetary Affairs, Tokyo on February 18, 2009.
6. Rajiv Kumar, et al, (2008), 'The Outlook of Indian Economy', ICRIER Working Paper No. 235.
7. Global Financial Crisis and Key Risks: Impact on India and Asia Rakesh Mohan Deputy Governor Reserve Bank of India Remarks prepared for IMF-FSF High Level Meeting on the Recent Financial Turmoil and Policy Responses at Washington D.C. October 9, 2008.
8. Akyuz, Yilmaz (2008) "The global financial crisis and developing countries", Resurgence, December, Penang: Third World Network.
9. Sridhar Kundu (2008), 'can the Indian economy emerge unscathed from the global financial crisis?
10. P.K. Mishra, K.B. Das and B.B Pradhan (2009), "Empirical Evidence on Indian Stock Market Efficient in Context of the Global Financial Crisis", Global Journal of Finance and Management, Volume 1, Number 2 (2009)
11. Speech delivered at the Symposium on "The Global Economic Crisis and Challenges for the Asian Economy in a Changing World" organized by the Institute for International Monetary Affairs, Tokyo on February 18, 2009.
12. Raghendra Jha (2009) The Global Financial Crisis and Short-run Prospects for India-ASARC Working Paper 2009/01
13. Sinha, Pankaj; Gupta, Sushant and Randev, Nakul (2010) "Modeling & Forecasting of Macro-Economic Variables of India: Before, During & After Recession", MPRA Paper No. 26539, posted 08. November 2010 / 12:10.

WEBSITES

1. www.bseindia.com
2. www.nseindia.com
3. www.yahoofinance.com
4. <http://www.newstrackindia.com/newsdetails/29681>
5. http://www.brookings.edu/opinions/2008/1002_financial_crisis_bryant.aspx
6. <http://myiris.com/shares/ecoWatch/>
7. <http://www.hinduonnet.com/2008/09/16/stories/2008091656401600.htm>
8. www.business-standard.com