CHAPTER-5

Summary of Findings, Limitations and Scope of Further

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5.1 Summary of Findings:

There are endless debates on globalization, free economy and integration of markets. Followers of McKinnon(1973) and Shaw(1973) forcefully argue and advocate that this is the only game in the town (see, Obstfeld 1994, Mohan 2005,Trichet 2005, Lane et al., 2003). Again, scholars like Agenor (2001) , warned the world about the evils of financial integration. Despite the debate on boons and evils of integration, now almost all economies are following the ‘free economic policies' and obviously India cannot live in isolation and started to pursue the ‘free economic policies' from 1992 and attempts to reap the benefits of globalization . The central Bank of India, accordingly, sets the objectives of reform of the financial sector . Reddy (1999,2005) , former governor of the Reserve Bank of India, argued and prescribed that more and more policy reforms are necessary to converge the domestic markets. Integration of domestic markets not only help to reap the benefits of liberalisation across the domestic and international financial sectors but also help to increase the efficiency, integrity and competitiveness of all the sectors —be it real or financial and the outcome of which ultimately be translated to the overall development of the economy.

After searching the literature on financial integration it is observed that the issue of domestic integration has escaped adequate attention of the scholars. Majority of the studies investigated the stock, foreign exchange and money market as secondary or auxiliary issue and a few have investigated the domestic financial markets as the only or primary issue. Moreover, studies in the context of India are rare. Majority of them used monthly data to assess the activities and status of the very liquid market segments. The use of a variety of methodologies, incomplete searching, absence of report on the presence of the variables in the co-integration space, lack of attestation of the Granger causality results by Innovation

Accounting, no proper reporting of the unit root or stationarity test results, etc., and the fractured findings suggest that there is the scope for further research to unveil the intricate relationship amongst the Indian money, exchange and stock market. The primary objective of this study is to investigate whether Indian domestic financial markets are integrated and would remain integrated in future or not. In pursuing the objectives the thesis hypothesised that (i) Indian domestic markets namely, stock, money and foreign exchange market, are not integrated, (ii) past values of none of the Indian domestic markets under the study influence the future values of other markets, and (iii) all the sample domestic markets would remain rigid over the future period of time. Considering a time period of approximately 11 years ranging from 1st January, 2008 to 31st December, 2018, the daily data are collected and used in this study. Government of India has implemented several reform measures to converge the domestic markets across segments . In assessing the integration of domestic market segments, this study considered the major three financial markets –the stock, foreign exchange and money market. In empirical literature it is found that mostly these markets are conventionally and widely scrutinized by the scholars.

This analysis has transformed all the time series process under the study taking natural logarithm and estimated the entire tests with log-level data. The stationarity tests suggest that all the variables representing the markets are significantly integrated to order one. With the I(1) time series process this analysis assessed the relationship of the markets based on the methodology suggested by Johansen, (1991,1995) and Johansen, and Juselius, (1990). Results of the test significantly suggest the presence of cointegrating relation and the deterministic term- a linear trend at level, and intercept with no trend is present in the cointegrating space of the variables which is very common and expected in the studies in finance and economics. Results of the test reveal the presence of significant long-term stable relationship amongst the markets and all the markets are found to be significantly present in

the core of the co - integration space. There is no serial or autocorrelation in the residuals of the cointegrating equation at and up to the optimum lag order of ten. On the basis of the results of all the tests to study the stability of the system, it is found that the results are pointing to the stability of the system. The coefficients of error correction terms are statistically significant and according to the absolute figures, the speed of adjustment of the money market is relatively higher followed by stock and foreign exchange market. Levels of cointegrating relation of the Indian domestic financial markets found in this study do not disappoint the policy planners as it is marked by ups and downs around the critical levels of 95 percent. All these findings reject the first null hypothesis and suggest strong long-term link between the markets.

Results of the Granger causality test (Engel and Granger,1987), in VECM framework, points to the fact that there is bi-directional causality in between the stock and foreign exchange and unidirectional from foreign exchange market to call money market . The pair wise Granger causality run in both direction between the markets. In other words, the past values of all the markets grossly influence the future values of all the markets and reject the second null hypothesis of the study.

The forecast error variance of stock market is found explained by itself almost completely (variation ranges from 100 to 95.7 percent) leaving a marginal scope to the other markets to explain the stock market. Similar results are found in the call money market. It is found to be very marginally explained by the stock market. Only the Foreign exchange market is found to be flexible enough as it can explain itself to the extent of 90 to 75.7 percent and the rest is almost explained by the stock market, (23.54 percent) with an increasing note and call market by one percent. The findings of the forecast error variance decomposition analysis indicate that the foreign exchange market followed by stock market would remain flexible over the

future period of 50 days and more steps are needed to make the money market more vibrant and flexible.

It is found that, response of stock market due to the shock from (i) itself, shows a decreasing trend up to seven days and after 12th day decreasing continuously, (ii) foreign exchange market, the stock market responses with a decreasing trend up to 8 days then increasing and crosses that zero line on 30th day then very slowly increasing but stays around zero line, and (iii) the call money market, the stock market shows initial increasing response up to 10 days then decreasing and nearing to zero at the 50th day. Response of foreign exchange market due to shock from (i) stock market, shows decreasing tendency up to eight days then increasing to reach almost zero, (ii) foreign exchange market, shows decreasing trend up to three days then slightly increases and again tends to zero after 9th day and (iii) call money market, shows decreasing tendency up to sixth day then with some ups and downs it is almost zero at the future horizon of study. Response of call money market due to the shock from (i) stock market, shows initial decreasing tendency, and with some ups and downs it remains around the zero, (ii) foreign exchange market, shows almost flat and nearing to zero, and (iii) call money market, shows sharp fall but positive up to 5th day then remains positive and flat (0.024) up to the 50th day.

In sum, the results of the impulse response analysis show that the markets transmit shock to other markets and responses to the shocks nearing to zero at or up to 50th day of our study indicating all the markets under the study are efficient in transmitting and absorbing the impulses of each other and would remain integrated, at least, up to the future horizon of the study. The results of both the tests reject the third hypothesis and the Indian domestic markets under the study will remain flexible in the near future.

be taken to monitor and manage the foreign capital - both foreign direct investments and foreign institutional investments.

4. Some more reform measures like total capital account convertibility in real sense, more effective use of a single rate to represent the base rate of the economy, are required.

5. According to the observations of this study, stock and money markets are a bit less flexible to react to news of the markets and the economy. Hence, more reform measures and more monitoring are warranted.

In sum, the findings of the study indicate that the overall policy measures are in the right direction, needing only some fine adjustments to tune up more to integrate the Indian domestic financial markets like capital, money, and foreign exchange market which are examined in this study.

5.3. Limitations and Scope of Further Studies:

The results derived and observations made by the study should be accepted with caution due to the inevitable bias and technical limitations of statistical and econometric tools used. Refinements in the observations of empirical studies largely depend on the advancement of statistics and econometrics. This study has not used the modified information criteria in the selection of the optimum lag order of the VAR process. The cases of fractional integration (Wong, et al,2005), if any, are also not considered when testing the order of integration of the time series process and cointegration under the study. There is enough scope to use alternative tools and techniques to improve the outcome of these type of studies and the matter is left to scholars to study in future.

In investigating the link and long run stable relationship, the thesis assumed linear cointegrating relationship. Theoretically, the relation among the markets may well take the

nonlinear form. This possibility is not investigated by this study and can be taken up for further research. The outcome of the study assuming nonlinear form may strongly support integration among the domestic markets or may reject it.

One of the primary objectives of our study is to investigate whether there is any cointegration among the domestic markets or not, but investigation of the probable reasons for cointegration or no integration is beyond the purview of this study, hence, it is left for future studies.

This thesis has not considered yields on Treasury bills instead of call rates to represent the money market. Yield on Treasury bills, especially 91-day Treasury bills, is widely used in the studies of finance and economics. In fact, some scholars have used it but given less attention on the issue. Yield on treasury bill can be used to represent money market in investigating the integration among the domestic markets.

‘Narrow base' but highly traded segment of the Bombay Stock Exchange that is S&P BSE SENSEX 30 is used in the study. This study welcome future studies considering broad base index from the Bombay Stock Exchange or the National Stock Exchange. Similar is the case with foreign exchange market. Real rates in place of nominal rates, basket of currencies or more currencies in place of single currency rates (that is, rupee dollar), forward rate instead of spot rate can be used to study the relationship in future.

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