ABSTRACT

Liberalization and globalization are the twin forces that have transformed the Indian economy over the last two decades. Changes were rapid, visible and touched all sectors of our economy. The changes in Indian Capital markets have facilitated easier access to funds by Indian industry. The growth of the economy depends upon multiple elements, such as, fundamental macroeconomic factors, investment climate, performance of industry sectors and global business environment. An understanding of factors that influence the movement of stock prices and the role of indices of a variety of sectors affecting economic growth is essential for both investors as well as policy makers.

This study examines the response of different industry sectors to liberalization and also relevant macroeconomic variables that influence the Indian stock market. The study has been conducted in three interlinked phases. The objective of the 1st phase is to identify robust VAR and VECM, which explain the influence of 10 relevant macroeconomic variables on Sensex returns. They identify their long-run, short-run and causality relationships post-liberalization. They also determine the precise contribution of each variable and the interlinkages among them. The 2nd phase identifies different VAR models for determining the influence and relationships of inflows and outflows of FIIs, exchange rate and S&P 500, while the 3rd phase determines short-run and long-run, and causality relationships between BSE’s 11 major sectoral indices and Sensex returns. The different identified VAR models explain the unique behavior of the sectoral indices during different four sub-periods. They identify predominant driving sector indices for all sub-periods, which integrate and explain the variations of other sector indices. The study’s key objective is to derive relevant policy implications from the extensive quantitative and econometric analysis. The study may help to understand how during the post liberalization period, macroeconomic indicators act and sector specific interlinkages gain importance. Similar studies for emerging economies may be conducted using this framework.

Comprehensive literature review has been conducted independently for the three phases. The literature review indicates that there are divergent views among researches about the relationships between stock prices and macroeconomic variables.
Several studies have been conducted on the relationships between macroeconomic variables and stock returns for developed economies, but hardly any comprehensive study for Indian stock returns. This suggests a need for a study in which macroeconomic variables are selected on the basis of their current economic relevance. No study has been conducted up till now about the interlinkages of the sector indices and their responsiveness for the post-liberalization period for the Indian stock market using VAR models.

This study employs robust VAR methodology for multivariate framework developed by Sims (1980), who shared the Nobel Prize in 2011 along with Sergant, for his seminal contribution of developing VAR models as an empirical tool for linking macroeconomic study with policy analysis. The study uses extensive quantitative and econometric analysis. The Johansen and Juselius (1990) method of determining cointegration to identify suitable VECM has been employed. The VECM model has been improved and it segregates endogenous and exogenous variables to understand the precise relationships among the macroeconomic variables. The study also uses Granger Causality between the variables, employs GIRF and VDC analysis for better understanding the interlinkages and relative importance of identified variables.

In the 1st phase, VECM shows that the identified 10 macroeconomic variables influence Sensex returns and have short-run, long-run and causality relationships. Sensex is not the leading indicator; the three cointegrating vectors jointly bring back the system to the long-run equilibrium. The binding restrictions on the VECM segregates weakly exogenous variables, namely, growth in money supply, exchange rate, imports, exports, foreign exchange reserves and gold price. Out of these, exchange rate, money supply and gold price are significant initial receivers of external shocks and are key exogenous variables influencing Sensex returns. Increase in IIP was expected to be positively related to stock price but the relationship was found to be negative. This may be because IIP (base year 1993-94) had outdated weights and dormant companies. The hypothesized pair-wise positive relationships between Sensex returns and exchange rate, imports, foreign exchange reserves and gold price were found to be true. The findings also confirm the hypothesized negative relationship between Sensex returns with money supply and WPI. The VDC and
GIRF analysis indicates that global and US markets contemporaneously influence the Indian stock market. Indian exporters can take advantage of the depreciating Rupee by finding new export markets, and import modern CG for manufacturing global quality products to increase exports. The Indian Capital market is sensitive to the exchange rate, money supply and IIP. To strengthen the Indian stock market, investment climate needs improvement by ensuring policies conducive for investments, curbing inflation and maintaining stable exchange rate. Further, speeding-up reforms is essential for growth and value creation.

By employing a variety of VAR models for a sub-period in the second phase, it was observed that FII inflows depend upon their past values rather than on Sensex returns. The S&P 500 has no role in the growth of FII inflows and out-flows. The FIIs outflows largely depend on itself, on the stability of exchange rate, reliability of tax policies, and attractiveness of the Indian market.

In the 3rd phase, no long-run relationships between the sector indices were observed for the first three sub-periods. This provides long-term opportunities for portfolio diversification. However, during the post-sub prime crisis, long-term relationships between sector indices were found indicating minimal benefits from diversifying investments in different sectors. Existence of two cointegrating vectors implies that the different sectors are influenced by the economic fundamentals in the long run. All four sub-periods indicate limited short-run relationships between sector indices.

The study provides interesting insights having significant policy implications. Banking index influences other indices in all sub-periods. Other major drivers are Metals (1st), Power and Realty (2nd), Metals and CG (3rd), and Metals & Realty (4th sub-period). FMCG Index is the least integrated in 1st and 2nd sub-periods giving the best opportunity for diversification of investments. Metal and Realty sectors being highly volatile transmit fluctuations to other sectors. Thus, a robust Banking policy and relevant reforms in Metals, Power, Reality and CG sectors can play important roles for growth and for controlling unexpected declines in other major sectors. The findings validate the growing importance of sector indices, where policy interventions will help in suitable investment strategies for different economic conditions.