Chapter 5

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5. Conclusion

This thesis is an empirical study of relationship between Indian stock markets and macro economy. There is a huge literature about such kind of empirical studies but mostly on US/UK stock markets and macroeconomic indicators. The current study is similar to many of the earlier studies in some aspects, as it uses statistical tools used in earlier studies but at the same time this study differentiates itself from other studies in prospect that it uses Indian markets and macroeconomic data for analysing the relationship and it also tries to study in detail and analyse the impact of FII on the Indian stock markets.

As stock price movements, has always been a vital issue for the researchers, academicians and investors alike. This chapter presents a brief summary of the thesis and conclusion of the present research work.

Enough investigation has been undertaken by researchers in US in order to unearth various factors that play a significant role in determining the stock market. In fact, the relationship between stock market returns and fundamental economic activities in the U.S. are very well documented [Fama (1970, 1990, 1991); Ibrahim (2000); Anthony and Glen (2000) Hondroyiannis and Papapetrou (2001); Graham, Nikkinen, and Sahlström (2003); Bordo and Wheelock (2006); Balke and Wohart (2006) etc.]. These numerous studies modeled the relation between asset prices and real economic activities in terms of production rates, productivity, growth rate of GNP, unemployment, yield spread, interest rates, inflation, dividend yields, etc.

However, studies on the role of macroeconomic indicators in the stock markets are relatively less developed in India. Initiative on this front
has been taken by researchers like Naka and Mukherjee (1996); Sekhara and Radjeswari (2000); Chaudhari and Koo (2001) Bhattacharya & Mukherjee(2002); Ray, et al.(2003); Mishra (2004); Nath & Reddy(2004); Biswas (2006); Agrawalla (2006); Chakravarty (2006); Desai and Tanna (2007); Chen (2008); Tripathy (2011); Dasgupta (2012) who have worked on studying the stock market and macroeconomic behavior in the context of the Indian scenario.

Few of the above mentioned studies have used Co-integration and Granger causality tests taking monthly data for the economic variables and stock market for 5-7 years and documented their findings. However, none of them has tested the permanence of the ‘India growth story’. Also not many extensive studies has been undertaken for sufficiently longer time period of about 10 years, so as to capture the reaction of the market substantially, before and after the sudden precipitous rise in the Sensex in 2002-2003. Further, the previous studies also lacks explanation on significance of their findings in today’s globalized and ever-changing economic and financial environment; or various suggestive recommendations about the future economic policies that are very essential for sustained performance of the stock market.
The present study is an attempt to test that whether the success of Indian stock market is an asset price bubble, which might burst soon or is this growth backed by strong technical and fundamentals of Indian corporate sector?

The performance is determined through market price derived in terms of EPS & PE and its relationship with index of selected market securities listed in both the stock exchanges i.e BSE & NSE. Further the work attempts to identify various determinants of the stock market during the period of ten years i.e. Jan, 2004 to Jan, 2014. We have chosen this period as it represents big regulatory and structural changes in Indian economy. So, an analysis of this period can provide us with insights to how some regulatory and structural changes along with major macroeconomic determinants impact the economy through Sensex in India which is also known as barometer of indian economy.

Various fundamental economic variables like broad money supply (M3), exchange rate, CRR, wholesale price index (WPI), index of industrial production (IIP), and foreign institutional investors (FII), Exchange Rate(Rs./US $), Crude Oil and Consumer Price Index (CPI) have been tested using regression equation in E-Views package. We have used correlation, regression, Durbin-Watson test, f-statistics and p-statistics for analysing each macroeconomic time series individually and build a model that can analyse the impact of all determinants over India stock index (BSE).

The study finds that oil prices and CPI do not bear any significant effect on the stock price movements in India; and M3, CRR, WPI, IIP and WPI and Exchange Rate are the most decisive and significant variables in determining the stock price behavior in India. FII is a
very important and significant variable and is appearing to be one of the very promising factor in future to influence Sensex movements.

M3 and CRR are the most significant determinants and IIP and Exchange Rate comes next on the significance level, as they primarily react to the above mentioned variables. Interest rates measured in terms of CRR had significant results as compared to repo rate, reverse repo rate PLR. In fact negligible research has been carried in to study the relationship of CPI with the Sensex; as normally various researches focus on WPI rather than CPI.

One of the most interesting finding of this study is that CPI bears a very low co-relation with the P/E valuations of India Inc. The reason explaining this phenomenon is the underlying common factor i.e. increased money supply. Increased money supply leads to increased consumption (leading to increased demand of consumer goods and thus increasing CPI) as well as increased investment (leading to increased demand of shares and thus increased P/E). Of course this proposition has the basic assumption that the increase in the prices of consumable products and financial products is because of the increased demand and rather than cost-push factors.

The findings of this study are in tandem with the findings of Naka and Mukherjee (1996) who tried establishing the relationship of IIP, CPI, M1 and the value of an investment earning the money market rate; and indicated that industrial production was the largest positive determinant of Indian stock prices, while inflation was the largest negative determinant. Sekhara and Radjeswari (2000) concluded that the first most factor effecting stock prices in India is - agricultural production; interest rate and money supply as well foreign exchange reserves, etc. The second factor is inflation characterized in its different manifestations and the third factor concentrates on industrial
production. Chaudhari and Koo (2001) documented the role of
government in terms of fiscal and monetary policy in the smooth
functioning of the stock markets, which again is reiterated by the
findings of this present study.

Ray, Prantik, Vani and Vina (2003) in their study for a period of 1994-
2003, also showed that certain variables like the interest rate, output,
money supply, inflation rate and the exchange rate has considerable
influence in the stock market movement in the considered period,
while the other variables like fiscal deficit and FII have a very
negligible impact on the stock market. The negligible relationship of
the capital market with the FII’s, as reported by Ray et al. could have
been because, it is in 2003 that the FII activity actually took off.

Another study conducted by Nath & Reddy (2004) also found a
significant relationship between stock market and WPI, exchange rate,
IIP, foreign exchange reserves, stock index, M3, oil price index, real
effective exchange rate, 91-day Treasury Bills yield as well as 10-year
yields. Desai & Tanna (2007) have also brought forward the
importance of GDP, interest rates, inflation rates and an additional
indicator i.e. infrastructure rollout in determining factors leading
Indian stock market to a ‘50k’.

The insignificance of the role played by exchange rates in determining
stock price movements has also been documented by Kasman (2003),
Tahir and Ghani (2003), Mishra (2004) in their papers where they
studied the relationship between stock market and foreign exchange
market. Bhattacharya & Mukherjee (2002) also, in their study which
investigated the nature of the causal relationship between stock prices
exchange rate, foreign exchange reserves and value of trade balance
using monthly data for the period 1990-91 to 2000-01; suggested that
there is no causal linkage between stock prices and the variables under
consideration. However, few others like Dimitrova (2005) and Padhan (2006) asserted the link to be positive and that the stock market will react with a less than one percent decline to a one percent depreciation of the exchange rate.

The studies like the one by Bordo and Wheelock (2006), Naka and Mukherjee (1996), Nath & Reddy (2004) have found that oil prices effect the capital market significantly which is contrary to the findings of this study. Since the oil prices have been in fact volatile during 2004-2014, (which can be inferred from figure no. 10 on page 89), and given the underlying theoretical framework that exists in this relationship, any study tracing that time period would have shown significant effect of the oil prices in the capital market. The reason for this difference in the findings could be the high inflow of foreign currency in India through FDI and FII. Further in a globalised environment, huge ‘currency flows’ through FIIs and FDIs tend to affect the exchange rate more reflecting little significance that the oil prices had on the stock prices in the chosen time period.

Also, there has been general euphoria among the investors about the future performance of the India Inc., so much so that probably little variation in the oil prices did not have a significant effect. Even if markets increased there discounting factor because of increased oil prices, on daily basis, the intensity of the effect over the monthly average got suppressed.

The present study further goes to identify, various other factors that have been dominant in the chosen time period besides the one already considered. Fluctuations of more than 300 points or more in the Sensex were traced and the reasons thereof were sought. The conclusions drawn from the findings were that:
Increasing globalization is integrating the Indian financial market with the world, so the international economic factors also play a really significant role in the stock price movements. The low rate of interests in Japan and Switzerland leads to huge currency carry-trades that affect the stock markets globally.

Derivatives are another factor which increases the impetus of even small news, as the margin requirement is only one-fifth of the investment to enter into the market. And secondly since there are no circuit breakers on the scripts and indices available in futures and option there is no trading limit.

The human emotions and feel good factor also play an important role, as it is reflected in the irrational behavior of the investors when they react vehemently to rumors and have ignored very significant news, at times.

Political unravel is one another major factor, as it can effect the entire financial and economic planning structure in the country.

All said and then, since investment planning calls for comparative analysis of various alternatives available, and the returns from Indian corporate sector are no doubt quite attractive against the global canvas, it is obviously one of the favorite destination for the FIIs.

However, the contemporary economic situation is leading the RBI to a quandary, because when RBI was focusing on stabilizing the exchange rate by purchasing dollars (a resultant of increasing FII inflows), it resulted into worsening inflation. And when it genuflected before the priority of combating with inflation, the rupee has started appreciating against the dollar, resulting into mitigating returns for exporters.
5.1 Recommendations:

The importance of industrial output as measured by Index of Industrial Production and WPI representing wholesale basket of goods; Interest Rate (CRR), FII, Exchange Rate and Money Supply has been highlighted once again by this study, which indicates that in order to sustain the bull run in the Indian stock market, it is imperative that

1. Indian corporate sector keeps performing because increasing returns are the foundation for the permanence of the asset prices in the stock market. And this is highlighted by the increase in Index of industrial production and increased gross domestic product. It is in fact a widely acknowledged fact today, that a world-class infrastructure will be needed in India to provide the platform for faster, consistent growth and for India to become a major world economic power. As the regional markets evolve into a national market, obviously, there will be a greater pressure for systems such as a national gas grid, a national highways system, and an expanded aviation network. As these regional markets grow, so will the attractiveness of India as an investment destination.

2. There should be ample liquidity in the market, as any effort by the RBI to squeeze money supply has serious implications for the stock market, and any hike in interest rates not only affects the cost of capital for the companies but also makes debt a better investment option for the investors.

3. Inflation must be kept under control, and for combating inflation, hike in interest rates is not the apt solution. No doubt it can provide temporary relief (though some studies have doubt even on this) but the permanent solution lies in increasing the
supply, so that there is no dearth of the supply, and thus market forces of demand and supply, keeps prices under control.

4. Though oil prices and CPI has not played a very significant role in the chosen time period of the study, but we cannot ignore these variables. Any significant variations from the mean might lead to disastrous effect on the Indian stock market.

The realization of this fact is gradually seeping in the strategies of the government. Government is also emphasizing upon the importance of increasing the supply of goods. Micro-finance is getting a major push, so that at least there is no paucity of funds for farmers and small entrepreneurs, and they can go for harvesting/production in a big way. This will not only increase the supply of basic agricultural/consumable products for the consumers but will also reduce the cost of production for the companies which uses such products as their raw materials leading to growth in the stock market.

To the extent the capital inflows are exceptionally high, strategies to reduce the volatility in the stock market needs to be evolved. Hence proper regulation of the stock markets needs to be in place to ensure the safety and integrity of operations (Mayya 2006). So the best strategy would be to ‘stitch in time’.

1. One of the strategies can be adjusting the exposure margins as per the market trend or regulating the speculative open positions. i.e. Either, when ever the market is bearish, the exposure margins on the short side could be increased so that it acts as a deterrent against sales and lowered on the long side, while being adequate to cover the risk of a further fall in prices, so as to encourage purchases and vice versa; or in a sharp bull run, speculative long open positions above a specified level can be reduced by a certain percentage points every day. Similarly,
speculative short positions can be reduced by a certain percentage, every day, till the frantic condition in the market subsides.

2. In a situation, when the economy is inundated with excess liquidity arising out of FII inflows, the FEMA rules may be amended and updated so as to make it mandatory for FIIs to retain a stipulated percentage of the inflows with the bank and the bank in turn would be required to transfer these balances to the RBI. The impounded balance would be released to FIIs after a stipulated period. However the measures of such a nature should be exceptional, to be used only in extreme situations wherein the liquidity arising out of extremely large and volatile FII inflows reaches unmanageable proportions. Furthermore, such a measure, to be effective, should be used as a temporary measure only for a few months.

3. Now that the Indian stock markets have come to be dictated by FIIs, the medium-to-long term solution is to increase the strength of retail individual investors (RIIs). Various means like raising the minimum limit of public offer for entitlement of listing can be raised.
5.2 The Road Ahead:

Net on net, the fundamentals of the economy look very solid and more importantly sustainable. Money flows from FII's and local retail investors should continue to rise with India Inc.'s earnings maintaining a strong growth trajectory supported by the monetary policy of the country, controlled inflation, and a decent gross domestic product of at least 8-9%. With conscious effort to improve the infrastructure in the country, increasing the contribution of agriculture (basically to increase the supply side and thus reduced cost of procurement) and increasing role of retail investors; there is no stopping the Indian economy and especially the Indian stock market. And if this momentum continues (and there are no obvious reasons for the reversal in the trend, unless there are some global factors playing a spoil sport) according to the poll of 18 analysts, taken in the year 2014, predicts the Sensex will hit 30,000 by June and 32,980 by December 2015. The general euphoria, backed by healthy returns, optimistic conditions and conducive macroeconomic indicators should lead the Sensex to reach the one lac mark by within next five years.
5.3 Scope for further Research

Action has begun in the stock market and is quickly picking up pace to meet the unheard heights.

1. With the informational efficiencies in the market today, the historical data has already started to lose its significance. So, an ongoing research in this area needs to be carried to study various macro-economic factors determining stock market behavior.

2. In light of the recommendations of Tarapore committee-II and amendments, the effect of capital account convertibility on the Indian Economy Policy and Financial market needs to be carried.

3. This study has considered the time period from Jan’2004-Jan 2014 only. However, since then the exchange rate has started changing drastically. The rupee has started appreciating against the dollar and has touched Rs. 60 a dollar. In light of this development the effect of exchange rate movements on Sensex needs to be studied afresh.

4. A study can also be carried to study that how has Sensex been performing as considered against the global stock markets and what the global clued that the Sensex reacts to wildly.